GLOSSARY OF TERMS IN THE SPHERE PROJECT ENVIRONMENT
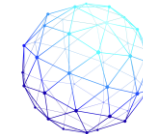
1	1D	First Dimension in BIM (Concept Design)
		We start from an idea -a house for example- and define the initial conditions, the location; we make some first estimates -surface, volume and costs-; we establish the execution plan, etc
2	2D	Second Dimension in BIM (Basic Project: plane – vector)
		Production of 2D Drawings, Views and Plans. We propose the materials, defining the structural and energy loads; and we establish the bases for the sustainability of the project. Budget estimation
3	3D	Third Dimension in BIM (volume – shape)
		The 3D dimension deals with digital modelling and to this dimension we add the 3D+ that brings collision identification, reality capture, BIM products, etc. Renders, Travelling, etc. Detailed Bill of Quantities
4	3P	3P (Public Private Partnership)
		See PPP (Public Private Partnership)
5	4D	Fourth Dimension in BIM (Time, Scheduling, Planning)
		The 4D fourth dimension is about time, temporal planning precisely linked to each of the modelled elements
5	5D	Fifth Dimension in BIM (Cost, Budget)
		The 5D fifth dimension deals with the project economy or how each BIM element is synchronized with its price, its origin, its installation, the costs of its maintenance…
6	6D	Sixth Dimension in BIM (Sustainability, Performance)
		The 6D sixth dimension is one of the battles of our century: the sustainability of our projects and construction focused on its environmental vertex (its CO_2 accounting)
7	7D	Seventh Dimension in BIM (Facility Management, Life Cycle)
		The 7D seventh dimension is dedicated to operation and maintenance of built facilities and manufactured assets throughout the building's life cycle
8	8D	Eighth Dimension in BIM (Safety & Security)

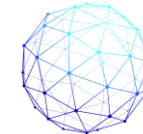|		The 8D eighth dimension, which is the first priority in Nordic countries, is that addressed to the concept of Zero Accident, so safety and health during the project, work and maintenance phase
9	**9D**	Ninth Dimension in BIM (Lean Construction) The 9D ninth dimension is about introducing Lean Management Philosophy into Building Sector, call it Lean Construction
10	**AAT**	Art & Architecture Thesaurus AAT is a controlled vocabulary used for describing items of art, architecture, and material culture. The AAT contains generic terms, such as "cathedral," but no proper names, such as "Cathedral of Notre Dame." The AAT is used by, among others, museums, art libraries, archives, cataloguers, and researchers in art and art history. The AAT is a thesaurus in compliance with ISO and NISO standards
11	**AC**	Activities Table (CPIC Uniclass 2) Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
12	**AC**	Alternating Current AC is an electric current which periodically reverses direction and changes its magnitude continuously with time in contrast to direct current (DC) which flows only in one direction. Alternating current is the form in which electric power is delivered to businesses and residences, and it is the form of electrical energy that consumers typically use when they plug kitchen appliances, televisions, fans and electric lamps into a wall socket. A common source of DC power is a battery cell in a flashlight.
13	**ACE**	Architects Council of Europe The ACE (French: Conseil des Architectes d'Europe) is a professional organisation of architects from Europe that aims to help advance architecture and maintain its quality. It was founded in 11 May 1990 in Treviso, Italy by the merger of two organisations: the Liaison Committee of the Architects of the United Europe and the Council of European Architects.
14	**ACFM**	Associació Catalana de Facility Management The ACFM is born in 2015 with the strong desire to bring together all those professionals, companies or other entities that, within their actions, offer, promote or develop any of the activities related to the Facility Management in Catalonia, in order to Become a reference center with national and international recognition.
15	**ACT**	American Council for Technology

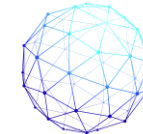|		
		Established in 1979 as the Federation of Government Information Processing Councils (FGIPC), the ACT mission is to assist government in using information technology to improve government operations and serve the public. In 1989 ACT established the Industry Advisory Council (IAC) to bring the private sector IT industry into this unique collaborative forum.
16	**AD4**	Asset Data Dictionary Definition Document (Crossrail Limited) Asset Data Dictionary Definition Documents (AD4) define: • Functions and the Classes that relate to them • Classes and the Attributes relevant to them • What an Attribute means e.g. Length
17	**ADM**	Activity Definition Model The ADM is a technique in the look-ahead phase of the Last Planner System to decompose the design activities to be performed according to their schedule. This technique, the Activity Definition Model, is to be incorporated into the look-ahead process, a component of the Last Planner System dedicated to work flow control. This term is used in the context of LPS and Lean Construction.
18	**ADMM**	Asset Data Management Manual (Highways Agency) The ADMM sets out Highways England's asset data requirements to achieve both its corporate objectives as well as its asset management objectives. It brings clarity and consistency to reflect our asset data needs and is revised every six months to accommodate changes and expansion to the business needs.
19	**ADPE**	Abiotic Depletion Potential for non fossil resources ADPE (fossil fuel) - Abiotic Depletion Potential fossil fuel refers to the depletion of the non-fossil fuel resources.
20	**ADPF**	Abiotic depletion potential for fossil resources ADPF (fossil fuel) - Abiotic Depletion Potential fossil fuel refers to the depletion of the fossil fuel resources.
21	**ADQ**	Actual Digital Questions (from BIM Acronyms Dictionary)
22	**AEC**	Architecture, Engineering and Construction AEC is the sector of the construction industry that provides the services on the architectural design, engineering design and construction services. It is a sector which is very active in the adoption of Information, Communication and Technology. Also referred to the AEC (UK) CAD & BIM Standards Site. A unified standard for the Architectural, Engineering and Construction industry in UK.

23	**AECO**	Architecture, Engineering, Construction and Owner (or Owner-operated, or Operation)
		An extension of the AEC acronym which includes professionals and enterprises related to the operations and maintenance of buildings and infrastructures
24	**AECOO**	Architecture, Engineering, Construction and Owner Operated
		An extension of the AEC acronym which includes professionals and enterprises related to the operations and maintenance of buildings and infrastructures
25	**AES**	Advanced Encryption Standard
		The Advanced Encryption Standard (AES), also known by its original name Rijndael, is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST) in 2001. AES is a subset of the Rijndael block cipher developed by two Belgian cryptographers, Vincent Rijmen and Joan Daemen, who submitted a proposal to NIST during the AES selection process. Rijndael is a family of ciphers with different key and block sizes. AES has been adopted by the U.S. government.
26	**AEV**	Alternative Equivalent Value
27	**AFK**	Away From the Keyboard
		Used when you stop taking part in a discussion in a chat room for a short time. From its use in streaming chat, especially as a notification to others in online gaming chat, to indicate a participant is absent, has temporarily stopped monitoring chat, or has stopped participating until further notice.
28	**AGC**	Associated General Contractors (USA)
		AGC of America is the leading association for the construction industry. With over 26.000 member firms, AGC provides a full range of services satisfying the needs and concerns of its members, thereby improving the quality of construction and protecting the public interest, including over 6.500 of America's leading general contractors, and over 9.000 specialty-contracting firms. More than 10.500 service providers and suppliers are also associated with AGC.
29	**AHRI**	Air Conditioning, Heating, and Refrigeration Institute
		The AHRI, formed in 2008 in the U.S. by a merger of the Air-Conditioning and Refrigeration Institute (ARI) and the Gas Appliance Manufacturers Association (GAMA), is a North American trade association of manufacturers of air conditioning, heating, and commercial refrigeration equipment. The organization performs political advocacy on behalf of its member industries, maintains technical standards, certifies products, shares data, conducts research, and awards scholarships.

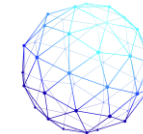| 30	AHU	Air Handling Unit An air handling unit or air handler is a device used to regulate and circulate air as part of a heating, ventilating, and air-conditioning (HVAC) system. An air handler is usually a large metal box containing a blower, heating or cooling elements, filter racks or chambers, sound attenuators, and dampers.
31	AI	Artificial Intelligence AI is intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animals. Leading AI textbooks define the field as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals. Colloquially, the term "artificial intelligence" is often used to describe machines (or computers) that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving".
32	AIA	American Institute of Architects The AIA was founded in New York City in 1857 by a group of 13 architects, to "promote the scientific and practical perfection of its members" and "elevate the standing of the profession". Headquartered in Washington, D.C., the AIA offers education, government advocacy, community redevelopment, and public outreach to support the architecture profession and improve its public image. The AIA also works with other members of the design and construction team to help coordinate the building industry.
33	AIM	Adoption Impact Map Action research and case studies of five large UK government facility agencies, a BIM Adoption Impact Map (BIM AIM) is proposed. It describes a set of possible relationships between the actions taken by public facility agencies, the intermediate outcomes of their actions and the eventual achievement of value for the occupants of the facilities they build. BIM AIM can be used by public facility agencies with a wide variety of construction project types to analyse and visualize the strengths, weaknesses and opportunities in their BIM adoption efforts.
34	AIM	Asset Information Model/Modelling AIM is a sub-type of Information Models supporting the maintenance, management and operation of an asset throughout all its lifecycle. An AIM is used as a repository for all information about the asset; as a means to access/link to enterprise systems (e.g. CMMS and BMS); and also as a means to receive and centralize information from other parties throughout project stages.
35	AIMS	Asset Information Management System (Crossrail Limited) Asset Information encapsulates all information and data that supports the life of assets plus all enablers including asset inventory, classification of assets, attributes of these assets, location and spatial information of assets, relationships between assets, design models (including schematics, 2D, 3D and 4D CAD models and related data), documents, drawings and records of assets and systems including test certificates

		and photographs etc.
36	**AIO**	All-in-On/One An all-in-one PC (AIO PC) is a computer that has every component within the same case as the monitor, except for peripheral components like the keyboard and mouse. With the advent of LCD monitors, AIO PCs have become much smaller, slimmer and cheaper. Apart from being aesthetically appealing, compact and easy to set up compared to a desktop computer, an AIO PC has reduced power and heat consumption.
37	**AIR**	Asset Information Requirements Asset Information Requirements are the detailed pieces of data and information about the asset that when placed in context can answer the questions raised in the OIR. The key to asset information requirements is to define the metadata required to design, build, operate and maintain an asset throughout its lifecycle
38	**AISBL**	Association Internationale Sans But Lucratif The international non-profit association is a group of natural or legal persons which pursues a selfless aim of international utility. This legal form, although similar in various respects, cannot be confused with the association (non-profit association). Indeed, the AISBL has its own characteristics: • The international character of the association is determined by the selfless purpose of international utility The registered office must be located in Belgium
39	**ALE**	Asset Life Expectancy Asset Life Expectancy is the length of time until the asset must be retired, replaced, or removed from service. Designers use estimates of Asset Life Expectancy in their lifecycle cost analysis to make design decisions, but those estimates depend on assumptions about maintenance practices, material quality, service conditions, and characteristics of the asset's use. If actual service conditions and maintenance activities subsequently differ from the designer's assumptions , the asset's life is likely to be different from initial estimates.
40	**ALM**	Asset Lifecycle Management ALM is the process of optimizing the profit generated by your assets throughout their lifecycle. ALM delivers an enterprise approach to managing assets with a single view of all asset information across the company organisation. ALM solutions help drive greater value from the assets of the company, whether they are plants, facilities, or equipment.
41	**ALM**	Application Lifecycle Management ALM is the specification, design, development and testing of a software application. ALM covers the entire lifecycle from the idea conception,

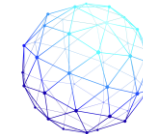|		through to the development, testing, deployment, support and ultimately retirement of systems.
42	**AM**	Asset Management
		AM refers to systematic approach to the governance and realization of value from the buildings of an entity is responsible for, over their whole life cycles. Asset Management is a systematic process of developing, operating, maintaining, upgrading, and disposing of assets in the most cost-effective manner (including all costs, risks and performance attributes). The term is commonly used in the financial sector to describe people and companies who manage investments on behalf of others. ISO55000 is the International Standard for Asset Management.
43	**AMF**	Asset Management Framework
		An AMF is a set of documents, systems and processes that addresses an organisation's asset management responsibilities. In its simplest form an AMF may just be the sum of the following documents. Asset Management Policy. Asset Management Strategy. Asset Management Plan. The AMF recognises the whole lifecycle of assets from strategic planning through to ongoing facilities management and property divestment.
44	**AMO**	Asset Management Office (Highways Agency)
		Asset Management Office efficiently oversees and documents the beginning and ending of items, supplies, and materials acquired by the Owner. This starts from receiving to safekeeping, disposing, and transferring/donation. In terms of materials acquired, AMO sees also how long it takes for a supplier to process an order up to the complete delivery of a product to the end-user.
45	**AMP**	Agreed Maximum Price
		The Agreed Maximum Price (AMP) is the price for the Project payable by the Client to the Constructor, to be finalised and agreed during the preconstruction phase after signature of the PPC2000 Project Partnering Agreement and prior to signature of the PPC2000 Commencement Agreement
46	**AMQP**	Advanced Message Queuing Protocol
		AMQP is an open standard application layer protocol for message-oriented middleware. The defining features of AMQP are message orientation, queuing, routing (including point-to-point and publish-and-subscribe), reliability and security. AMQP mandates the behaviour of the messaging provider and client to the extent that implementations from different vendors are interoperable, in the same way as SMTP, HTTP, FTP, etc. have created interoperable systems.
47	**AMR**	Automatic Meter Reading
		AMR is the technology of automatically collecting consumption, diagnostic, and status data from water meter or energy metering devices (gas, electric) and transferring that data to a central database for billing, troubleshooting, and analysing. AMR technologies include handheld, mobile and network technologies based on telephony platforms (wired and wireless), radio frequency (RF), or powerline transmission.

48	ANN	**Artificial Neural Network**
		An Artificial Neural network (ANN) is the component of artificial intelligence that is meant to simulate the functioning of a human brain. Processing units make up ANNs, which in turn consist of inputs and outputs. The inputs are what the ANN learns from to produce the desired output.
49	ANSI	**American National Standards Institute**
		The American National Standards Institute (ANSI) is a private, not-for-profit organization dedicated to supporting the U.S. voluntary standards and conformity assessment system and strengthening its impact, both domestically and internationally.
50	AOB	**Any Other Business**
		The last item on the agenda for a meeting, when any matter not already dealt with may be raised
51	AP	**Acidification Potential**
		Acidification Potential (AP) is a consequence of acids being emitted to the atmosphere and subsequently deposited in surface soils and waters. Aquatic Toxicity Potential is calculated based on the maximum tolerable concentrations of different toxic substances in water by aquatic organisms.
52	APCE	**Associació de Promotors i Constructors d'Edificis de Catalunya**
		APCE is the most representative institution in the housing promotion sector in Catalonia and is an essential reference for Catalan business people. The Association of Promoters of Barcelona was born in 1968. Currently it has more than 500 associated real estate groups that represent more than 1.000 companies.
53	API	**Application Programming Interface**
		API is a set of functions, procedures, methods or classes used by computer programs to request services from the operating system, software libraries or any other service providers running on the computer. A computer programmer uses the API to make application programs.
		An API may be for a web-based system, operating system, database system, computer hardware, or software library.
54	APM	**Association for Project Management**
		Association for Project Management (APM) is the chartered body for the project profession. We have over 30,000 individual members and more than 500 organisations participating in our Corporate Partnership Programme, making APM the largest professional body for project management in Europe

55	APPs	Applications
		APPs are software designed to perform a group of coordinated functions, tasks, or activities for the benefit of the end user. Applications software (also called end-user programs) include such things as database programs, word processors, Web browsers and spreadsheets. Time ago, nearly all applications were installed directly on the users' PCs and/or servers. Today, many applications are delivered as *Web applications.*
56	AQL	Acceptable Quality Level
		The acceptable quality level (AQL) is a measure applied to products and defined in ISO 2859-1 as the "quality level that is the worst tolerable." The AQL tells you how many defective components are considered acceptable during random sampling quality inspections. It is usually expressed as a percentage or ratio of the number of defects compared to the total quantity.
57	AR	Augmented Reality
		Augmented Reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory. AR can be defined as a system that incorporates three basic features: a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects.
58	ARI	Air-Conditioning and Refrigeration Institute
		The Air-Conditioning and Refrigeration Institute (ARI) was officially organized in 1953 in the U.S., primarily to give this new industry a united voice. In 2007, the organization added the letter "H" to their name. See AHRI
59	ARL	Asset Remaining Life
		ARL, similar concept than Remaining Useful Life (RUL) of an asset is the estimated length of time remaining before it will need to be replaced. Determining an accurate Asset Remaining Life for an asset is an important step in determining when the asset should be renewed.
60	AS	Appraisal of Service
		AS is a kind of Service that estimates the market value of a product, most notably real estate.
61	ASBL	Association Sans But Lucratif
		An ASBL is a legal form of non-profit association in Belgium, Luxembourg and the Democratic Republic of Congo. An ASBL is a group of natural or legal persons who pursue a disinterested goal. The ASBL consists of at least two persons. The association has its own legal personality, independent of that of its members.

62	**ASCII**	American Standard Code for Information Interchange
		ASCII is a character encoding standard for electronic communication. ASCII codes represent text in computers, telecommunications equipment, and other devices. Most modern character-encoding schemes are based on ASCII, although they support many additional characters. ASCII includes definitions for 128 characters: 33 are non-printing control characters that affect how text and space are processed and 95 printable characters, including the space.
63	**ASC**	ASCORA
		What began as a hobby and a passion is today one of the most successful software companies in Germany, with over 40 employees . Our Abelssoft brand programs help over 18 million users worldwide with their daily PC work. Our mission is to develop programs that amateurs and professionals alike can use intuitively! For many tasks that usually be completed with complex software, we offer the simple, one-click solutions. Partner of SPHERE Project.
64	**ASHRAE**	American Society of Heating Refrigerating and Air-Conditioning Engineers
		ASHRAE was founded in 1894 at a meeting of engineers in New York City. It is an American professional association seeking to advance heating, ventilation, air conditioning and refrigeration (HVAC&R) systems design and construction. ASHRAE has more than 57.000 members in more than 132 countries worldwide. The society funds research projects, offers continuing education programs, and develops and publishes technical standards to improve building services engineering, energy efficiency, indoor air quality, and sustainable development.
65	**ASME**	American Society of Mechanical Engineers
		ASME is a not-for-profit membership organization that enables collaboration, knowledge sharing, career enrichment, and skills development across all engineering disciplines, toward a goal of helping the global engineering community develop solutions to benefit lives and livelihoods. Founded in 1880 by a small group of leading industrialists, ASME has grown through the decades to include more than 100,000 members in 140+ countries. Thirty-two thousands of these members are students.
66	**ASP**	Application Service Provider
		An application service provider (ASP) is a company that offers individuals or enterprises access to applications and related services over the internet. The term has largely been replaced by software as a service (SaaS) provider, although in some parts of the world, companies use the two labels interchangeably
67	**ASSOHQE**	Association HQE
		Created in 1996, the HQE Association brings together the players in the building industry with the aim of developing the environmental quality of buildings in a concerted manner. The Association is a place for exchange, consultation, information, training and action. It networks the

		skills and experience of its members to serve individual and collective projects. By decree of 5 January 2004, the HQE Association is recognised as being of public utility: Official Journal of 10 January 2004.
68	**ATTR**	Average Time to Repair (see MTTR) Time to resolution (also called mean time to resolution (MTTR) and resolution time) is the average amount of time that it takes a customer service team to resolve a case after it has been opened. It's usually measured in days or business hours, so it doesn't factor in time when your team is off the clock
69	**Avanti**	(UK Government sponsored to assist collaboration) Avanti Communications Group is a UK based satellite operator, selling wholesale satellite broadband and satellite connectivity services to Internet Service Providers, Mobile Network Operators, Enterprises, Governments and other satellite operators
70	**AVG**	Average AVG calculates the sum of a single value list and divides the result by the number of values in the list. This returns the average (arithmetic mean) of the listed values. AVG is often used to create subtotals and metrics based on fact data
71	**B&ES**	Building and Engineering Services Association (formerly, till 2012, known as HVCA). (See also BESA) Is the UK's leading trade organisation representing the interests of firms in all aspects of engineering systems and services in buildings
72	**BACS**	Building Automation and Control System The term BACS refers to centralised systems that monitor, control, and record the functions of building services systems. Building facilities that are monitored and controlled by a reliable BACS tend to maintain the building environment more efficiently and so reduce the building's environmental impact and energy costs.
73	**BAM**	BIM Acceptance Model With regards to BIM, Lee et al, (2013) employed the original TAM and incorporated external variables; technology quality, organizational competency, personal competency and behaviour control, in proposing what they referred to as BIM Acceptance Model (BAM). The validated BAM can serve as a foundation for positioning and comparing BIM acceptance research and provides users with a framework for evaluating BIM acceptance.
74	**BAS**	Building Automation System BAS is the automatic centralized control of a building's heating, ventilation and air conditioning, lighting and other systems through a Building Management System (BMS) or Building Automation System (BAS). Most commercial, institutional, and industrial buildings built after 2000

		include a BAS.
75	**BASF**	Badische Anilin - und SodaFabrik
		BASF is an acronym for Badische Anilin - und SodaFabrik (German for ''Baden Aniline and Soda Factory''). BASF was set up in 1865 to produce other chemicals necessary for dye production, notably soda and acids. The BASF Group comprises subsidiaries and joint ventures in more than 80 countries and operates six integrated production sites and 390 other production sites in Europe, Asia, Australia, the Americas and Africa. Its headquarters is located in Ludwigshafen, Germany. BASF has customers in over 190 countries.
76	**BBSR**	Federal Institute for Research on Building, Urban Affairs and Spatial Development
		The Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) within the Federal Office for Building and Regional Planning (BBR) is a departmental research institution under the portfolio of the Federal Ministry of the Interior, Building and Community (BMI). It advises the Federal Government with sectoral scientific consultation in the political fields of spatial planning, urban development, housing and building.
77	**BCF**	BIM Collaborative Format
		BCF is a structured file format suited to issue tracking with a building information model. BCF is designed primarily for defining views of a building model and associated information on collisions and errors connected with specific objects in the view. The BCF file format allows users of different BIM software, and/or different disciplines to collaborate on issues with the project.
78	**BCHS**	Barcode Housing System
		BCHS is a research project carried out in 2005-2009 by ARC Engineering and Architecture La Salle, Ramon Llull University (Barcelona). It is a computer-supported housing design and building system which adheres to the principles of open building in two ways: by distinguishing between support and infill systems, and by enabling the participation of different actors in the processes of designing, building and using the dwellings.
79	**bcXML**	Building and Construction eXtensible mark-up Language
		bcXML is a taxonomy of terms and language rules developed for enabling exchange of construction product, resource, work method, and regulation information for the e-business communication process. It was developed in 2002 within the eConstruct project. bcXML can represent names, definitions of objects (concepts), and relationships between them, properties, and measures of properties that are related to building construction projects.
80	**BDS**	Building Description System
		A BDS is a database capable of describing buildings at a detail allowing design and construction. It is able to represent custom-designed as

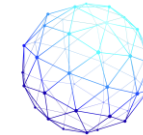|		well as system buildings. Attention is given to the features distinguishing general from special-purpose building description systems, especially data-structures, access schemes, and the method of interaction between the database and analysis programs.
81	**BDT**	Building Digital Twin
		A Building Digital Twin describing the AECOO asset during its design and construction, contains the informational sets necessary to describe and produce a physical version that duplicates or twins the virtual version of the building
82	**BDTA**	Building Digital Twin Aggregates
		The sum of all the DTIs of a building, whose data and information can be used for interrogation about the physical building, prognostics, and learning. Unlike the DTI, the DTA may not be an independent data structure, rather it has access to all DTIs and queries them either ad-hoc or proactively
83	**BDTAS(S)**	Building Digital Twin Association
		The BDTASS is an International non-profit association (AISBL) created in February 2020 in Belgium under the influence of the Project SPHERE, with the objectives to promote and disseminate the Digital Twin practices.
84	**BDTcM**	Building Digital Twin Configuration Manager (see also CM)
		Because the different data sources and formats, information storage and access require the interaction of several servers, and the Configuration Management evolves into an Orchestration process conducted by the figure of the Configuration Manager. It is required that the environment created under the DT concept be provided of a controller brain to synchronize the different functions, from the user queries to the internal data processes along time
85	**BDTE**	Building Digital Twin Environment
		With the creation of any DTE, two main purposes are sought: Predictive (intimately linked with simulation tools of DTPs and DTIs) and Interrogative (applying to DTIs as well as to DTAs in-depth analysis). As it happens to be in any DTE, these two basic drivers may include completely different requests depending on which is the role of the stakeholder interacting and the typology of the Digital Twin
86	**BDTI**	Building Digital Twin Instance
		BDTIs must integrate all the relevant information stored by the BDTP and will hence sequentially use past Information Models to structure this type of Digital Twin. By considering again AECOO projects develop under the ISO 19650-1:2018, a new asset entering in its operation and maintenance phase may include store the evolution of the AIM starting on from the previous As Built Model of Information
87	**BDTIC**	Building Digital Twin International Congress

		Adopting a three-dimensional digital model as the basis for data compilation and communication, this first edition of Building Digital Twin International Congress-BDTIC will take place on May 27th, 2021 as a benchmark in terms of the application of digital twin technologies for construction, industrialization, sustainability, and asset management.
88	**BDTM**	Building Digital Twin Manager The BDTM will be responsible of develop and adapt the correct procedures to create and manage the DT of the asset along its lifecycle. The Digital Twin Manager of the Building assures that the model and the external database works correctly, and all the users have access to the DT platform. All changes (Ex: new users, substitution of a equipment, etc.) suffered by the DT are controlled by the DT Manager. This new figure will be liable to certify, audit and record the evolution of any kind of Building Digital Twin across its lifespan,
89	**BDTP**	BIM Digital Twin Platform Paper presented at the Sustainable Places 2019 (SP 2019), Cagliari, Italy, 5–7 June 2019
90	**BDTP**	BIM Digital Twin Prototype It consists in a Building Digital Twin describing the AECOO asset during its design and construction. It contains the informational sets necessary to describe and produce a physical version that duplicates or twins the virtual version of the building
91	**BDTsM**	Building Digital Twin Simulation Manager DTsManager acts as the general coordinator for the definition of simulation-based services of any Digital Twin Environment of a building. He Identify simulation strategy according to the received project and the actors involved across the lifespan of the asset, from design and construction to operation phases
92	**BEI**	Baseline Emission Inventory Baseline Emission Inventory (BEI): Quantifies the amount of CO_2 emitted due to energy consumption in the territory of the Covenant signatory in the baseline year. The BEI and further inventory-making of CO_2 emission (if available) constitute the main tool allowing local authorities to determine priority measures and efficiency of the measures implemented by them, aimed at reduction of greenhouse gas emission. Development of the BEI constitutes an obligatory stage of SECAP preparation. The Inventory should be included into the full version of SECAP officially approved by local authorities.
93	**BEIF**	Built Environment Information Fabric An information fabric which extends to campus/city scale models will be required to solve emerging infrastructure network problems and facilitate integration of traditionally disparate domains. Example applications include support for contingency planning, mitigation, response, and recovery, and for the modelling of traffic flows and wider area sustainability modelling and planning. The fabric should use the building as

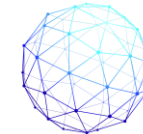|		
		the context but integrated into its surroundings. The concept of BEIF should be seen as a mid to long-term goal of IDDS.
94	**BEIS**	Business, Energy and Industrial Strategy The Department for Business, Energy and Industrial Strategy (BEIS) is a department of the government of the United Kingdom, which was created by Theresa May on 14 July 2016 following her appointment as Prime Minister, through a merger between the Department for Business, Innovation and Skills (BIS) and Department of Energy and Climate Change (DECC)
95	**BEM**	Building Energy Management A substantial amount of energy is used to meet household, commercial and industrial buildings requirements such as heating, cooling and lighting. Benchmarking your organisation's energy use forms the foundations of an energy management strategy. You cannot manage what you do not measure, which why creating reliable energy benchmarks is so important to manage properly the use of energy of the buildings.
96	**BEMS**	Building Energy Management System A BEMS is a method to monitor and control the building's energy needs. Next to energy management, the system can control and monitor a large variety of other aspects of the building regardless of whether it is residential or commercial. Examples of these functions are heating, ventilation and air conditioning (HVAC), lighting or security measures. BEMS technology can be applied in both residential and commercial buildings.
97	**BEP**	BIM Execution Plan BEP is an essential document, drafted with the aim of providing a reference framework to effectively conduct the building project and optimize the workflow. It consists of two distinct phases: • The pre-contract BIM Execution Plan (BEP Pre-contract) prepared by potential suppliers to expose a proposal for the building project • The post-contract BIM Execution Plan (BEP post-contract) to facilitate the management of the building project.
98	**BEP**	Building Energy Performance BEP is the calculated or measured amount of energy needed to meet the energy demand associated with a typical use of the building, which includes, inter alia, energy used for heating, cooling, ventilation, hot water and lighting. The BEP should be evaluated through some calculation to build necessary indicators and ratings. Directive 2002/91/EC and EN 15603 provide the criteria stating that this amount shall be reflected in one or more numeric indicators.
99	**BEP DT**	BIM Execution Plan Digital Twin BIM Execution Plan in the under Digital Twin

100	**BERR**	Business, Enterprise and Regulatory Reform
		The Department for Business, Enterprise and Regulatory Reform was a United Kingdom government department. The department was created on 28 June 2007 on the disbanding of the Department of Trade and Industry, and was itself disbanded on 6 June 2009 on the creation of the Department for Business, Innovation and Skills.
101	**BES**	Building Energy Simulation
		BES is a set of tools focused to predict, improve and meet a certain set of performance requirements related to the indoor climate of buildings and the associated energy demand
102	**BESA**	Building Engineering Services Association (See also B&ES)
		Is the UK's leading trade organisation representing the interests of firms in all aspects of engineering systems and services in buildings
103	**BFM**	Building Facility Manager
		The Building Facility Manager is responsible for keeping the building in good working order across their use phase, as well as for initiating renovation works that are required
104	**BI**	Business Insider
		Launched in 2007, Business Insider is a business news site concentrating on finance, industry, and tech news. Its headquarters is located in New York City, USA. Business Insider was founded by former Wall Street analyst Henry Blodget and DoubleClick's co-founder Dwight Merriman and CEO Kevin Ryan. It is published by Insider, Inc. Business Insider's board of directors includes Huffington Post co-founder Ken Lerer, and the president and chief operating officer are Julie Hansen. Henry Blodget is also CEO and editor-in-chief of Business Insider.
105	**BI**	Business Intelligence
		Business intelligence comprises the strategies and technologies used by enterprises for the data analysis of business information. BI technologies provide historical, current, and predictive views of business operations. The earliest known use of the term business intelligence is in Richard Millar Devens' Cyclopædia of Commercial and Business Anecdotes (1865). Devens used the term to describe how the banker Sir Henry Furnese gained profit by receiving and acting upon information about his environment, prior to his competitors.
106	**BIEM's**	Building Indoor Environment Models
107	**BIM**	Building Information Model
		Building Information Model is a digital representation of physical and functional characteristics of a facility forming a reliable basis for decisions during the life-cycle of the building. Traditional building design was two-dimensional drawings (plans, elevations, sections, etc). BIM

		extends this beyond 3D, augmenting the three primary spatial dimensions, with time (planning) as the fourth dimension (4D), cost as the fifth (5D), sustainability analysis as the sixth (6D), facility management through the whole life-cycle as the seventh (7D), health and safety as the eighth (8D), and Lean Construction as the ninth (9D). It is an Information Container consisting on a object-based representation of the functional and physical characteristics of an asset thought its entire life-cycle.
108	**BIM**	Building Information Modelling Building Information Modelling consists in the use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions.
109	**BIM**	Building Information Management Building Information Management (BIM) models are transforming how buildings are designed and constructed, and can facilitate multidisciplinary coordination, and integrate 3D design, analysis, cost estimating, and construction scheduling. By extending the model into the post-occupancy period, BIM models can be used to support Facilities Management and Building Operations, and offer a consolidated interface for information regarding all aspects of building operational performance.
110	**BIM(M)**	Building Information Modelling and Management Management on Building Information Modelling. Concept developed by several Centres of the University of Reading, in UK
111	**BIPV**	Building-integrated photovoltaics (BIPV) are photovoltaic materials that are used to replace conventional building materials in parts of the building envelope such as the roof, skylights, or facades. By simultaneously serving as building envelope material and power generator, BIPV systems can provide savings in materials and electricity costs, reduce use of fossil fuels and emission of ozone depleting gases, and add architectural interest to the building.
112	**BIS**	Business, Innovation and Skills (See BEIS) The Department for Business, Innovation and Skills (BIS) was a ministerial department of the United Kingdom Government created on 5 June 2009 by the merger of the Department for Innovation, Universities and Skills (DIUS) and the Department for Business, Enterprise and Regulatory Reform (BERR)
113	**BLE**	Bluetooth Low Energy (Bluetooth LE) BLE, formerly marketed as Bluetooth Smart is a wireless personal area network technology designed and marketed by the Bluetooth Special Interest Group aimed at novel applications in the healthcare, fitness, beacons, security, and home entertainment industries. The original specification was developed by Nokia in 2006. Compared to Classic Bluetooth, Bluetooth Low Energy is intended to provide considerably reduced power consumption and cost while maintaining a similar communication range.

114	**BLIS**	Building Lifecycle Interoperable Software
		BLIS is a project carried out in 1999-2002 with the aim to support the implementation of IFC specification in software products. The BLIS project was conceived as a way to initiate the next logical phase in the widespread adoption of an object data model standard for the AEC/FM industry. The participant members of this project were from Europe, Japan, Australia and USA.
115	**BLPU**	Basic Land and Property Unit
		Basic Land and Property Unit (BLPU) is defined in BS7666 part 2 as an area of land in uniform property rights or, in the absence of such ownership evidence or where required for administration purposes, inferred from physical features, occupation or use. Each BLPU has a Unique Property Reference Number (UPRN), a spatial reference and one or more Land and Property Identifiers
116	**BMI**	Body Mass Index
		BMI is a person's weight in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fatness. BMI can be used to screen for weight categories that may lead to health problems but it is not diagnostic of the body fatness or health of an individual.
117	**BMI**	Federal Ministry of the Interior, Building and Community
		The Federal Ministry of the Interior, Building and Community (German: Bundesministerium des Innern, für Bau und Heimat; Heimat also translates to "homeland"), abbreviated BMI, is a cabinet-level ministry of the Federal Republic of Germany. Its main office is in Berlin, with a secondary seat in Bonn.
118	**BMLVS**	Backup Main Low Voltage Switchboard
		See MLVS
119	**BMS**	Building Management System
		BMS, otherwise known as a Building Automation System (BAS), is a computer-based control system installed in buildings that controls and monitors the building's mechanical and electrical equipment such as ventilation, lighting, power systems, fire systems, and security systems. A BMS consists of software and hardware. Current generation BMS systems are now based on open communications protocols and are WEB enabled allowing integration of systems from multiple system vendors and access from anywhere in the world.
120	**BMS**	Battery Management System
		A BMS is any electronic system that manages a rechargeable battery (cell or battery pack), such as by protecting the battery from operating outside its safe operating area, monitoring its state, calculating secondary data, reporting that data, controlling its environment, authenticat-

		ing it and/or balancing it. A BMS can be composed of many functional blocks including cut-off FETs, fuel-gauge monitor, cell voltage monitor, cell voltage balance, real-time clock (RTC), temperature monitors, and state machine.
121	**BMVI**	Bundesministeriums für Verkehr und digitale Infrastruktur The BMVI is the Federal Ministry of Transport and Digital Infrastructure. BMVI is a supreme federal authority of the Federal Republic of Germany. It has its headquarters or first official seat in Berlin, its second - more staffed - official seat in the Federal City of Bonn. The ministry has about 1245 employees, of which about 693 are in Bonn, about 552 in Berlin and up to 15 abroad headed by the Federal Minister of Transport and Digital Infrastructure.
122	**BNB**	Bewertungssystem Nachhaltiges Bauen The Assessment System for Sustainable Building (Bewertungssystem Nachhaltiges Bauen für Bundesgebäude, BNB) of the Federal Ministry of the Interior, Building and Community in Germany, is an integral quantitative assessment method for office, administrative, teaching and laboratory buildings completing the guide to sustainable construction.
123	**BOM**	Bill of Materials A Bill of Materials (BOM) is a comprehensive list of parts, items, assemblies, and other materials required to create a product, as well as instructions required for gathering and using the required materials. The bill of materials can be understood as the recipe and shopping list for creating a final product.
124	**BOM**	Building Office Manager The BOM is primarily concerned with the human aspect of the working environment. While the BOM can take on some of the duties associated with facilities management, his role is largely a people-focused that handles the tasks that keep an office running from one day to the next; this includes timekeeping, staff training, etc. Since they are in charge of the day-to-day office setup, the BOM will sometimes also take on FM-related tasks like coordinating a small move or desk reshuffle, but large reconfigurations would fall into the hands of the facility manager.
125	**BOMA**	Building Owners and Managers Association The BOMA, founded in 1907, is a professional organization for commercial real estate professionals based in the United States and Canada. Its membership includes building owners, managers, developers, leasing professionals, corporate facility managers, asset managers, and the providers of the products and services needed to operate commercial properties and it publishes The BOMA magazine. BOMA's U.S. membership represents a combined total of nearly 10.4 billion square feet of office property that supports approximately 1.8 million jobs.
126	**BOM's**	Building Object Models

		These are typically generic objects based on standard on-site construction practices that are appropriate for early-stage design. As the design is developed, object definitions become more specific as architects and engineers elaborate them with expected or targeted performances, such as for energy, lighting, sound, cost, maintenance requirements, etc. So that, object definitions specify what the final constructed product or equipment should achieve.
127	**BOOT**	Build-own-operate-transfer (See also BOT) Build–operate–transfer (BOT) or build–own–operate–transfer (BOOT) is a form of project financing, wherein a private entity receives a concession from the private or public sector to finance, design, construct, own, and operate a facility stated in the concession contract
128	**BOQ**	Bill of Quantities A bill of quantities (BQ or BOQ) is a document used in tendering in the construction industry in which materials, parts, and labour (and their costs) are itemized. Preparing a bill of quantities requires that the design is complete and a specification has been prepared. The prime purpose of the Bill of Quantities (BQ) is to enable all contractors tendering for a contract to price on exactly the same information
129	**BOT**	Building Topology Ontology BOT is a minimal ontology for describing the core topological concepts of a building. It is like a minimal OWL. As there is often a need to describe some sensor, product, device in the context of the building in which it sits and as the building is itself also a feature of interest in the context of a smart city, there is a demand for a minimal, extendable ontology that describes anything in its context of a building.
130	**BOT**	Build-Operate Transfer (See also BOOT) Build–operate–transfer (BOT) or build–own–operate–transfer (BOOT) is a form of project financing, wherein a private entity receives a concession from the private or public sector to finance, design, construct, own, and operate a facility stated in the concession contract
131	**BPE**	Baseline Period Energy The Baseline Period Energy is a concept introduced by EVO in the October 2018 edition of the IPMVP's Generally Accepted M&V Principles.
132	**BPE**	Building Performance Evaluation Building Performance Evaluation (BPE) is the process of evaluating the performance of a building with Post Occupancy Evaluation (POE) being one of its major parts. It can be carried out in new, existing and refurbished domestic and non-domestic buildings. The activities of BPE integrate into BSRIA's Soft Landings process to help deliver effective and efficient buildings.
133	**BPEP**	BIM Project Execution Plan The BPEP is a procedural process that outlines the project's overall vision with implementation details for the project team to follow through-

		out the project. A BPEP will ensure that all parties are clearly aware of the responsibilities associated with the incorporation of BIM into the project workflow. A completed BPEP should define the appropriate uses for BIM on a project, along with a detailed design and documentation of the process for executing BIM throughout a facility's lifecycle of the building.
134	**BPI**	Building Performance Indicator
		This indicator enables the evaluation of the overall state of the building, according to the performance of its components and systems. The indicator is defined by a value between 0 and 100, which expresses the physical state of the building, including the performance of its various systems (Structure, Envelope, Electricity, Water and sewage, HVAC, Fire Protection, ICT, Elevators)
135	**BPIC**	Building Project Information Committee
		Is the original name of the CPIC. It was set up in 1987 in UK. Among its founding sponsors, there are included the Royal Institute of British Architects (RIBA) and the Royal Institute of Chartered Surveyors (RICS), and it has the goal to provide guidance on the preparation of project specifications and production drawings. It was felt that this was necessary as the quality of production information is extremely important, and unless it is prepared and co-ordinated properly, there will be disputes and delays on site, and costs will be incurred.
136	**BPL**	Broadband over Power Lines
		BPL is a method of power line communication (PLC) that allows relatively high-speed digital data transmission over the public electric power distribution wiring. BPL uses higher frequencies, a wider frequency range and different technologies from other forms of power-line communications to provide high-rate communication over longer distances. BPL uses frequencies which are part of the radio spectrum allocated to over-the-air communication services.
137	**BPMN**	Business Process Model and Notation
		BPMN is one of the most widely used to model business processes. Their goals are: • being acceptable and usable by the business community • being constrained to support only the concepts of modelling that are applicable to business processes • describing clearly a complex executable process.
138	**BPNN**	Back-Propagation Neural Network
		The Back-Propagation Neural Network (BPNN) was developed by Rumelhart et al. as a solution to the problem of training multi-layer perceptrons. The fundamental advances represented by the BPNN were the inclusion of a differentiable transfer function at each node of the network and the use of error back-propagation to modify the internal network weights after each training epoch.
139	**BQ**	Bill of Quantities (See also BOQ)

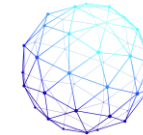|		A bill of quantities (BQ or BOQ) is a document used in tendering in the construction industry in which materials, parts, and labour (and their costs) are itemized. Preparing a bill of quantities requires that the design is complete and a specification has been prepared. The prime purpose of the Bill of Quantities (BQ) is to enable all contractors tendering for a contract to price on exactly the same information
140	**BQBS**	Bill of Quantities (or BQ) Breakdown Structure According to NRM2, RICS new rules of measurement, Detailed measurement for building work, there are three main breakdown structures for bill of quantities (BQBS), each with advantages and disadvantages. If preparation of the bill of quantities is digitised according to a standard codification, it may be possible to re-order it from one structure to another
141	**BRE**	Building Research Establishment The BRE is a centre of building science in the United Kingdom, owned by charitable organisation the BRE Trust. It is a former UK government national laboratory that was privatised in 1997. BRE provides research, advice, training, testing, certification and standards for both public and private sector organisations in the UK and abroad. It has its headquarters in Garston, Hertfordshire, England, with regional sites in Glasgow, Swansea, the US, India, the Middle East and China.
142	**BREEAM**	Building Research Establishment Environmental Assessment Method BREEAM first published by the Building Research Establishment (BRE) in 1990, is the world's longest established method of assessing, rating, and certifying the sustainability of buildings. More than 250.000 buildings have been BREEAM-certified in more than 50 countries worldwide. BREEAM also has a tool which focuses on neighbourhood development. BREEAM has expanded from its original focus on individual new buildings at the construction stage to encompass the whole life cycle of buildings from planning to in-use and refurbishment
143	**BRep**	Boundary Representation In solid modelling and computer-aided design, boundary representation (often abbreviated as B-rep or BREP) is a method for representing shapes using the limits. A solid is represented as a collection of connected surface elements, the boundary between solid and non-solid. Boundary representation is essentially a local representation connecting faces, edges and vertices. An extension of this was to group sub-elements of the shape into logical units called geometric features, or simply features.
144	**BrIM**	Bridge Information Model Bridge Information Modeling (BrIM) boosts the quality of design with accurate information, consistent documentation, and improved constructability of structures. BrIM allows for accurate pre-fabrication and just-in-time material deliveries, and supports project collaboration across disciplines. Ultimately resulting in optimized solutions for all project parties as well as storing information for preventive maintenance
145	**BS**	British Standard

		BS are the standards produced by the BSI Group which is incorporated under a royal charter, and which is formally designated as the national standards body (NSB) for the UK Products are commonly specified as meeting a particular British Standard. Following the move on harmonisation of the standard in Europe, some British Standards are gradually superseded or replaced by the relevant European Standards (EN)
146	**BSA**	Building Smart Alliance The buildingSMART alliance® is a unique organization helping to make the North American real property industry more efficient by leading the creation of tools and standards that allow projects to be built electronically before they are built physically using Building Information Modeling
147	**BSD**	Building Systems Design BSD was founded in 1983 to develop commercial software for the Federal Government. BSD develops and sells innovative software tools for the architecture, engineering, and construction markets of North America. They have a partnership with the CSI. In 2017 there have been important changes in the company
148	**bSDD**	buildingSMART Data Dictionary The bSDD is a shared library of objects and their attributes utilizing ISO 12006-3 ontology for the building and construction industry. It is used to identify objects in the built environment and their specific properties regardless of language. The bSDD is open and international, allowing architects, engineers, consultants, owners and operators on one side and product manufacturers and suppliers on the other from all around the world to share and exchange product information
149	**BSI**	British Standards Institute BSI Group began in 1901 as the Engineering Standards Committee. The BSI Group produces British Standards under the authority of the charter, which lays down as one of the BSI's objectives. A Royal Charter was granted in 1929, with the following organization's objectives: Promoting Trade, Reducing Waste and Protecting the Consumer.
150	**BSI**	Building Smart International BuildingSMART is the worldwide industry body driving the digital transformation of the built asset industry. BuildingSMART is committed to delivering improvement by the creation and adoption of open, international standards and solutions for infrastructure and buildings
151	**BSIM**	Building Services Information Model (See also BIM) Referred to BIM maturity levels.
152	**BSRIA**	Building Services Research and Information Association

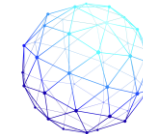|		BSRIA is a UK-based testing, instrumentation, research and consultancy organisation, providing specialist services in construction and building services engineering. It is a not-for-profit, member-based association, with over 650 member companies; related services are delivered by a trading company, BSRIA Limited. Any profits made are invested in its research programme, producing best practice guidance
153	**CA**	Contract Administrator A contract administrator is a professional within an organization or department that is responsible for the management of contracts, including approval and any necessary changes that may be needed over the course of the contract
154	**CAATEEB**	Col·legi de'Aparelladors, Arquitectes Tècnics i Enginyers d'Edificació de Catalunya The mission of the CAATEEB is to represent and arrange the practice of the profession of technical architect, quantity surveyor and construction engineer in order to achieve their technical, social and economic promotion and to project their social function, in the area of the big Barcelona. CAATEEB is a very active institution in the field of technical training, in the construction sector, including everything related to BIM and matching disciplines.
155	**CAC**	Customer Acquisition Cost CAC is the total cost of sales and marketing efforts that are needed to acquire a customer. It is one of the defining factors in whether your SaaS company has a viable business model that can yield profits by keeping acquisition costs low as you scale.
156	**CAD**	Computer-Aided Design CAD is the use of computers (or workstations) to aid in the creation, modification, analysis, or optimization of a design. CAD software is used to increase the productivity of the designer, improve the quality of design, improve communications through documentation, and to create a database for manufacturing. CAD output is often in the form of electronic files for print, machining, or other manufacturing operations.
157	**CADD**	Computer-Aided Design and Drafting Computer aided design and drafting (CADD) is a subfield of engineering which deals with the design and drafting of objects and materials through the use of specialized software that visualizes designs as modular 3D computer models
158	**CAE**	Computer Aided Engineering CAE is the broad usage of computer software to aid in engineering analysis tasks. It includes finite element analysis (FEA), computational fluid dynamics (CFD), multibody dynamics (MBD), durability and optimization. It is included with computer-aided design (CAD) and computer-aided manufacturing (CAM) in the collective abbreviation "CAx".
159	**CAFM**	Computer-Aided Facility Management

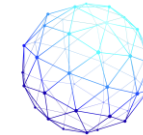|		CAFM is the support of facility management by information technology. CAFM is a software platform that streamlines facilities management and maintenance. CAFM software spans space management, real estate planning, building operations, preventive maintenance, etc. These systems leverage facilities data into performance metrics and planning tools to optimize the process of managing facilities.
160	**CAI**	Computer Aided Inspection Computer-aided inspection (CAI) is the use of computer-based software tools that assist quality engineers, machinists and inspectors in manufacturing product components. Its primary purpose is to create a faster production process and components with more precise dimensions and material consistency
161	**CAM**	Computer Aided Manufacture Computer-aided manufacturing (CAM) is an application technology that uses computer software and machinery to facilitate and automate manufacturing processes. Computer Aided Manufacturing is the use of software and computer-controlled machinery to automate a manufacturing process.
162	**CAPex**	Capital Expenditure CAPex are funds used by a company to acquire or upgrade physical assets such as properties, buildings, industrial plants, technology, or equipment. CapEx is often used to undertake new projects or investments by the firm. CapEx is any type of expense that a company capitalizes, or shows on its balance sheet as an investment, rather than on its income statement as an expenditure.
163	**CAPP**	Computer-Aided Process Planning Computer-aided process planning (CAPP) is the use of computer technology to aid in the process planning of a part or product, in manufacturing. CAPP is the link between CAD and CAM in that it provides for the planning of the process to be used in producing a designed part.
164	**CAR**	Collection, Assessment and Response Through this expression we understand the set of methodologies focused on data collection (monitoring), their evaluation taking into consideration the objectives envisaged, and finally, after the analysis of the evaluated data, the feed-back, the most suitable response to the system we've been analysing.
165	**CASBEE**	Comprehensive Assessment System for Building Environmental Efficiency CASBEE is the green building management system in Japan. Created in 2001, CASBEE is a joint industrial/government/academic project established under the support of the Japanese ministry of Land, Infrastructure, Transport and Tourism. The system comprehensively assesses the quality of a building based on its environmental awareness in using building materials and equipment that have little environmental impact, while also taking into account other criteria such as the level of comfort of an interior or the views

166	**CATIA**	Computer Aided Three-dimensional Interactive Application
		CATIA is a multi-platform software suite for computer-aided design (CAD), computer-aided manufacturing (CAM) and other software, developed by the French company Dassault Systèmes
167	**CAV**	Caverion
		Caverion is a Finnish company. Its purpose is to enable performance and people's well-being in smart and sustainable built environments. Caverion's offering covers the entire life cycle of buildings, infrastructure or industrial sites and processes: from design & build to projects, technical and industrial maintenance, facility management and advisory services. Caverion has two business units: Services and Projects. The company has about 15.000 employees in 11 countries.
168	**CAWS**	Common Arrangement of Work Sections
		Common Arrangement of Work Sections, first published in 1987, is a construction industry working convention designed to promote standardisation of, and detailed coordination between, bills of quantities and specifications
169	**CBC**	Construction Blockchain Consortium
		The CBC, aims to become the leading construction industries knowledge transfer consortium in collaboration with a premier university (the UCL of London). It is the vehicle for tracking and testing these emerging technologies and build proof-of-concept systems. CBC supports knowledge transfer, arranges commercial and academic presentation, assesses and tests commercial services and technology, conducts research, and drives policy, regulation and understanding of the radical consequences of technology and services
170	**CBP**	Capacity Bidding Program
		The Capacity Bidding Program (CBP) is a voluntary demand response program that offers third party Aggregators and non-residential self-aggregators incentives for standing by to reduce energy consumption when requested by Pacific Gas & Electric Co. from California, and for actual energy reductions delivered when called upon.
171	**CBS**	Cost Breakdown Structure
		Cost Breakdown Structure (CBS) represents a breakdown of the costs of the various components of the Work Breakdown Structure (WBS) including all works or services done by the subcontractors. It is used to continuously compare the actual costs with the budget, and integrate to the cost control system
172	**CCIP**	Contractor Controller Insurance Program
		A CCIP is a type of umbrella insurance policy in which all participants involved in a building project are covered by a single policy. The policy

		sponsor is for this program is typically the general contractor for the project. The policy provides coverage for the project owner as well as contractors and subcontractors that are working on the job site. A CCIP will usually cover the general liability exposure that can exist while working on a construction project
173	**CCIR**	International Radio Consultative Committee The International Radio Consultative Committee (CCIR) is the permanent organ of the International Telecommunication Union responsible under the International Telecommunication Convention " ... to study technical and operating questions relating specifically to radiocommuni-cations without limit of frequency range, and to issue recommendations on them ... "
174	**CCMS**	Construction Coordination Management Services Often known also as Project Engineers and/or Construction Coordinators, this expression (used in LPS procedures) refers to the companies that take part in the construction process of a building and who are not expressly identified as project managers, foremen, belonging to the site management team, or performing other specific functions
175	**CCOs**	Contract Change Orders A CCO is any work, equipment or activity that is added to or deleted from the original scope of work of a contract, which alters the original contract amount and/or completion date. A change order may force a new project to handle significant changes to the current project. It is a document written by a project manager to change an aspect of an existing contract such as requirements, amount, or time.
176	**CCTA**	Central Computer and Telecommunications Agency CCTA was a UK government agency providing computer and telecoms support to government departments. CCTA also promoted the use of emerging IT standards in UK government and in the EU. In addition to the development of methodologies, CCTA produced a compre-hensive set of managerial guidance covering the development of Information Systems. In 2001, merged with The Buying Agency and the PACE to join the Office of Government Commerce.
177	**CCUS**	Carbon Capture, Use, and Storage Carbon capture, Use, and Storage (CCUS) is the process of capturing carbon dioxide (CO_2) emissions from fossil power generation and indus-trial processes for storage deep underground or re-use. All the emission pathways in the IPCC Special Report on Global Warming will require the removal of large volumes of CO2 from the atmosphere using Carbon Removal to achieve net-zero emissions.
178	**CD**	Compact Disc A small plastic disc on which music or other digital information is stored in the form of a pattern of metal-coated pits from which it can be read using laser light reflected off the disc.

179	**CDBB**	Centre for Digital Built Britain
		The Centre for Digital Built Britain is a partnership between the Department for Business, Energy & Industrial Strategy and the University of Cambridge. It seeks to understand how the construction and infrastructure sectors can use a digital approach to better design, build, operate, and integrate the built environment. The Centre was established by HM Government in the 2017 Autumn Budget as the home of the UK BIM and Digital Built Britain Programmes.
180	**CDCL**	Compagnie de Construction Luxembourgeoise
		CDCL, the Luxembourg construction company, has been active in the world of construction in Luxembourg since 1979. The construction company was founded through the merger of three well-established construction companies in Luxembourg. Today, the CDCL Group has 500 employees.
181	**CDD**	Cooling Degree Days
		CDD is derived from measurements of outdoor air temperature. The cooling requirements for a given building at a specific location are considered to be directly proportional to the number of CDD at that location. The CDD is the difference between the outdoor temperature and a given base temperature. If this difference is negative, CDD=0.
182	**CDE**	Common Data Environment
		CDE is the single source of information used to collect, manage and disseminate documentation, the graphical model and non-graphical data for the whole project team. CDE is a central repository where construction project information is housed. The contents of the CDE are not limited to assets created in a 'BIM environment' and it will therefore include documentation, graphical model and non-graphical assets.
183	**CDF**	Common Data Format
		Common Data Format (CDF) is a library and toolkit that was developed by the National Space Science Data Center (NSSDC) at NASA starting in 1985. The software is an interface for the storage and manipulation of multi-dimensional data sets.
184	**CDM**	Construction (Design and Management) Regulations
		CDM Regulations or CDM 2015, which came into force on 6 April 2015, are regulations governing the way construction projects of all sizes and types are planned in the UK. Replacing Construction (Design and Management) Regulations 2007, CDM 2015 is the latest update to the regulations that aim to improve the overall health, safety and welfare of those working in construction.
185	**CDPA**	Copyright, Designs and Patent Act
		The Copyright, Designs and Patents Act 1988, also known as the CDPA, is an Act of the Parliament of the United Kingdom that received Royal

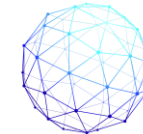|		Assent on 15 November 1988. It reformulates almost completely the statutory basis of copyright law (including performing rights) in the United Kingdom, which had, until then, been governed by the Copyright Act 1956. It also creates an unregistered design right, and contains a number of modifications to the law of the United Kingdom on Registered Designs and patents.
186	**CD-ROM**	Compact Disc Read-only Memory CD-ROM is a compact disc that holds large amounts of information that can be read by a computer but cannot be changed. Used to store programs and data files, a CD-ROM holds 650MB or 700MB of data and employs a different recording format than the audio CD, from which it evolved. In the 1990s, the CD-ROM rapidly replaced the floppy disk for software distribution.
187	**CE**	Constructing Excellence Constructing Excellence is a United Kingdom construction industry membership organisation created in 2003, the only such which draws its member organisations from across the industry supply chain, ranging from clients, through contractors and consultants, to suppliers and manufacturers of building materials and components. In August 2016, Constructing Excellence became part of BRE, but retains its identity and core purposes.
188	**CEAT**	Circular Economy Assessment Tool The article "Circular economy assessment tool for end of life product recovery strategies", written by Yohannes A. Alamerew and Daniel Brissaud, was originally published electronically on the publisher's internet portal (currently SpringerLink) on 31 October 2018
189	**CEAT**	Circular Environmental Assessment Toolkit Sowtfare developed by EKODENGE working on LCA and LCIA purposes
190	**CEC**	Commission for Environmental Cooperation CEC was established in 1994 by Canada, Mexico, and the United States to implement the North American Agreement on Environmental Cooperation (NAAEC), the environmental side accord to the North American Free Trade Agreement. The CEC's mission is to facilitate cooperation and public participation to foster conservation, protection and enhancement of the North American environment for the benefit of present and future generations, in the context of increasing economic, trade and social links among Canada, Mexico and the United States.
191	**CECE**	Committee for European Construction Equipment CECE is the recognized organisation representing and promoting the European construction equipment sector and related industries towards the European Institutions and other organisations worldwide. CECE coordinates the views of its members (National Associations) and their members (construction equipment manufacturers) with the aim to achieving a fair and competitive regulatory environment via harmonised standards and other relevant policy means.

192	**CEI**	Commission Électrotechnique Internationale
		CEI; in English IEC: International Electrotechnical Commission) is an international standards organization that prepares and publishes international standards for all electrical, electronic and related technologies – collectively known as "electrotechnology". IEC standards cover a vast range of technologies from power generation, transmission and distribution to home appliances and office equipment, semiconductors, fibre optics, batteries, solar energy, nanotechnology and marine energy as well as many others.
193	**CEN**	European Committee for Standardisation
		The CEN (French: Comité Européen de Normalisation), founded in 1961 is a public standards organization whose mission is to foster the economy of the European Union in global trading, the welfare of European citizens and the environment by providing an efficient infrastructure to interested parties for the development, maintenance and distribution of coherent sets of standards and specifications.
194	**CENELEC**	European Committee for Electrotechnical Standardization
		Founded in 1973, CENELEC is a non-profit organization under Belgian law, based in Brussels. CENELEC (French: Comité Européen de Normalisation Électrotechnique) is responsible for European standardization in the area of electrical engineering. Together with ETSI (telecommunications) and CEN (other technical areas), it forms the European system for technical standardization. Standards harmonised by these agencies are regularly adopted in many countries outside Europe which follow European technical standards.
195	**CEO**	Chief Executive Officer
		CEO is the most senior corporate, executive, or administrative officer in charge of managing an. CEOs lead a range of organizations, including public and private corporations, non-profit organizations and even some government organizations. The CEO of a corporation or company typically reports to the board of directors and is charged with maximizing the value of the entity, which may include maximizing the share price, market share, revenues or another element.
196	**CEDT**	Central European Daylight Time
		See CEST (Central European Summer Time)
197	**CERL**	Construction Engineering Research Laboratory (USACE)
		The Construction Engineering Research Laboratory (CERL, Est. May 1, 1968, Gen. Order #17) develops and infuses innovative technologies to provide excellent facilities and realistic training lands for the Department of Defense of the US. Products and services from CERL research enhance the Army's ability to design, build, operate and maintain its installations and contingency bases and to ensure environmental quality at the lowest life-cycle cost.

198	**CERN**	Conseil Européen pour la Recherche Nucléaire
		The European Organization for Nuclear Research, known as CERN (Conseil Européen pour la Recherche Nucléaire), is a European research organization that operates the largest particle physics laboratory in the world. Established in 1954, the organization is based in a northwest suburb of Geneva on the Franco–Swiss border and has 23 member states. CERN is an official United Nations Observer. The acronym CERN is also used to refer to the laboratory, which in 2019 had 2.660 scientific, technical, and administrative staff members, and hosted about 12.400 users from institutions in more than 70 countries. In 2016 CERN generated 49 petabytes of data.
199	**CEST**	Central European Summer Time
		Central European Summer Time (CEST), sometimes referred to as Central European Daylight Time (CEDT), is the standard clock time observed during the period of summer daylight-saving (from last Sunday of March to last Sunday of October) in those European countries which observe Central European Time (UTC+01:00) during the other part of the year. It corresponds to UTC+02:00, which makes it the same as Eastern European Time, Central Africa Time, South African Standard Time and Kaliningrad Time in Russia. As of 2011, all member states of the European Union observe this summer time.
200	**CET**	Central European Time
		CET is used in most parts of Europe and a few North African countries, is a standard time which is 1 hour ahead of Coordinated Universal Time (UTC). The time offset from UTC can be written as UTC+01:00. The same standard time, UTC+01:00, is also known as Middle European Time
201	**CEWEP**	Confederation of European Waste-to-Energy Plants
		CEWEP is the umbrella association of the operators of Waste-to-Energy plants, representing about 410 incineration plants from 23 countries. Waste-to-Energy (waste incineration with energy recovery) is complementary to Quality Recycling, helping to achieve a Clean Circular Economy. If waste is too polluted for Quality Recycling, it should be used to generate local, affordable and secure energy in Waste-to-Energy plants.
202	**CFB**	Call for Bids
		See RfQ (Request for Quotation)
203	**CFC**	Chlorofluorocarbon
		CFC's are any of several simple gaseous compounds that contain carbon, chlorine, fluorine, and sometimes hydrogen, that are used as refrigerants, cleaning solvents, and aerosol propellants and in the manufacture of plastic foams, and that are believed to be a major cause of stratospheric ozone depletion

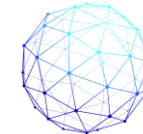| 204	**CFD**	Computational (or Computed) Fluid Dynamics
		CFD is a branch of fluid mechanics that uses numerical analysis and data structures to analyse and solve problems that involve fluid flows. Computers are used to perform the calculations required to simulate the free-stream flow of the fluid, and the interaction of the fluid (liquids and gases) with surfaces defined by boundary conditions. It is a computer-based tool for simulating the behaviour of systems involving fluid flow, heat transfer, and other related physical processes. It works by solving the equations of fluid flow.
205	**CFR**	Central Facilities Repository
		CFR is a software tool centralizing all current building information of the GSA, including 2-D and 3-D building information models, specifications and manuals in support of new construction, additions and renovations, and building operations and maintenance. CFR, leveraging the Alfresco platform, is developed to interoperate with other business applications, scale across the enterprise and support continual updates. The CFR is an active system that is continually updated as the single source of truth for building information.
206	**CFRP**	Carbon Fiber Reinforcement Polymer
		CFRP or often simply named carbon fiber, carbon composite, or even carbon, is an extremely strong and light fiber-reinforced plastic which contains carbon fibers. The spelling 'fibre' is usual outside the USA. CFRPs can be expensive to produce but are commonly used wherever high strength-to-weight ratio and stiffness (rigidity) are required, such as aerospace, superstructure of ships, automotive, civil engineering, sports equipment, and an increasing number of consumer and technical applications.
207	**C/I**	Civils/Infrastructure
		Civil Infrastructure systems involves the design, analysis, and management of infrastructure supporting human activities, including, for example, electric power, oil and gas, water and wastewater, communications, transportation, and the collections of buildings that make up urban and rural communities.
208	**CI**	Continuous Improvement (the same as CIP and CPI)
		CI is an ongoing effort to improve products, services, or processes. These efforts can seek "incremental" improvement over time or "breakthrough" improvement all at once. Delivery (customer valued) processes are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.
209	**CI's**	Configuration Items
		The term CI refers to the fundamental structural unit of a configuration management system. Examples of CIs include individual requirements documents, software, models, and plans. The configuration-management system oversees the life of the CIs through a combination of processes and tools by implementing and enabling the fundamental elements of identification, change management, status accounting, and

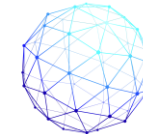|		
		audits.
210	**CIA**	Cost Impact Analysis
		CIA is the assessment of cost implications when a state is altered. CIA has two main areas: Impact analysis and Cost assessment. Impact analysis is specific to a domain, for example, the impact analysis of changes on a process. Cost assessment is the cost estimation process of an altered state. The association of cost engineers defines cost impact as "an effect or influence of some occurrence, commonly a change, on an existing cost budget or forecast, while cost analysis is defined as a systematic breakdown of cost data into elements for detailed examination.
211	**CIAT**	Chartered Institute of Architectural Technologists
		The Chartered Institute of Architectural Technologists (CIAT) is a dynamic, forward-thinking and inclusive global membership qualifying body for Architectural Technology. It represents those practising and studying within the discipline and profession.
212	**CIB**	International Council for Research and Innovation in Building and Construction (Ant. Conseil International du Bâtiment)
		CIB was established in 1953 as an Association whose objectives were to stimulate and facilitate international cooperation and information exchange between governmental research institutes in the building and construction sector. CIB has since developed into a worldwide network of over 5.000 experts from about 500 member organisations with a research, university, industry or government background, who collectively are active in all aspects of research and innovation for building and construction.
213	**CIBSE**	Chartered Institution of Building Services Engineers
		CIBSE plans, designs, monitors and inspects systems to make buildings comfortable, functional, efficient and safe. Typically these systems will include heating, ventilation and air conditioning (HVAC), water and drainage, lighting, power, ICT, lifts and escalators, control systems and so on. The origin of CIBSE is due to the merging in 1976 of the Institution of Heating and Ventilating Engineers (founded in 1897) and the Illuminating Engineering Society (founded in 1909), all of them from UK.
214	**CIC**	Construction Industry Council
		CIC is the representative forum for the professional bodies, research organisations and specialist business associations in the construction industry. Established in UK in 1988 with just five founder members, CIC now occupies a key role within the UK construction industry providing a single voice for professionals in all sectors of the built environment through its collective membership of 500.000 individual professionals and more than 25.000 firms of construction consultants.
215	**CIFE**	Center for Integrated Facility Engineering (Stanford University)
		CIFE is a research centre at Stanford University (USA), working on issues relevant to the Architecture - Engineering - Construction (AEC) industry. The mission of CIFE is to be the world's premier academic research centre for Virtual Design and Construction of AEC industry projects.

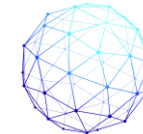|		CIFE research takes an integrated view of projects that considers the product, which is typically a facility, the design-construction-operational organization and the process followed by the organization to design, build and operate the product.
216	**CIM**	City Information Modelling Following the concept of BIM, developing a digital DNA of cities, or a 'digital twin', CIM can be used to provide simulation of traffic flows, congestion, energy use and provision, smart grids, and much, much more. Currently CIM is already used by the insurance and industry to assess the impact of natural disasters, such as floods, earthquakes or storm events, on buildings and districts; city councils and other companies can use it for the same purpose.
217	**CINT**	Communication Interval After an integration is successfully configured, it periodically communicates with the external tool to synch the data flow. In most cases, you define the communication interval when you configure the integration. An integration that is working properly has a status of Online. An integration that is not working has a status of Failed. Disrupted communications or inaccurate integration configurations can cause the integration to fail.
218	**CIOB**	The Chartered Institute of Building CIOB was established in London on 6 March 1834 as the Builders Society by an eminent group of 15 Master Builders. Currently, the CIOB with more than 48.000 members is a worldwide professional body that represents construction and property professionals who work within the built environment. The CIOB is headquartered in the UK with branches throughout the world. Approximately 20% of its members are located overseas with representation in over 100 countries.
219	**CIP**	Continuous Improvement Process Also often called a continual improvement process (abbreviated as CIP), is an ongoing effort to improve products, services, or processes. These efforts can seek "incremental" improvement over time or "breakthrough" improvement all at once. Delivery (customer valued) processes are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.
220	**CIR**	Contractor's Information Requirements This expression is used in the BIM context. It refers to the set of data and specifications that the contractor needs to perform his job. It is of crucial importance that this informative compilation is exhaustive and univocal in order to avoid problems during the construction phase and deviations from planned cost and time.
221	**CIS**	Construction Information Service The Construction Information Service (CIS) is a comprehensive online collection of over 28,000 construction related standards, regulations,

		technical advice and articles from 500+ publishers. Content is updated weekly, neatly organised into topic based supplements and delivered through a function rich and easily accessible online portal.
222	**CITE**	Construction Industry Trading Electronically CITE describes standards for electronic information exchange for the UK construction industry. The CITE Bills of Quantities are plain text files which can be viewed using Notepad or WordPad and have the file extension .ebq
223	**CityGML**	City Geography Markup Language CityGML is an open standardised data model and exchange format to store digital 3D models of cities and landscapes. It defines ways to describe most of the common 3D features and objects found in cities (such as buildings, roads, rivers, bridges, vegetation and city furniture) and the relationships between them. It also defines different standard levels of detail (LoDs) for the 3D objects, which allows the representation of objects for different applications and purposes, such as simulations, urban data mining, facility management, and thematic inquiries.
224	**CL**	Construction Lean (see Lean Construction) Lean Construction is a way to design production systems to minimize waste of materials, time, and effort in order to generate the maximum possible amount of value. The concept appears in the 90's and is consolidated at the beginning of 2000 in Toyota group. Lean Construction is using the same principles as lean production to reduce waste and increase the productivity and effectiveness in construction work.
225	**CM**	Configuration Management/Manager Configuration Management (CM) is a systems engineering process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design, and operational information throughout its life. The CM process is widely used by military engineering organizations to manage changes throughout the system lifecycle of complex systems, such as weapon systems, military vehicles, and information systems. Outside the military, the CM process is also used with IT service management
226	**CM**	Construction Manager The Construction Manager is a professional that uses specialized, project management techniques to oversee the planning, design, and construction of a project, from its beginning to its end. The CM is someone who plans, coordinates, budgets, and supervises construction projects from early development to completion.
227	**CMa**	Construction Manager Advisor The CMa is the assistant of the CM. He provides a complete range of services that can be customized to the specific needs of each worksite. The CMa performs schematic budgets to verify the project is on-track with the owner's goals. The CMa also performs design constructability. When the drawings are complete, the CMa bundles the project into bid packages to maximize competition. The CMa then manages the

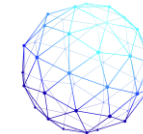|		biding process and the selection of a general contractor and/or separate prime contractors and vendors.
228	**CMAA**	Construction Management Association of America CMAA is a non-profit and non-governmental, professional association serving the construction management industry. The Association was formed in 1982. Current membership is more than 14.000, including individual CM/PM practitioners, corporate members, and construction owners in both public and private sectors, along with academic and associate member.
229	**CMAR**	Construction Management At Risk (the same as CMc) The CMAR is a delivery method which entails a commitment by the Construction Manager (CM) to deliver the project within a Guaranteed Maximum Price (GMP) which is based on the construction documents and specifications at the time of the GMP plus any reasonably inferred items or tasks. In this case, the construction manager takes responsibility for the project, instead of a general contractor or other parties. These construction managers often work for a firm or another company and are hired by the owner to oversee the project.
230	**CMc**	Construction Manager as Constructor (the same as CMAR) CMc is a project delivery method in which the Construction Manager acts as a consultant to the owner in the project development and design phases, and assumes the risk for construction performance as the equivalent of a general contractor holding all trade subcontracts during the construction phase.
231	**CMDB**	Configuration Management Database A CMDB is an ITIL database used by an organization to store information about hardware and software assets. This database acts as a data warehouse for the organization and also stores information regarding the relationships among its assets. The CMDB are used to keep track of the state of assets such as products, systems, software, facilities, and the relationship between all assets. A CMDB helps an organization understand the relationship between the components of a system and to track their configurations.
232	**CMM**	Capability Maturity Model The Capability Maturity Model (CMM) is a development model created in 1986 after a study of data collected from organizations that contracted with the U.S. Department of Defense, who founded the research. The term "maturity" relates to the degree of formality and optimization of processes, from ad hoc practices, to formally defined steps, to managed result metrics, to active optimization of the processes. The model's aim is to improve existing software development processes, but it can also be applied to other processes.
233	**CMM**	Coordinate Measurement Machine CMM is a device that measures the geometry of physical objects by sensing discrete points on the surface of the object with a probe. Various types of probes are used in CMMs, including mechanical, optical, laser, and white light.

234	**CMMS**	Computerized Maintenance Management System
		CMMS is a software package that maintains a computer database of information about an organization's maintenance operations. This information is intended to help maintenance workers do their jobs more effectively (for example, determining which machines require maintenance and the spare parts they need) and to help management make informed decisions (for example, calculating the cost of machine breakdown repair versus preventive maintenance for each machine). CMMS data may also be used to verify regulatory compliance.
235	**CMS**	Compact Muon Solenoid
		The Compact Muon Solenoid (CMS) is a general-purpose detector at the Large Hadron Collider (LHC) of the CERN's . The CMS detector is built around a huge solenoid magnet. This takes the form of a cylindrical coil of superconducting cable that generates a field of 4 tesla, about 100,000 times the magnetic field of the Earth.
236	**CMT**	Concrete Management Tool
		Tool developed by Master Builders Solutions (MBS), from MBCC Group (formerly BASF) for retrofit and strength existing buildings, using composites (Externally Bonded CFRP Systems). Easy friendly used charts a guide selector
237	**CNC**	Computerized Numerical Controllers
		Computer Numerical Control (CNC) is a method for automating control of machine tools through the use of software embedded in a micro-computer attached to the tool. It is commonly used in manufacturing for machining metal and plastic parts.
238	**CO**	Carbon monoxide
		CO is a colorless, odorless, tasteless, flammable gas that is slightly less dense than air. Carbon monoxide consists of one carbon atom and one oxygen atom. It is the simplest molecule of the oxocarbon family. In coordination complexes the carbon monoxide ligand is called carbonyl. It is a key ingredient in many processes in industrial chemistry.
239	**CO**	Complexes Table (CPIC Uniclass 2)
		Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
240	**COAC**	Col·legi Oficial d'Arquitectes de Catalunya
		The College of Architects of Catalonia is an institution that has a history of more than eighty years, during which it has consolidated in our society as a benchmark of national and international prestige. The COAC has more than 10.000 collegiate architects throughout the Catalan

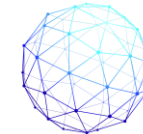|		territory. The mission of the College is to defend the social value of architecture and urbanism towards society and in representation of architects.
241	**COBie**	Construction Operations Building information Exchange COBie is an international standard relating to managed asset information including space and equipment. This information is essential to support operations, maintenance and asset management once the built asset is in service. COBie is a non-proprietary data format for the publication of a subset of building information models (BIM) focused on delivering asset data as distinct from geometric information.
242	**COEIC**	Col·legi Oficial d'Enginyers Industrials de Catalunya The COEIC is the professional entity of the Industrial Engineers of Catalonia, committed to the professional development of engineers. COEIC represents engineers in the industrial field, defends the profession and its interests, the good practice of engineering and regulates its practice. COEIC promotes the progress of engineering and deploy technical, scientific and cultural activities.
243	**COINS**	Construction Industry Software In an age where data and information are readily available, the construction industry has often lagged behind as paper-based processes (particularly with 3rd parties such as subcontractors outside of your organisation) are slow, expensive to manage and create bottlenecks. The construction industry is facing major international challenges, and the implementation of software tools in this sector will improve the performance of the associated construction processes.
244	**COM**	Component Object Model COM is a binary-interface standard for software components introduced by Microsoft in 1993. It is used to enable inter-process communication object creation in a large range of programming languages. COM is the basis for several other Microsoft technologies and frameworks, including OLE, OLE Automation, Browser Helper Object, ActiveX, COM+, DCOM, the Windows shell, DirectX, UMDF and Windows Runtime. The essence of COM is a language-neutral way of implementing objects that can be used in environments different from the one in which they were created, even across machine boundaries.
245	**COME**	Comet Gesinco Company specialised in product commercialisation and development of strategic plans for the implementation of Research, Development and Technological Innovation (R+D+i) projects.
246	**COMS**	COMSA COMSA Corporación is a Spanish global group focused on infrastructure development, industrial engineering and services, whose main business historically has been railway infrastructure work. COMSA Corporación operates in 20 countries. The group has presence in Europe

		(Andorra, Croatia, Denmark, Spain, France, Latvia, Lithuania, Poland, Portugal, Sweden, Switzerland), Latin America (Brazil, Chile, Colombia, Mexico, Paraguay, Peru, Uruguay) and North Africa (Algeria, Morocco). Partner of SPHERE Project.
247	**COO**	Chief Operating Officer The COO is the manager in an organization who is responsible for how the whole organization is run. Also called a chief operations officer, is one of the highest-ranking executive positions in an organization. The COO is usually the second-in-command at the firm, especially if the highest-ranking executive is the chairman and CEO. The COO is responsible for the daily operation of the company and routinely reports to the highest-ranking executive, usually the CEO.
248	**COP**	Coefficient of Practice
249	**COP**	Coefficient of Performance COP is the most common measure of heat pump efficiency. The COP is the ratio of the heat output of a heat pump to its electrical energy input, expressible as follows: COP = Thermal Energy output / Electrical energy input. Higher COPs equate to lower operating costs. It is the basis for air conditioners, space heaters and other heating devices.
250	**COS**	Conditions of Satisfaction Criteria by which the outcome of a contract, program, or project may be measured. The conditions under which a product owner would be satisfied that a product meets the agreed requirements. Conditions of satisfaction are acceptance criteria that clarify the desired behaviour. Also can be defined as "An explicit description by a Customer of all the actual requirements that must be satisfied by the Performer in order for the Customer to feel that he received exactly what was wanted."
251	**CPaaS**	Communications Platform as a Service CPaaS is a cloud-based delivery model that allows organizations to add real-time communications capabilities, such as voice, video and messaging, to business applications by deploying application program interfaces (APIs). CPaaS is deployed by organizations that want to embed communications in their business applications, as well as cloud service providers and developers looking to add communications capabilities to their applications and services.
252	**CPC**	Central Product Classification The Central Product Classification is a product classification for goods and services promulgated by the United Nations Statistical Commission. It is intended to be an international standard for organizing and analysing data on industrial production, national accounts, trade, prices and so on.
253	**CPD**	Continuing Professional Development

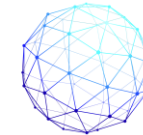|		It refers to the process of tracking and documenting the skills, knowledge and experience that you gain both formally and informally as you work, beyond any initial training. It's a record of what you experience, learn and then apply. CPD ensures that you maintain and enhance the knowledge and skills you need to deliver a professional service to your customers, clients and the community.
254	**CPET**	Cardiopulmonary Exercise Testing See CPX (Cardiopulmonary Exercise Testing).
255	**CPI**	Coordinated Project Information Paper written by D. Azzaro, Technical Advisor of the Coordinating Comitee for Project Information, in the Review The Structural Engineer, Vol. 65A, No 6, June 1987
256	**CPI**	Continuous Process Improvement (the same as CIP) Also often called a continual process improvement, it is an ongoing effort to improve products, services, or processes. These efforts can seek "incremental" improvement over time or "breakthrough" improvement all at once. Delivery (customer valued) processes are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.
257	**CPIC**	Construction Project Information Committee (also named CPI) CPIP is an advisory group, comprising representatives of major UK construction industry institutions, which provides best practice guidance on the content, form and preparation of construction production information, and disseminates this throughout the industry. CPIC aims to provide guidance on efficient preparation of project specifications and production drawings CPIC started as the Building Project Information Committee (BPIC) established in February 1987 by the RIBA, RICS, ACE, CIBSE and ICE.
258	**CPIX**	Construction Project Information Xchange The BIM Execution Plan templates for Pre-Contract and Post Contract are referred to in Figure 4 of PAS 1192-2. This figure gives details of the relationship between documents used for information management. The BIM Execution Plan (BEP) is submitted firstly pre-contract to address the issues raised in the EIR and then with more detail post-contract award to explain the supplier's methodology for delivering the project using BIM.
259	**CPM**	Construction Project Management Construction Project Management is the art of directing and coordinating human and material resources throughout the life of a project to achieve predetermined objectives of scope, cost, time, quality and participation satisfaction. Construction project management involves directing and organizing each part of the project life cycle, from ideation to completion. Construction project management is a complex disci-

		pline that requires addressing many important concerns, including cost control, scheduling, procurement, and risk assessment.
260	**CPMS**	Capital Planning and Management System The capital planning process is used to determine whether or not an organization's long-term investments are worth funding through the firm's "capitalization structure," also known as basic accounting.
261	**CPR**	Construction Progress Reporting Construction progress report. Construction progress reports are prepared regularly (often monthly) by the contract administrator during the construction phase and issued to the client. They will generally be a summary of the reports received and discussions held at construction progress meetings.
262	**CPS**	Cyber Physical Systems A CPS is a mechanism that is controlled or monitored by computer-based algorithms, tightly integrated with the Internet and its users. In cyber-physical systems, physical and software components are deeply intertwined, each operating on different spatial and temporal scales, exhibiting multiple and distinct behavioural modalities, and interacting with each other in a lot of ways that change with context.
263	**CPX**	Cardiopulmonary Exercise Testing Cardiopulmonary Exercise Testing (CPX/CPET) is a non-invasive method used to assess the performance of the heart and lungs at rest and during exercise. This test will last for a total of 40 minutes; however the patient will only be required to exercise for approximately 10 minutes.
264	**CPU**	Central Processing Unit Sometimes referred to simply as the central processor, but more commonly called processor, the CPU is the brains of the computer where most calculations take place. In terms of computing power, the CPU is the most important element of a computer system. It is generally composed of the main memory, control unit, and arithmetic-logic unit. It is a piece of hardware that carries out the instructions of a computer program.
265	**CR**	Clash Rendition Rendition of the native format model file to be used specifically for spatial coordination processes. To achieve clash avoidance or to be used for clash detection.
266	**CRC**	Carbon Reduction Commitment The CRC is a UK mandatory scheme aiming to cut carbon emissions by 1.2 million tonnes of carbon per year by 2020. It supports the UK target

		to reduce achieve an 80% reduction in UK carbon emissions by 2050. The scheme provides an incentive for reducing emissions through improved energy efficiency.
267	**CREE**	CREE CREE GmbH (CREE by Rhomberg) is a company that offers sustainable & eco-friendly construction solutions. Cree buildings are constructed virtually before they are actually built. They can be up to 100 meters high and at the same time low in cost, emissions and waste. Thanks to their evolutionary planning process, Cree buildings produce up to 90% less CO_2 and need up to 50% fewer materials than conventionally constructed buildings.
268	**CRL**	Crossrail Limited Crossrail Limited, established in 2001, is the company that has been set up to build the new railway that will become known as the Elizabeth line when it opens through central London.
269	**CRM**	Customer Relationship Management CRM is an approach to managing a company's interaction with current and potential customers. It uses data analysis about customers' history with a company to improve business relationships with customers, specifically focusing on customer retention and ultimately driving sales growth. The concept of customer relationship management started in the early 1970s, when customer satisfaction was evaluated using annual surveys or by front-line asking.
270	**CRS**	Coordinate Reference System CRS defines, with the help of coordinates, how the two-dimensional, projected map in your GIS is related to real places on the earth. The decision as to which map projection and coordinate reference system to use, depends on the regional extent of the area you want to work in, on the analysis you want to do and often on the availability of data.
271	**CRTI-B**	Centre de Ressources des Technologies et de l'Innovation pour le Bâtiment The CRTI-B is a platform dedicated to improving the construction sector. The CTRI-B is a neutral and open platform for all stakeholders in the act of building and seeks to improve the productivity and competitiveness of stakeholders in the building industry construction. The CRTI-B has among other objectives to define, document, introduce and keep up to date standards in terms of tender files governing construction project contracts.
272	**CRU**	Components for Re-Use
273	**CRUD**	Create, Read, Update and Delete

		In computer programming, create, read, update, and delete (CRUD) are the four basic functions of persistent storage. Alternate words are sometimes used when defining the four basic functions of CRUD, such as retrieve instead of read, modify instead of update, or destroy instead of delete.
274	**CRV**	Capitalised Replacement Value The Capitalised Replacement Value is the rebuild cost, that is, the amount it would cost to completely rebuild your home if it was destroyed beyond repair. It includes the price of labour and materials. This cost is usually lower than your home's sale price or market value.
275	**CS**	Coordinate Systems In geometry, a coordinate system is a system that uses one or more numbers, or coordinates, to uniquely determine the position of the points or other geometric elements on a manifold such as Euclidean space. The order of the coordinates is significant, and they are sometimes identified by their position in an ordered tuple and sometimes by a letter, as in "the x-coordinate". The coordinates are taken to be real numbers in elementary mathematics, but may be complex numbers or elements of a more abstract system such as a commutative ring.
276	**CSA**	Coordination and Support Actions Referred to H2020. Like normal Collaborative Projects, CSA are multi-partner projects. Unlike Collaborative Projects, CSA do not finance research and development, but they provide funding for activities coordinating or supporting research actions and strategies, such as networking and exchange actions, cross-border access to research infrastructure, studies, conferences, preparation of studies etc.
277	**CSCW**	Computer Supported Collaborative Working The term was first coined in 1984, by individuals interested in using technology to support people in their work. At about this same time, in 1987 was born the concept of Collaborative Learning-Work. CSCW addresses "how collaborative activities and their coordination can be supported by means of computer systems". Many authors consider that CSCW and groupware are synonyms.
278	**CSC**	Computer Sciences Corporation CSC was founded in April 1959 in Los Angeles, California, by Roy Nutt and Fletcher Jones. CSC initially provided programming tools such as assembler and compiler software. CSC was an American multinational corporation that provided information technology (IT) services and professional services. On 2017, it merged with the Enterprise Services line of business of HP Enterprise (formerly Electronic Data Systems) to create DXC Technology
279	**CSG**	Constructive Solid Geometry CSG is a technique used in solid modelling. Constructive solid geometry allows a modeller to create a complex surface or object by using Boolean operators to combine simpler objects. Potentially generating visually complex objects by combining a few primitive ones. In 3D com-

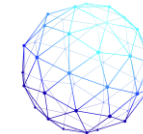|		
		puter graphics and CAD, CSG is often used in procedural modelling. CSG can also be performed on polygonal meshes, and may or may not be procedural and/or parametric.
280	**CSI**	Construction Specifications Institute Founded in March 1948 in the USA, the CSI is a national professional association of more than 6.969 construction industry professionals who are experts in building construction and the materials used therein. The Institute is dedicated to improve the communication of construction information, continuous development and transformation of standards and formats, education and certification of professionals to improve project delivery processes, and creation of practice tools to assist users throughout the facility life-cycle.
281	**CSS**	Cascading Style Sheets Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colours, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics.
282	**CSS**	Chirp Spread Spectrum In digital communications, CSS is a spread spectrum technique that uses wideband linear frequency modulated chirp pulses to encode information. A chirp is a sinusoidal signal of frequency increase or decrease over time (often with a polynomial expression for the relationship between time and frequency). In the picture is an example of an upchirp in which the frequency increases linearly over time.
283	**CSV**	Comma-Separated Values A comma-separated values (CSV) file is a delimited text file that uses a comma to separate values. Each line of the file is a data record. Each record consists of one or more fields, separated by commas. The use of the comma as a field separator is the source of the name for this file format. A CSV file typically stores tabular data (numbers and text) in plain text, in which case each line will have the same number of fields.
284	**CTE**	Código Técnico de Edificación (Spain) The CTE is the regulatory framework that establishes in Spain the standards that buildings must meet in relation to the basic requirements of safety and habitability established in Law 38/1999 of 5 November. It was established by decree law in 2006. It covers most construction disciplines, such as: Structures, Noise, Energy (HVAC, Lighting), Accessibility, Fire Protection and others. The specific regulations are called "Documento Básico" (DB)
285	**CURT**	Construction Users Roundtable CURT was founded in the fall of 2000 by construction and engineering executives representing major corporations all across the United States

		and the world. CURT provides a national and international forum for the exchange of information, views, practices and policies of construction users from an array of industries. CURT's primary goal is to enact broad, effective Owner representation and increased Owner leadership on construction industry issues in order to create competitive advantage for Owners.
286	**CV-RMSE**	Coefficient of Variation of Root-Mean Squared Error Coefficient of Variation of Root-Mean Squared Error (CV-RMSE) takes this metric one step further, by normalizing it by the average dependent variable value. As per ASHRAE Guideline 14, a CV-RMSE of and below 25% indicates a good model fit with acceptable predictive capabilities.
287	**D**	Deliverable A deliverable is a tangible or intangible good or service produced as a result of a project that is intended to be delivered to a customer (either internal or external). A deliverable could be a report, a document, a software product, a server upgrade or any other building block of an overall project.
288	**DAA**	Digital Analytical Association The DAA was founded as the Web Analytics Association in 2004. As more digital data streams became available, the responsibilities of the analyst broadened and the term "web analytics" became known as the study of data collected exclusively on websites. The Board of Directors chose to change the name to the Digital Analytics Association in 2011 to account for the analyst's changing role of weaving together data from multiple sources and channels.
289	**DAE**	Differential Algebraic Equation A DAE is an equation involving an unknown function and its derivatives. A (first order) DAE in its most general form is given by: $F(t,x,x')=0, t_0 \leq t \leq t_f$, where x=x(t), the unknown function, and F=F(t,u,v) have N components, denoted by xi and Fi, i=1,2,...,N, respectively. Every DAE can be written as a first order DAE. The term DAE is usually reserved for the case when the highest derivative x' cannot be solved for in terms of the other terms t,x, when (1) is viewed as an algebraic relationship between three variables t,x,x'.
290	**DAF**	Dissolve Air Flotation DAF is a water treatment process that clarifies wastewater by removing suspended solids. The removal is achieved by dissolving air in the water or wastewater under pressure and then releasing the air at atmospheric pressure in a flotation tank.
291	**D2RQ**	Database to RDF Query
292	**DB**	Database

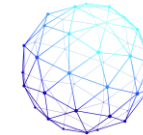|		A database is an organized collection of data, generally stored and accessed electronically from a computer system. Where databases are more complex they are often developed using formal design and modeling techniques.
293	**DB – D&B**	Design-Build Design–build (or design/build, and abbreviated D–B or D/B accordingly) is a project delivery system used in the construction industry. It is a method to deliver a project in which the design and construction services are contracted by a single entity known as the design–builder or design–build contractor.
294	**DB**	Documento Básico (Spain) "Documento Básico" is each of the Regulations that constitute the Spanish "Código Técnico de Edificación" (CTE) of 2006. There are 2 types of basic documents, those dedicated to safety and those dedicated to habitability.
295	**DB**	Dry Bulb See DBT (Dry Bulb Temperature)
296	**DBB**	Design-Bid-Build This is the most traditional process in the U.S. construction industry, where the owner contracts separately with a designer and a contractor. The design firm is hired to deliver 100 percent complete design documents. The owner or agent then solicits fixed price bids from contractors to perform the work. Designers and contractors bear no contractual obligation to one another and the owner bears all risk associated with the completeness of the design documents.
297	**DBC**	Design Build Contract Design-build Contract is a method widely used around the world, including in the U.S. As the name implies, this type of contract combines the design and construction, often called the project delivery, under a single agreement. Design-build can save time over other contracting methods and can prevent situations where the owner is caught between the designer and the builder in contract disputes. On the downside, a design-build contract can present some challenges, such as situations in which the final cost cannot be easily determined or projected.
298	**DBFM**	Design-Build-Finance-Maintain The private sector designs, builds and finances an asset and provides hard facility management (hard fm) or maintenance services under a long-term agreement
299	**DBFO**	Design, Build, Finance, Operate The DBFO model, also called the public private partnership (PPP) model, or the Public Finance Initiative (PFI), is one of the procurement

		methods used predominantly by governments. In this model, the government is the project owner and it floats a contract inviting private firms to participate in the project. The government may provide part of the funds by using special purpose vehicles, or bonds, funds, and through lotteries. The private party funds either the whole amount or the balance; it designs the project, builds it as per the specifications, and then operates the completed infrastructure for a fixed amount of time. During the time when it operates the infrastructure, the private party earns income from the project, to recoup its investment. After the fixed tenure expires, the project reverts to the government.
300	**DBIA**	Design Build Institute of America The Design-Build Institute of America is the only organization that defines, teaches and promotes best practices in design-build. Design-build is an integrated approach that delivers design and construction services under one contract with a single point of responsibility.
301	**DBMS**	Data Base Management System A database management system (DBMS) is a computer program (or more typically, a suite of them) designed to manage a database, a large set of structured data, and run operations on the data requested by numerous users. Typical examples of DBMS use include accounting, human resources and customer support systems. Originally found only in large companies with the computer hardware needed to support large data sets, DBMSs have more recently emerged as a fairly standard part of any company back office.
302	**DBT**	Dry Bulb Temperature The dry-bulb temperature (DBT) is the temperature of air measured by a thermometer freely exposed to the air, but shielded from radiation and moisture. DBT is the temperature that is usually thought of as air temperature, and it is the true thermodynamic temperature. The DBT, usually referred to as air temperature, is the air property that is most common used. When people refer to the temperature of the air, they are normally referring to its dry bulb temperature.
303	**DC**	Direct Current DC is the one directional or unidirectional flow of electric charge. An electrochemical cell is a prime example of DC power. Direct current may flow through a conductor such as a wire, but can also flow through semiconductors, insulators, or even through a vacuum as in electron or ion beams. The electric current flows in a constant direction, distinguishing it from alternating current (AC). A term formerly used for this type of current was galvanic current.
304	**DCE-RPC**	Distributed Computing Environment - Remote Procedure Call The DCE-RPC facility is a network protocol used in distributed systems. RPC is modeled after the local procedure call found in most programming languages, but the called procedure is executed in a different process from that of the caller, and is usually executed on another machine. RPC facility makes the construction of distributed systems easier because developers can focus on the fundamentals of building dis-

		tributed applications
305	**DCF**	Discounted Cash Flow
		Discounted Cash Flow (DCF) is a valuation method used to estimate the value of an investment based on its future cash flows. DCF analysis attempts to figure out the value of an investment today, based on projections of how much money it will generate in the future.
306	**DCLG**	Department for Communities and Local Government
		The Department for Communities and Local Government (DCLG) was created on 5 May 2006, replacing the Office of the Deputy Prime Minister, with a remit to promote community cohesion and equality, as well as responsibility for housing, urban regeneration, planning and local government. On 8 January 2018, the government announced that the Department for Communities and Local Government will be renamed as the Ministry for Housing, Communities and Local Government.
307	**DCOM**	Distributed Component Object Model
		DCOM was introduced in 1996 and is designed for use across multiple network transports, including Internet protocols such as HTTP. DCOM is based on the Open Software Foundation's DCE-RPC spec and will work with both Java applets and ActiveX components through its use of the Component Object Model (COM). It works primarily with Microsoft Windows.
308	**DCS**	Distributed Control System
		A DCS is a computerised control system for a process or plant usually with many control loops, in which autonomous controllers are distributed throughout the system, but there is no central operator supervisory control. This is in contrast to systems that use centralized controllers; either discrete controllers located at a central control room or within a central computer. The DCS concept increases reliability and reduces installation costs by localising control functions near the process plant, with remote monitoring and supervision.
309	**DDBB**	Databases
		A database is an organized collection of data, generally stored and accessed electronically from a computer system. Where databases are more complex, they are often developed using formal design and modelling techniques.
310	**DDC**	Direct Digital Controller
		DDC is a controller which uses the analogue or digital signals from various devices of a field sensor and actuators and then process and control the system based on the programme written inside the controllers and has the capability to sends the information to another controller or DDC. Direct digital control is often used to control heating, ventilating, and air conditioning devices such as valves via microprocessors using software to perform the control logic.

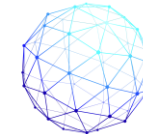| 311 | **DDS** | Data Design System |
		Data Design System (DDS) is a company that develops innovative BIM solutions serving the building and construction industry since 1984. With more than 15.000 users world-wide, DDS is one of Europe's leading BIM software providers. DDS has its headquarters in Stavanger, Norway and has a strong financial base resulting from the company's commitment to innovation and value for money.
312	**DE5**	DE 5 SERVICES SRL
		DE5 is located in SAN SALVO, CHIETI, Italy and is part of the Commercial and Industrial Machinery and Equipment Rental and Leasing Industry. DE 5 SERVICES SRL has 9 employees at this location and generates $1,24 million in sales (USD). Partner of SPHERE Project
313	**DERMS**	Distributed Energy Resources Management Systems
		A DERMS is a software-based solution to monitor, dispatch and control, in real time, grid-connected and behind-the-meter DERs across customer, utility and market applications. A system of systems, DERMS extends the Distribution Management System (DMS) behind the meter to the customer. While many providers may claim their product is a DERMS, the ability to manage the grid and DERs in real time is a key differentiator and, according to GTM Research, what sets a solution apart as a true DERMS.
314	**DERs**	Distributed Energy Resources
		The Smart Electric Power Alliance defines DERs as "physical and virtual assets that are deployed across the distribution grid—typically close to load, and usually behind the meter—that can be used individually or in aggregate to provide value to the grid, individual customers, or both." That definition includes distributed generation, energy storage, direct load-control devices, microgrids and demand-side resources. But, reflecting the concerns expressed by utility professionals, left unmanaged, DERs can disrupt distribution systems.
315	**DFEE**	Dwelling Fabric Energy Efficiency
		The Dwelling Fabric Energy Efficiency rate is the actual energy performance of the new dwelling. In accordance with regulation 26A of the building regulations, the calculated Dwelling Fabric Energy Efficiency rate must not be greater than the Target Fabric Energy Efficiency rate. It was introduced by the 2013 edition of approved document L1A of the building regulations in the UK.
316	**DFMA**	Design for Manufacturer and Assembly
		Design for Manufacture and Assembly (DfMA) is a design approach that focuses on ease of manufacture and efficiency of assembly. By simplifying the design of a product it is possible to manufacture and assemble it more efficiently, in the minimum time and at a lower cost. Coming from automotive sector, recently construction contractors have begun to adopt DfMA for the off-site prefabrication of construction components such as concrete floor slabs, structural columns and beams, and so on.

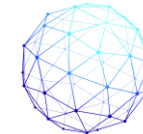| 317	**DfT**	Department for Transport
		The Department for Transport (DfT) is the government department responsible for the English transport network and a limited number of transport matters in Scotland, Wales and Northern Ireland that have not been devolved.
318	**DGNB**	Deutsche Gesellschaft für Nachhaltiges Bauen
		The abbreviation (in German) for the German Sustainable Building Council. A non-profit organisation based in Stuttgart, ever since it was founded in 2007 the DGNB has been committted to demonstrably good buildings and urban districts that are worth living in. In straightforward terms, this means building an environment around ourselves with foresight. Our overarching aim is to promote change in the building and property market, engendering an appropriate understanding of quality as a foundation for responsible and sustainable action.
319	**DHW**	Domestic Hot Water
		Water used, in any type of building, for domestic purposes, principally drinking, food preparation, sanitation and personal hygiene (but not including space heating, swimming pool heating, or use for processes such as commercial food preparation or clothes washing).
320	**DID**	Direct Inward Dialling
		DID is a service of a local phone company (or local exchange carrier) that provides a block of telephone numbers for calling into a company's private branch exchange (PBX) system. Using DID, a company can offer its customers individual phone numbers for each person or workstation within the company without requiring a physical line into the PBX for each possible connection.
321	**DIP**	Dual In-line Package
		DIP switch is a small switch in a DIP (dual in-line package) whose position changes the operating mode of a device. DIP switches help configure computer peripherals, such as hard drives, modems, sound cards, and motherboards. They are often used as an alternative to jumpers because they are easier to operate and less likely to get lost. Today, DIP switches are less common because most computers utilize plug and play, so hardware no longer requires manual configuration.
322	**DIUS**	Department for Innovation, Universities and Skills
		The DIUS was a UK government department created on 28 June 2007 to take over some of the functions of the Department of Education and Skills and of the Department of Trade and Industry. In June 2009 it was merged into the newly formed Department for Business, Innovation and Skills. It was responsible for adult learning, some parts of further education, higher education, skills, science and innovation.
323	**DL**	Description Logic
		Description logics (DL) are a family of formal knowledge representation languages. ... DLs are used in artificial intelligence to describe and

		reason about the relevant concepts of an application domain (known as terminological knowledge).
324	**DL**	Deadline A deadline is a time or date before which a particular task must be finished or a particular thing must be done.
325	**DL**	Deep Learning Deep learning (also known as deep structured learning or differential programming) is part of a broader family of machine learning methods based on artificial neural networks with representation learning. Learning can be supervised, semi-supervised or unsupervised.
326	**DLT**	Distributed Ledger Technology Distributed ledger technology (DLT) is a digital system for recording the transaction of assets in which the transactions and their details are recorded in multiple places at the same time. Unlike traditional databases, distributed ledgers have no central data store or administration functionality.
327	**DMP**	Data Management Plan A data management plan (DMP) is a written document that describes the data you expect to acquire or generate during the course of a research project, how you will manage, describe, analyse, and store those data, and what mechanisms you will use at the end of your project to share and preserve your data.
328	**DMS**	Document Management System A document management system (DMS) is a system used to receive, track, manage and store documents and reduce paper. Most are capable of keeping a record of the various versions created and modified by different users (history tracking).
329	**DNA**	Deoxyribonucleic acid Deoxyribonucleic acid is a nucleic acid that is the main constituent of the chromosomes of all organisms (except some viruses). The DNA molecule consists of two polynucleotide chains in the form of a double helix, containing phosphate and the sugar deoxyribose and linked by hydrogen bonds between the complementary bases' adenine and thymine or cytosine and guanine. DNA is self-replicating, plays a central role in protein synthesis, and is responsible for the transmission of hereditary characteristics from parents to offspring.
330	**DoA**	Description of Action DoA is the Annex 1 to an H2020 Project. It is a detailed description of how the project will be carried out. Follows the structure of the proposal, also comprising Parts A & B. Part A is partially pre-filled with proposal data. Part B is the narrative description of your project.

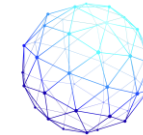| 331	**DOT**	Damage Topology Ontology
		DOT allows the definition of damage representations and their relations with other damages and affected construction components. The ontology contains no taxonomic elements or other classes for damage classification, damage causation, national standards, mechanics, etc. The ontology supports a generic damage modelling approach and therefore could be applied for any type of degradation as well as for any construction type (e.g. buildings or bridges).
332	**DPB**	Discounted Pay-Back
		Discounted payback method of capital budgeting is a financial measure which is used to measure the profitability of a project based upon the inflows and outflows of cash for that project. Under this method, all cash flows related to the project are discounted to their present values using a certain discount rate set by the management.
333	**DPP**	Developed Project Proposal
		A Developed Project Proposal serves as an overview of the entire development project idea. It presents the concept of the development project and it can solidify and strengthen the reasons on why the project is relevant and necessary.
334	**DR**	Demand Response
		Demand response is a change in the power consumption of an electric utility customer to better match the demand for power with the supply. Until recently electric energy could not be easily stored, so utilities have traditionally matched demand and supply by throttling the production rate of their power plants, taking generating units on or off line, or importing power from other utilities. There are limits to what can be achieved on the supply side, because some generating units can take a long time to come up to full power, some units may be very expensive to operate, and demand can at times be greater than the capacity of all the available power plants put together.
335	**DRC**	Depreciated Replacement Cost
		The DRC method is a form of cost approach that is defined in the RICS Valuation – Global Standards 2017 (RB Global) Glossary as: 'The current cost of replacing an asset with its modern equivalent asset less deductions for physical deterioration and all relevant forms of obsolescence and optimisation.
336	**DRMS**	Demand Response Management System
		Often, the first response to the challenge of DERs is to implement a point solution such as a Demand Response (DR) program. A more rigorous approach is to implement a Demand Response Management System (DRMS). A comprehensive DRMS goes beyond single-customer-class, single-program and single-asset approaches. Instead, it can deliver dispatchable DR to all programs, assets and customer groups. These systems work well for many of the DR program types including behavioural DR, dynamic pricing, critical peak pricing, time-of-use pricing, etc.

337	DS	Digital Shadow
		A virtual representation of a physical manufacturing system for exploration and simulation based on automatic updating in a single-direction from physical to digital. The Digital Shadow ensures a viable information flow, also in the sense of information logistics, between all actors in and outside a factory. The Digital Shadow with all of its subsystems is designed as a next generation information system to allow a more efficient operation of value creation systems.
338	DSM	Demand-Side Management
		Demand-Side Management (DSM) or Demand-side Response (DSR), is the modification of consumer demand for energy through various methods such as financial incentives and behavioural change through education. Usually, the goal of demand-side management is to encourage the consumer to use less energy during peak hours, or to move the time of energy use to off-peak times such as night-time and weekends. Peak demand management does not necessarily decrease total energy consumption, but could be expected to reduce the need for investments in networks and/or power plants for meeting peak demands.
339	DSM	Design Structure Matrix / Dependency and Structure Matrix
		Design Structure Matrix (DSM, also known as Dependency and Structure Modelling) techniques support the management of complexity by focusing attention on the elements of a complex system and how they relate to each other.
340	DSO	Distribution System Operators
		Distribution system operators (DSOs) are the operating managers (and sometimes owners) of energy distribution networks, operating at low, medium and, in some member states, high voltage levels. Transmission grids transport large quantities of high (and extreme high) voltage electricity across vast distances, often from large power plants to the outskirts of large cities or industrial zones, where it is transformed into lower voltages distributed to all end-users through the distribution network. Over-head and underground cables leading to your home or business are operated by DSOs.
341	DSR	Demand-Side Response
		See DSM (Demand Side Management)
342	DSS	Data Security Standard
		The Payment Card Industry Data Security Standard (PCI DSS) is an information security standard for organizations that handle branded credit cards from the major card schemes. The PCI Standard is mandated by the card brands but administered by the Payment Card Industry Security Standards Council. The standard was created to increase controls around cardholder data to reduce credit card fraud.

343	**DSS**	Decision Support System
		A decision support system (DSS) is a computerized program used to support determinations, judgments, and courses of action in an organization or a business. A DSS sifts through and analyzes massive amounts of data, compiling comprehensive information that can be used to solve problems and in decision-making.
344	**DT**	Digital Twin
		A Digital Twin is a digital replica of a physical entity. By bridging the physical and the virtual world, data is transmitted seamlessly allowing the virtual entity to exist simultaneously with the physical entity. Digital twins integrate internet of things, artificial intelligence, machine learning and software analytics with spatial network graphs to create living digital simulation models that update and change as their physical counterparts change
345	**DTA**	Digital Twin Aggregate
		The sum of all the DTIs, whose data and information can be used for interrogation about the physical product, prognostics, and learning. Unlike the DTI, the DTA may not be an independent data structure, rather it has access to all DTIs and queries them either ad-hoc or proactively
346	**DTC**	Digital Twin Consortium
		DTC is a collaborative organization from US, driving the innovation of digital twin technology through consistent approaches and open source development. It coalesces industry, government and academia to drive consistency in vocabulary, architecture, security and interoperability of digital twin technology.
347	**DTcM**	Digital Twin Configuration Manager
		The DT Configuration Manager performs the daily overall management of the processes relevant to any Digital Twin construct. This role ensures that all process activities are being per-formed and that they are staffed adequately. From a practical point of view and in the way to facilitate DTcM tasks, the Configuration Manager must be provided of a Configuration Management tool included as a service of the Digital Twin Platform. See ISO/IEC 12207.
348	**DTE**	Digital Twin Environment
		Is an integrated, multi-domain physics application space for operating on Digital Twins for two main purposes: predictive and interrogative. This is an integrated, multi-domain physics application space for operating on Digital Twins basically for two main purposes: • Predictive: The DT would be used for predicting future behaviour and performance of the physical product • Interrogative: DTI could be interrogated for the current and past histories. This would apply both for DTI's as DTAs.

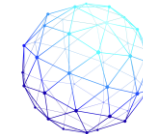| 349	**DThread**	Digital Thread
		A final digital manufacturing concept that has emerged in manufacturing is that of the Digital Thread (Dthread), which emerged from US air-force studies on air vehicle weapon systems, initially meant to describe a process to digitally manage the process from design to manufacturing, assembly and delivery (Kraft 2016). The development of the Dthread is still in its infancy, yet is starting to take off thanks to the recent publication of the ISO 10303-238 STEP-NC standard (Standard for the Exchange of Product model data compliant Numerical Control)
350	**DTI**	Digital Twin Instance
		Describes a specific attribute corresponding to the physical product. It remains linked to the Digital Twin throughout the life of that physical product
351	**DTI**	Digital Twin Institute
		DIGITAL TWIN INSTITUTE with the Co. Nr.: G1900002721 has been set up 2/26/2019 in state BREVARD. The current status of the business is Active in 10/05/2020. The DIGITAL TWIN INSTITUTE principal address is 1065 S ATLANTIC AV, COCOA BEACH, FL, 32931. The owner is Michael W. Grieves.
352	**DTM**	Digital Twin Manager
		The Digital Twin Manager assures that the model and the external database works correctly, and all the users have access to the DT platform. All changes (Ex: new users, substitution of a equipment, etc.) suffered by the DT are controlled by the DT Manager. This new figure will be liable to certify, audit and record the evolution of any kind of Building Digital Twin across its lifespan.
353	**DTP**	Digital Twin Platform
		A digital twin platform is able to update and provide the exact state for each individual digital twin, creating a single source of truth. A digital twin platform needs to provide a customer and user perspective. A digital twin platform needs to enable collaboration between the stakeholders of the digital twin. A digital twin platform provides an open API that allows any system to interact with the digital twin. For instance, machine learning and analytics services should be able to interact with a digital twin through an API.
354	**DTP**	Digital Twin Principles
		The world in which a digital twin is constructed contains governing rules and principles which are applied to the twin itself, in much the same way that a system in the real world is subject natural laws and principles. For example, gravity, friction, temperature and light are fundamental constituents of the virtual world of a digital twin. This means that the way in which a digital twin behaves in its virtual world is the closest analogy to an equivalent real-world system that technology can produce at the current time.

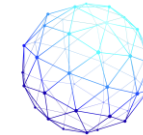| 355 | DTP | Digital Twin Prototype |
		Describes the prototypical physical artefact. It contains the informational sets necessary to describe and produce a physical version that duplicates the virtual version
356	DTsM	Digital Twin Simulation Manager
		DTsManager acts as the general coordinator for the definition of simulation-based services of any Digital Twin Environment. He Identify simulation strategy according to the received project and the actors involved across the lifespan of the asset, from design and construction to operation phases
357	DTT	Digital Twin Technologies
		Digital Twin Technologies, an emerging solutions company having its business operations globally, work in hands with clients to design, develop and deploy products and solutions for the enterprises. Our service model comprises proficiency in designing and developing Enterprise Mobility, Analytics, Internet of Things, Big Data, Digital Marketing, Cloud, Web and Server application and so on.
358	DTV	Design Transfer View
		The purpose of the IFC4 Design Transfer View is to provide building information with support for editing of interconnected elements. ... An example of a target scenario is an architect providing building design information to an engineer for a particular discipline, where geometric modifications may need to be made.
359	DU	Dumb, Uncommunicative
360	DVD-ROM	Digital Versatile Disc – Read-Only Memory
		A DVD-ROM is a read-only digital versatile disc (DVD) commonly used for storing large software applications. It is similar to a compact disk-read only memory (CD-ROM) but has a larger capacity. A DVD-ROM stores around 4,38 GB of data. A CD-ROM usually stores 650 MB of data. A DVD-ROM permanently stores data files which cannot be changed, written over or erased. A personal computer (PC) with a DVD-ROM or a DVD-RAM drive is designed to read a DVD-ROM disc.
361	DXF	Drawing eXchange Format
		Drawing exchange format (DXF) is a file format for graphics information. It is an ASME/ANSI standard that is used for PC-based CAD/CAM platforms. DXF enables vector data exchange as well as 2D and 3D graphics drawing.
362	DXF	DaTA eXchange Format
		Also called a "data interchange format," the source data is converted into the exchange format by one program, and the data in the exchange

		format is converted to the target format by another program. For example, XML is commonly used as a data exchange format. See XML and CSV.
363	**EA**	Empresarios Agrupados EA is an engineering organisation committed to quality and the environment. EA provides engineering and consulting services in more than 37 countries. EA is ranked by the U.S. trade journal Engineering News Record (ENR) among the Top 200 International Design Firms. EA employs a permanent staff of some 1.000, of whom more than 65% hold university degrees. This staff covers the full spectrum of engineering disciplines, carrying out projects and providing services for the range of industrial sectors and business activity areas which EA serves.
364	**EA**	Evolutionary Algorithm An Evolutionary Algorithm (EA) is a subset of evolutionary computation, a generic population-based metaheuristic optimization algorithm. An EA uses mechanisms inspired by biological evolution, such as reproduction, mutation, recombination, and selection. Candidate solutions to the optimization problem play the role of individuals in a population, and the fitness function determines the quality of the solutions. Evolution of the population then takes place after the repeated application of the above operators.
365	**EAB**	External Advisory Board An advisory board is a body that provides non-binding strategic advice to the management of a company. The informal nature of an advisory board gives greater flexibility in structure and management compared to the board of directors. Unlike the board of directors, the advisory board does not have authority to vote on corporate matters or bear legal fiduciary responsibilities. Many new or small businesses choose to have advisory boards in order to benefit from the knowledge of others, without the expense or formality of the board of directors.
366	**EAI**	Empresarios Agrupados Internacional See EA: Empresarios Agrupados
367	**EAM**	Enterprise Asset Management Enterprise asset management (EAM) involves the management of the maintenance of physical assets of an organization throughout each asset's lifecycle. EAM is used to plan, optimize, execute, and track the needed maintenance activities with the associated priorities, skills, materials, tools, and information. This covers the design, construction, commissioning, operations, maintenance and decommissioning or replacement of plant, equipment and facilities.
368	**eBOM**	Engineering Bill of Materials EBOM is a type of bill of materials (BOM) reflecting the product as designed by engineering, referred to as the "as-designed" bill of materials. The Design Office is expected to produce an eBOM, which corresponds to the technical (and functional) definition of the products. It is the

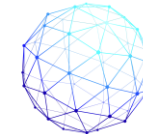|		composition of the final product, that is to say it is composed by all the components necessary for the product. The eBOM is the product's reference nomenclature (as designed).
369	**EBRD**	European Bank for Reconstruction and Development
		The European Bank for Reconstruction and Development (EBRD) is an international financial institution founded in 1991. As a multilateral developmental investment bank, the EBRD uses investment as a tool to build market economies. Initially focused on the countries of the former Eastern Bloc it expanded to support development in more than 30 countries from Central Europe to Central Asia. Similar to other multilateral development banks, the EBRD has members from all over the world, with the biggest shareholder being the United States, but only lends regionally in its countries of operations.
370	**EBS**	European BIM Summit
		The European BIM Summit is an annual international congress about Building Information Modelling (BIM). The European BIM Summit was started in Barcelona in 2015 as a forum of debate on Building Information Modelling, intended to promote a more efficient, collaborative, modern construction sector, respectful in its use of public, private and natural resources.
371	**EC**	European Commission/Committee
		The European Commission is the executive branch of the European Union, responsible for proposing legislation, implementing decisions, upholding the EU treaties and managing the day-to-day business of the EU. Commissioners swear an oath at the European Court of Justice in Luxembourg City, pledging to respect the treaties and to be completely independent in carrying out their duties during their mandate. The Commissioners are proposed by the Council of the European Union, on the basis of suggestions made by the national governments.
372	**ECAS**	European Commission Authentication Service
		ECAS is the system for logging on to a whole range of web sites and online services run by the Commission. Once you've used ECAS to log on to a website or service, you won't have to identify yourself again as long as you leave your browser open.
373	**ECD**	Entorno Común de Datos
		Spanish acronym for Common Data Environment. See CDE.
374	**ECI**	European Construction Institute
		The European Construction Institute (ECI) is a pan-European network of like-minded organisations focussed on delivering construction excellence. Its aim is to improve the competitiveness of its members through the sharing of knowledge and application of best practice to enable them to meet the challenges of world-class project delivery in Construction and Engineering Construction. ECI is one of the few organisations that brings together clients, contractors and academia.

375	**ECI**	Early Contractor Involvement
		Early Contractor Involvement (ECI) is a type of construction contract where the principal contractor is engaged at an early stage in a project to offer input into the design phase. It is in contrast to the design–bid–build model where the contractor is only brought on-board at the end of the design phase. The model allows the contractor to have an input in the design of the scheme and suggest value engineering changes. Studies have shown that savings of around 10% in construction phase time and 7% in cost are achievable through the use of ECI.
376	**ECI**	Environmental Cost Indicator
		The Environmental Cost Indicator (short ECI) is a single-score indicator expressed in Euro. It unites all relevant environmental impacts into a single score of environmental costs, representing the environmental shadow price of a product or project. Generally, most of the emissions of a product are not created at a production facility, but along the supply chain. This can be measured by conducting a Life Cycle Assessment (LCA).
377	**ECM**	Electronic Control Module
		See ECU (Electronic Control Unit)
378	**ECM's**	Energy Conservation Measures
		Energy Conservation Measures means measures that are applied to a state building that improve energy efficiency and are life cycle cost effective and involve energy conservation, cogeneration, renewable energy sources, improvements in operations, combined heat and power and maintenance efficiencies or retrofit activities.
379	**EcosimPro**	EcosimPro
		EcosimPro is a simulation tool developed by EAI (Empresarios Agrupados) for modelling simple and complex physical processes that can be expressed in terms of Differential algebraic equations or Ordinary differential equations and Discrete event simulation. The application runs on the various Microsoft Windows platforms and uses its own graphic environment for model design. This tool employs a set of libraries containing various types of components (mechanical, electrical, pneumatic, hydraulic, etc.) that can be reused to model any type of system.
380	**ECU**	Electronic Control Unit
		An Electronic Control Unit (ECU), also known as an Electronic Control Module (ECM), is an embedded system in automotive electronics that controls one or more of the electrical systems in a vehicle. These systems are sometimes referred to as the car's computer (technically there is no single computer but multiple ones). Sometimes one assembly incorporates several of the individual control modules. Some modern motor vehicles have up to 150 ECUs. Embedded software in ECUs continues to increase in line count, complexity, and sophistication.

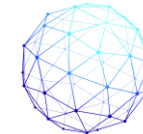| 381	**EDCE**	Energy Demand Calculation Engine
		GEOFIT proposes the use of an EDCE which is based on energy analysis and thermal load simulations. It can calculate accurately and rapidly (in terms of seconds) the annual energy demand of a given building, based on its architectural characteristics, climatic conditions and operation profiles. The EDCE tool is based on an energy simulator combined with mathematical models that describe the correlations between the buildings´ characteristics and their energy requirements, permitting to accurately calculate the energetic behaviour of a given building.
382	**EDI**	Electronic Data Interchange
		Electronic Data Interchange (EDI) is the concept of businesses electronically communicating information that was traditionally communicated on paper, such as purchase orders and invoices. Technical standards for EDI exist to facilitate parties transacting such instruments without having to make special arrangements.
383	**EDM**	Electronic Distance Measurement/Measurer
		Electronic Distance Measurement (EDM) is a method of determining the length between two points using electromagnetic waves. EDM instruments are highly reliable and convenient pieces of surveying equipment and can be used to measure distances of up to 100 kilometres. An Electronic Distance Measurer (EDM) can be used to place objects or points in three dimensions in relation to the unit. The EDM emits a beam of infrared light that is modulated at a controlled rate.
384	**EDMS**	Electronic Distance Measurement System
		EDM systems are mainly classified into three types based on carrier waves:
		• Microwave instruments can measure distances up to 150 Km. • Infrared wave instruments can measure distances up to 5 Km. • Lightwave instruments can measure distances up to 3 Km.
385	**Ee**	Elements Table (CPIC Uniclass 2)
		Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
386	**EE**	Energy Efficiency
		Energy Efficiency simply means using less energy to perform the same task – that is, eliminating energy waste. Energy efficiency brings a variety of benefits: reducing greenhouse gas emissions, reducing demand for energy imports, and lowering our costs on a household and economy-wide level. Energy Efficiency covers wide-ranging topics related to energy efficiency, energy savings, energy consumption, energy suffi-

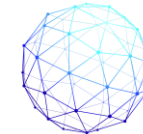|		
		ciency, and energy transition in all sectors across the globe.
387	**EEA**	European Economic Area
		The European Economic Area (EEA) was established via the Agreement on the European Economic Area, an international agreement which enables the extension of the European Union's single market to member states of the European Free Trade Association. The EEA links the EU member states and three EFTA states (Iceland, Liechtenstein, and Norway) into an internal market governed by the same basic rules. The United Kingdom benefits from this relationship during the transition/implementation period planned by the treaties.
388	**EEAB**	External Expert Advisory Board
		The External Expert Advisory. Board (EEAB) is an Innovation Action project to the topic INSO-1-2015: ICT-enabled open government: Pilots on personalised and mobile public services and/ or pilots on transparency.
389	**EeB**	Energy Efficient Building
		Energy efficient buildings (new constructions or renovated existing buildings) can be defined as buildings that are designed to provide a significant reduction of the energy need for heating and cooling, independently of the energy and of the equipment that will be chosen to heat or cool the building.
390	**EEB**	European Environmental Bureau
		The European Environmental Bureau (EEB) is a network of over 143 environmental citizens' organisations based in more than 30 countries (all European Union Member States plus some accession and neighbouring countries). These organisations range from local and national, to European and international. EEB's aim is to protect and improve Europe's environment and to enable Europe's citizens to play a part in achieving that goal. A key element of this process is promoting the EU's 'Green Leadership'.
391	**EED**	Energy Efficiency Directive
		The EED 2012/27/EU is a European Union directive which mandates energy efficiency improvements within the European Union. It was approved on 25/10/2012 and entered into force on 4/12/2012. It introduces legally binding measures to encourage efforts to use energy more efficiently in all stages and sectors of the supply chain. It establishes a common framework for the promotion of energy efficiency within the EU in order to meet its energy efficiency headline target of 20% by 2020. It also paves the way for further improvements thereafter.
392	**EEE**	Exported Electrical Energy
		Exported Electrical Energy means the active energy (in terms of kWh) exported to the Grid by a Solar Power Generator. It can also refer to the electrical energy exported by a country. Term used in LCA calculations (see also EET)

393	EEO's	Energy Efficiency Obligations
		Several EU Member States have implemented or are considering implementing energy efficiency obligation schemes (EEOSs). These schemes consist of energy saving obligations imposed on energy distributors and/or retail energy sales companies and are possibly coupled with a trading system.
394	EER	Energy Efficiency Ratio
		The EER is the ratio of the cooling capacity (thermal kW) divided by the power input (electrical kW) of a thermal equipment production. The higher the EER rating, the more efficient the air conditioner cooling system.
385	EET	Exported Thermal Energy
		Term used in LCA calculations (see also EEE)
396	EF	Environmental/ Ecological Footprint
		Ecological (more usual form) Footprint is a method promoted by the Global Footprint Network to measure human demand on natural capital, i.e. the quantity of nature it takes to support people or an economy. It is a method of gauging humans' dependence on natural resources by calculating how much of the environment is needed to sustain a particular lifestyle. In other words, it measures the demand vs. the supply of nature. It tracks this demand through an ecological accounting system.
397	EFPA	European Financial Planning Association
		EFPA is the leading professional standards setting body for financial advisors and planners in Europe. EFPA influences the market behaviour of its certificate holders guiding these professionals in Knowledge, Skills, Lifelong learning, Behaviour and Ethics. EFPA has a code of professional ethics with which certificate holders must comply.
398	EFTA	European Free Trade Association
		The European Free Trade Association (EFTA) is a regional trade organization and free trade area consisting of four European states: Iceland, Liechtenstein, Norway, and Switzerland. The organization operates in parallel with the European Union (EU), and all four member states participate in the European Single Market and are part of the Schengen Area. They are not, however, party to the European Union Customs Union.
399	EGDI	E-Government Development Index
		To measure the development of national e-government capacities, the United Nations has generated the United Nations e-government development index (EGDI). The EGDI is a composite indicator that consists of three indices (online service index, telecommunication index and

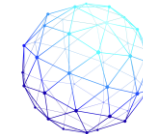|		human capital index) that are equally weighted. In view of the steady growth in technological capabilities and the fact that the UN aims to reflect these developments in their indices, the EGDI is not fully comparable to prior indices reported by the organisation.
400	**EGS**	Enhanced Geothermal Systems An EGS generates geothermal electricity without the need for natural convective hydrothermal resources. Until recently, geothermal power systems have exploited only resources where naturally occurring heat, water, and rock permeability are sufficient to allow energy extraction. However, by far most of geothermal energy within reach of conventional techniques is in dry and impermeable rock. EGS technologies enhance and/or create geothermal resources in this hot dry rock (HDR) through a variety of stimulation methods (e.g. hydraulic stimulation).
401	**EHS**	European Home System European Home Systems (EHS) Protocol was a communication protocol aimed at home appliances control and communication using power line communication (PLC), developed by the European Home Systems Association (EHSA). After merging with two other protocols, it is a part of the KNX standard, which complies with the European Committee for Electrotechnical Standardization (CENELEC) norm EN 50090 and has a chance to be a basis for the first open standard for home and building control.
402	**EHSA**	European Home Systems Association EHSA is an open organisation, designed to maintain and disseminate the EHS specification. Within EHS, the Standard Control Committee (SCC) is responsible for strengthening the EHS specification and coordinating the activities of the Inter-Operability Group (IOG) which monitors interoperability between equipment at the application level.
403	**EIB**	European Installation Bus The EIB is a system for automation in housing and functional buildings. The most recent version is the KNX standard, which specifies how sensors and actuators installed in a building can be connected to each other. It also specifies the communication protocol. European installation bus makes it possible to join and control lighting, shutters, shading devices, heating and cooling, and locking and alarm installations in a system. As a result of this technology, the remote monitoring of the building is also possible.
404	**EIC**	European Innovation Council The European Innovation Council, founded in 2017 was introduced by the European Commission to support the commercialization of high-risk, high-impact technologies in the European Union. Currently in its pilot phase, the European Innovation Council will be fully implemented from 2021 under Horizon Europe.
405	**EIF**	European Interoperability Framework The European Interoperability Framework (EIF) is a set of recommendations which specify how administrations, businesses and citizens

		communicate with each other within the European Union and across Member State borders. The first version of the EIF was adopted in 2010. As the field of information technology is developing by fast speed and new EU policies have emerged, the EIF needed an overall revision after six years of existence. The framework had to better react on emerging technological trends like open data and cloud computing.
406	**EIR**	Employer's Information Requirements It should be one of the first documents issued when you start working on BIM. It defines the customer's (employer's) needs for each stage of the construction process in terms of modelling. According to current English regulations, this document is fundamental for writing the BEP.
407	**EIR**	Exchange Information Requirements The requirement for generating project information in such a way that it can be incorporated into contract works that are aligned with events at the end of construction project delivery in various stages. The EIRs are defined in ISO19650 as the document that sets out: "managerial, commercial and technical aspects of producing project information." EIR are one of the fundamental principles information management and should be "identified wherever appointments are being established" i.e. it is critical in defining the BIM deliverables.
408	**EKO**	Ekodenge Ekodenge is a consultancy and engineering firm founded in 1996 working in the field of environmental management. In the following years, the working field of Ekodenge has extended with the contribution of experts specialized in architecture, information technologies, industry and energy, still keeping the environmental issues, environment friendly tendencies and sustainability in its focus by implementing them in every project developed.
409	**ELCD**	European Reference Life Cycle Database ELCD has been discontinued the 29th of June 2018. Several data providers have nowadays the capacity to create and maintain their own nodes, and share the data through the Life Cycle Data Network (LCDN https://eplca.jrc.ec.europa.eu/LCDN/). The JRC has released two new nodes, that will respond to specific needs of data sharing, for LCI datasets developed within EU-funded research projects, and for small data providers ensuring also for those entities the possibility to share data without the obligation of the node development and maintenance.
410	**ELM**	Evidence Log Module The Evidence Log is used to document and provide a written record of each item of evidence collected during an investigation. It includes the date the evidence was collected, the case with which the evidence is associated, a description of the evidence, and the name of the person who collected or provided the piece of evidence.
411	**ELSC**	Enterprise Leadership Steering Committee A type of stakeholder involved in Last Planner System (LPS) that is actively involved in the project, or has interest that may be positively or

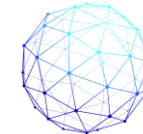|		negatively affected by the performance till the completion of the Project, or that might exert influence either it's deliverable or Team members.
412	**EMS**	Energy Management System An energy management system (EMS) is a system of computer-aided tools used by operators of electric utility grids to monitor, control, and optimize the performance of the generation or transmission system. Also, it can be used in small scale systems like microgrids. The computer technology is also referred to as SCADA/EMS or EMS/SCADA. The terminology EMS then excludes the monitoring and control functions, but more specifically refers to the collective suite of power network applications and to the generation control and scheduling applications.
413	**EMS**	Environment Management System An Environmental Management System is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. This site provides information and resources related to EMS for small businesses and private industry, as well as local, state and federal agencies. The EPA continues with its progress in developing and maintaining an environmental management system at each of its offices, labs, and other facility operations, focusing on the reduction of the agency's environmental footprint.
414	**En**	Entities Table (CPIC Uniclass 2) Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
415	**EN**	EuroNorm Euronorm (also referred to as the European Standard) is an international technical standard for a wide variety of commercial and industrial activities that has been recognized as applicable in the European Union. It has been prepared by CEN member states. The standards may be identical to international standards of the ISO or IEC, or have editorial or technical content changes for applicability in the European Union, with changes annexed to the international standard, or may be originated by a European standards organization.
416	**EnBs**	Energy Baseline An energy baseline is a reference tool that allows the organization to compare energy performance before and after a change is made to your site or system. The baseline establishes the "before" by capturing a site or system's total energy use prior to making improvements. This measure of energy-related performance is defined by the organization. It can be expressed as a simple metric, as a ratio or as a complex model.
417	**EnMS**	Energy Management System

		See EMS (Energy Management System))
418	**EnPi**	Energy Performance Indicator Energy Performance Indicator (EnPI) is a measure of energy intensity used to gauge the effectiveness of your energy management efforts. It is used to track annual improvements, energy savings, and Superior Energy Performance (SEP). Energy performance indicators are essential for a company working with energy efficiency and energy management because a suitable energy indicator provides information about the performance of the company or a specific process in the company.
419	**ENR**	Engineering News Record Engineering News-Record (widely known as ENR) is an American weekly magazine that provides news, analysis, data and opinion for the construction industry worldwide. It is widely regarded as one of the construction industry's most authoritative publications. It is owned by BNP Media. ENR annually ranks the largest contractors and design firms in the U.S. and internationally. Its "construction economics" section covers the cost fluctuations of a wide range of building materials.
420	**EOL**	End of Life End-of-life (EOL) is a term used with respect to a product supplied to customers, indicating that the product is in the end of its useful life (from the vendor's point of view), and a vendor stops marketing, selling, or rework sustaining it. The vendor may simply intend to limit or end support for the product.
421	**EOTA**	European Organisation for Technical Approvals European Organisation for Technical Assessment (EOTA) is an international non-profit association. It was established in 1990 in Belgium under the provisions of the EC Council Directive of 21 December 1988, relating to construction products (Construction Products Directive 89/106/EEc).
422	**EP**	European Parliament The European Parliament (EP) is one of three legislative branches of the European Union and one of its seven institutions. Together with the Council of the European Union, it adopts European legislation, commonly on the proposal of the European Commission. The Parliament is composed of 705 members. It represents the second-largest democratic electorate in the world (after the Parliament of India) and the largest trans-national democratic electorate in the world (375 million eligible voters in 2009).
423	**EP**	Eutrophication potential Eutrophication Potential (EP). Eutrophication is referred to the pollution state of aquatic ecosystems in which the over-fertilization of water and soil has turned into an increased growth of biomass.

424	**EPA**	Environmental Protection Agency
		The EPA is an independent executive agency of the United States federal government tasked with environmental protection matters. President Richard Nixon proposed the establishment of EPA on July 9, 1970; it began operation on December 2, 1970, after Nixon signed an executive order. The order establishing the EPA was ratified by committee hearings in the House and Senate. The EPA protects people and the environment from significant health risks, sponsors and conducts research, and develops and enforces environmental regulations.
425	**EPBD**	Energy Performance of Buildings Directive
		The EU Directive on the energy performance of buildings was adopted in 2002. It was intended to improve the energy efficiency of buildings, reduce carbon emissions and reduce the impact of climate change. When buildings are advertised for sale or rent, energy performance certificates are to be included.
426	**EPC**	Energy Performance Certificate
		Energy Performance Certificates (EPCs) are a rating scheme to summarise the energy efficiency of buildings in the European Union. The building is given a rating between A (Very efficient) - G (Inefficient), the EPC will also include tips the most cost effective ways to improve your homes energy rating. They are a result of European Union Directive 2002/91/EC relating to the energy performance of buildings, as transposed into British law by the Housing Act 2004 and The Energy Performance of Buildings Regulations 2007 (S.I. 2007/991).
427	**EPC**	Energy Performance Coefficient
		Calculated by dividing actual consumption by expected consumption (formerly known as Energy Intensity Coefficient: download detailed article) Energy performance indicator (EnPI) Usually a single numerical value intended to convey how energy-efficient a process or building is in operation. Energy performance is one of the main points of interests of new tenants in Europe, who seek for high-performance homes.
428	**EPC**	Energy Performance Contract/Contracting (see also ESPC)
		Energy Performance Contracting (EPC) is a mechanism for organising the energy efficiency financing. The EPC involves an Energy Service Company (ESCO) which provides various services, such as finances and guaranteed energy savings. The remuneration of the ESCO depends on the achievement of the guaranteed savings. The ESCO stays involved in the measurement and verification process for the energy savings in the repayment period.
429	**EPD**	Environmental Product Declaration
		EPD is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products. It is an environmental certification, classified as Type III, which quantifies and verifies the life cycle of products and goods as cited in the International Standards Organization (ISO) 14025.

430	**EPPM**	Engineering, Project, and Production Management
		The Journal of Engineering, Project, and Production Management (EPPM-Journal) is an international research journal publishing original research papers. EPPM-Journal is multidisciplinary in nature, considering all topics related to engineering management, project management, and production management. The journal aims to advance the cross-disciplinary sciences in these three fields. This unique platform is intended to inspire new thinking by merging and/or combining different approaches from diverse
431	**EQM**	European Quality Mark
		The EQM is a quality mark initially jointly developed by partners from eight European countries in a Leonardo da Vinci partnership project. The development of the EQM and review of criteria is now done by four North-European countries with the support of the Nordic Council of Ministers under the Nordplus adult program. The EQM is a quality assurance mark for all providers of non-formal learning throughout Europe. It is a system for quality assuring non-formal learning providers and their activities, services and work.
432	**ER**	Exchange Requirements
		Exchange Requirements prepare all reports and announcements required by and otherwise assist the Company to comply with, the listing requirements of the Exchange. It means the Rules; other requirements implemented by the Exchange pursuant to the Rules; each term of a Contract; and the participant documentation and other contractual obligations between a Participant (including its Authorized Users) and the Exchange.
433	**ER**	Exploitable Results
		Innovative results (either achieved or expected) coming from a project which have commercial/social significance and can be exploited as a stand-alone product, process, service, etc… (In this sense, "exploitation", "exploit", "exploitable", etc. are used in a loose sense, and not in a predatory or negative fashion. It could refer to results which are valuable in terms of immediate commercialisation, social good or even progress on previous R&D towards a marketable product or service in society.)
434	**ERDC**	Engineering Research and Development Center
		The Engineer Research and Development Center (ERDC) is a US Army Corps of Engineers (USACE) laboratory organization whose mission is to "Provide science, technology, and expertise in engineering and environmental sciences in support of our Armed Forces and the Nation to make the world safer and better." The headquarters is located in Vicksburg, Mississippi, on the site of an antecedent organization, the Waterways Experiment Station.
435	**ERP**	Enterprise Resource Planning
		Enterprise resource planning (ERP) is the integrated management of main business processes, often in real-time and mediated by software

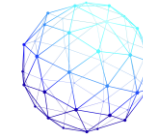|		and technology. ERP is usually referred to as a category of business management software — typically a suite of integrated applications—that an organization can use to collect, store, manage, and interpret data from many business activities. ERP provides an integrated and continuously updated view of core business processes using common databases maintained by a database management system.
436	**ERs**	Expectable Results Results that can be expected to be achieved
437	**ESCO**	Energy Service Company Energy service companies (ESCOs) develop, design, build, and fund projects that save energy, reduce energy costs, and decrease operations and maintenance costs at their customers' facilities. In general, ESCOs act as project developers for a comprehensive range of energy conservation measures and assume the technical and performance risks associated with a project.
438	**ESEER**	European Seasonal Energy Efficiency Ratio In Europe, the seasonal efficiency of refrigeration equipment, chillers and air conditioners is often rated by the European seasonal energy efficiency ratio (ESEER) which is controlled (among others) by the Eurovent Certification Company.
439	**ESPC**	Energy Savings Performance Contract (see also EPC) Energy Savings Performance Contracts (ESPCs), also known as Energy Performance Contracts, are an alternative financing mechanism authorized by the United States Congress designed to accelerate investment in cost effective energy conservation measures in existing Federal buildings. ESPCs allow Federal agencies to accomplish energy savings projects without up-front capital costs and without special Congressional appropriations.
440	**ESR**	Evaluation Summary Report An ESR summarize essential information on the subject being evaluated, the purpose and objectives of the evaluation, methods applied, and significant limitations, the most important findings, conclusions, and recommendations in priority order.
441	**ESS**	Energy Storage Systems Energy storage system (ESS) refers to the device of converting electrical energy from power systems into a form that can be stored for converting back to electrical energy when needed. It should be mentioned that the most commonly used methods in ESSs are based on the DC type, so using these systems is widely more intertwined with power electronic devices to connect with the national power grids. Generally, a variety of ESSs can be provided in terms of technology, location, capacity, demand, and costs of investment.
442	**ETC**	Engineering and Technology Board

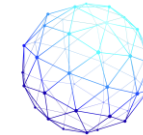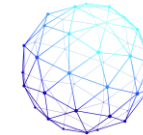|		
		Engineering and Technology Board, whose working name is EngineeringUK, is an independent, not-for-profit organisation. Its stated purpose is to promote the contribution that engineers, and engineering and technology, make to society. Based in the United Kingdom, EngineeringUK intends to inspire people at all levels to pursue careers in engineering and technology.
443	**ETCP**	European Construction Technology Platform The European Construction Technology Platform (ETCP) is a European Seventh Framework Programme initiative to improve the competitive situation of the European Union in the field of construction. The programme is a joint initiative (Public-Private Partnership) of the European Commission, representing the European Communities, and the industry. The main objective of the program is to produce a Strategic Research Agenda. The initiative was launched on 12 July 2004.
444	**ETL**	Extract, Transform and Load In computing, extract, transform, load (ETL) is the general procedure of copying data from one or more sources into a destination system which represents the data differently from the source(s) or in a different context than the source(s). The ETL process became a popular concept in the 1970s and is often used in data warehousing.
445	**ETPIS**	European Technology Platform on Industrial Safety ETPIS works on 3 lines: Conventional risks, improving the safety performance in all industry sectors and reducing the impact of accidents taking into account technical, human, organisational and cultural aspects, and the current 'state-of-the-art methods' for safety management.
446	**ETSI**	European Telecommunication Standards Institute The European Telecommunications Standards Institute produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, converged, broadcast and internet technologies. It is officially recognized by the European Union as a European Standards Organization.
447	**EU**	European Union The European Union (EU) is a political and economic union of 28 member states that are located primarily in Europe. Its members have a combined area of 4.475.757 km^2 and an estimated total population of about 513 million. The EU has developed an internal single market through a standardised system of laws that apply in all member states in those matters, and only those matters, where members have agreed to act as one. EU policies aim to ensure the free movement of people, goods, services and capital within the internal market, enact legislation in justice and home affairs and maintain common policies on trade, agriculture, fisheries and regional development.
448	**EUI**	Energy Use Intensity Energy Use Intensity (EUI) can be defined as the measurement of a building's annual energy consumption relative to its gross square-footage.

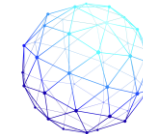|		
		The use of an Energy Use Intensity (EUI) indicator provides the means to equalize the way that energy use is compared between various types of buildings, and evaluate the means of reducing overall energy consumption. When using EUI, energy use is expressed as a function of a building's total area.
449	**EUPPD**	European Union Public Procurement Directive EU directives on public procurement cover tenders that are expected to be worth more than a given amount. The core principles of these directives are transparency, equal treatment, open competition, and sound procedural management. These directives also ensure EU companies have access to rapid and effective review.
450	**EUQ**	Element Unit Quantity In the UK, an Element Unit Quantity (EUQ) is a unit of measurement that relates solely to the quantity of the element or sub-element itself (e.g. the area of the external walls, the area of windows and external doors and the number of internal doors).
451	**EUR**	Element Unit Rate In the UK, the term EUR means the total cost of an element divided by the element unit quantity (EUQ). For example, the EUR for external walls is the total cost of the external walls divided by EUQ for external walls. EURs include all the cost of all materials, labour, plant, subcontractor's preliminaries, subcontractor's design fees and subcontractor's overheads and profit. EURs exclude main contractor's preliminaries, main contractor's overheads and profit and other allowances, such as project/design team fees, project costs, risk allowances and inflation.
452	**EURECAT**	Technological Centre in Catalonia Born out of the integration of Ascamm, Barcelona Media, Barcelona Digital, Cetemmsa and CTM, EURECAT is the main Technology Centre in Catalonia. Conceived with the mission of becoming a key agent in public-private cooperation within the area of research and innovation, EURECAT is one of the main players involved in the implementation of Catalonia's technological strategy, which was officially formalised as the RIS3CAT. Partner of SPHERE Project.
453	**EUT**	EURECAT See EURECAT
454	**EV**	Electric Vehicle An electric vehicle (EV) is a vehicle that uses one or more electric motors for propulsion. It can be powered by a collector system, with electricity from extravehicular sources, or it can be powered autonomously by a battery (sometimes charged by solar panels, or by converting fuel to electricity using fuel cells or a generator). EVs include, but are not limited to, road and rail vehicles, surface and underwater vessels, electric aircraft and electric spacecraft.

455	**EVA**	Earned Value Analysis
		Earned Value Analysis (EVA) is an industry standard method of measuring a project's progress at any given point in time, forecasting its completion date and final cost, and analysing variances in the schedule and budget as the project proceeds. EVA is a method that allows the project manager to measure the amount of work actually performed on a project beyond the basic review of cost and schedule reports.
456	**EVO**	Efficiency Valuation Organization
		EVO is a non-profit organization whose products and services help people engineer and invest in energy efficiency projects worldwide. EVO is the only non-profit organization in the world solely dedicated to creating measurement and verification (M&V) tools to ensure that the savings and impact of energy efficiency and sustainability projects are accurately measured and verified.
457	**EWP**	Early Works Packages
		One way of achieving this is through the delivery of early works packages which are tendered and commenced earlier than the main project works. Smaller discrete packages of works, including early works, may create opportunities for a broad range of contractors to be involved in major projects.
458	**FAIR**	Findable, Accessible, Interoperable, Reusable
		FAIR data are data which meet principles of findability, accessibility, interoperability, and reusability. A March 2016 publication by a consortium of scientists and organizations specified the "FAIR Guiding Principles for scientific data management and stewardship" in Scientific Data, using FAIR as an acronym and making the concept easier to discuss. The abbreviation FAIR/O data is sometimes used to indicate that the dataset or database in question complies with the FAIR principles and also carries an explicit data‑capable open license.
459	**FAQ**	Frequently Asked Questions
		FAQ is used especially on websites to refer to questions about computers and the internet.
460	**FAT**	Factory Acceptance Test
		FAT is a process that evaluates the equipment during and after the assembly process by verifying that it is built and operating in accordance with design specifications. In engineering and its various subdisciplines, acceptance testing is a test conducted to determine if the requirements of a specification or contract are met. It may involve chemical tests, physical tests, or performance tests.
461	**FAT**	FeuerwehrAnzeigeTableau
		Device for connection to a fire alarm control panel in accordance with DIN 14662, which displays certain operating states of the system in a simple and uniform manner and provides the fire brigade with the necessary information.

462	**FBF**	Feuerwehr-BedienFeld
		The fire brigade control panel (abbreviation in german FBF) is an additional device for fire alarm systems with a transmission device in the fire brigade. The FBF displays certain operating states of the fire alarm system. The standardised design of the display and operating elements enables the fire brigade personnel to recognise the system status and to carry out operational processes. Since the FBF has a local fire brigade lock, the function keys can only be operated by the fire brigade, but not by the operator.
463	**FCI**	Facilities Condition Index
		The facility condition index (FCI) is used in facilities management to provide a benchmark to compare the relative condition of a group of facilities. The FCI is primarily used to support asset management initiatives of federal, state, and local government facilities organizations. This would also include universities, housing and transportation authorities, and primary and secondary school systems. The FCI as a tool was first published in 1991 by the National Association of College and University Business Officers (NACUBO).
464	**FCI**	Function Condition Indexation
		The same than Facilities Condition Index
465	**FDD**	Fault Detection and Diagnosis
		Fault Detection and Diagnosis (FDD) focus on abnormal situations instead of univariate alarms, essential to maintain favourable operating conditions and predict risks of chemical processes. FDD is an analytic tool that identifies faults in HVAC systems and provides advice about how to address those problems. Fault detection and diagnostics tools basically monitor the data points in the HVAC control system in real-time (temperatures, flows, pressures, actuator control signals, etc.) and then apply a set of rules.
466	**FEA**	Finite Element Analysis
		FEA is the simulation of a physical phenomenon using a numerical mathematic technique referred to as the Finite Element Method, or FEM. This process is at the core of mechanical engineering, as well as a variety of other disciplines. It also is one of the key principles used in the development of simulation software. Engineers can use these FEM to reduce the number of physical prototypes and run virtual experiments to optimize their designs.
467	**FEE**	Fabric Energy Efficiency
		The Fabric Energy Efficiency Standard (FEES) is the proposed maximum space heating and cooling energy demand for zero carbon homes. This is the amount of energy which would normally be needed to maintain comfortable internal temperatures and in a dwelling, this can be influenced by: Building fabric U-values.

468	**FEM**	Finite Element Method
		The finite element method (FEM) is the most widely used method for solving problems of engineering and mathematical models. Typical problem areas of interest include the traditional fields of structural analysis, heat transfer, fluid flow, mass transport, and electromagnetic potential. The FEM is a particular numerical method for solving partial differential equations in two or three space variables (i.e., some boundary value problems). To solve a problem, the FEM subdivides a large system into smaller, simpler parts that are called finite elements.
469	**FET**	The field-effect transistor
		FET is an electronic device which uses an electric field to control the flow of current. FETs are devices with three terminals: source, gate, and drain. FETs control the flow of current by the application of a voltage to the gate, which in turn alters the conductivity between the drain and source.
470	**FF&A**	Furniture, Fixtures and Accessories
		See FFE or FF&E (Furniture, Fitting (or Fixtures) and Equipment)
471	**FFE or FF&E**	Furniture, Fitting (or Fixtures) and Equipment
		Furniture, Fitting (or Fixtures), and Equipment (FF&E) is business property not permanently connected to a building such as office furniture, partitions, and business equipment used in the operations of a company. It refers to movable furniture, fixtures, or other equipment that have no permanent connection to the structure of a building. These items are sometimes referred to as furniture, fixtures, and accessories (FF&A)
472	**FFL**	Finished Floor Level
		Finished floor level (FFL) refers to the uppermost surface of a floor once construction has been completed but before any finishes have been applied. So, in concrete construction it may be the uppermost surface of a screeded finish, or in timber construction, FFL will denote the top level of floorboards, chipboard or ply decking.
473	**FFNN**	Feedforward Neural Network
		A Feedforward Neural Network is an artificial neural network wherein connections between the nodes do not form a cycle. As such, it is different from its descendant: recurrent neural networks. The feedforward neural network was the first and simplest type of artificial neural network devised. In this network, the information moves in only one direction -forward- from the input nodes, through the hidden nodes (if any) and to the output nodes. There are no cycles or loops in the network.
474	**FFP**	Fitness for Purpose

		Fitness for purpose sees quality as fulfilling a customer's requirements, needs or desires. Theoretically, the customer specifies requirements. In education, fitness for purpose is usually based on the ability of an institution to fulfil its mission or a programme of study to fulfil its aims. In real terms, this takes the contractor or designer beyond the duty to exercise reasonable skill and care in the carrying out of the works and instead imposes an absolute obligation to produce a result.
475	**FIEBDC**	Formato de Intercambio Estándar de Bases de Datos para la Construcción FIEBDC is a Spanish Association formed to define and oversee the Standard Exchange Format for Construction Databases. FIEBDC was set up in July 1996 by seventeen companies and entities developing Budgeting Programmes and Construction Databases, aware of the importance of the interchangeability of information between all of them.
476	**FIEC**	European Construction Industry Federation Through its 32 national member federations in 28 European countries (25 EU & Norway, Ukraine, Turkey), it represents construction enterprises of all sizes (from one person craftsmen and SMEs through to large international firms), from all building and civil engineering specialties, engaged in all kinds of working methods (whether operating as main or sub-contractors). Represent and promote the interests of the European construction industry towards the European Institutions while helping to increase knowledge of the sector.
477	**FIM**	Facilities Information Model/Modelling A facility information model is an information model of an individual facility that is integrated with data and documents about the facility. The facility can be any large facility that is designed, fabricated, constructed and installed, operated, maintained and modified; for example, a complete infrastructural network, a process plant, a building, a highway, a ship or an airplane. A facility information model is intended for users that search for data and documents about the components of the facility and their operation.
478	**FIM**	Facility Intelligent Management In the field of construction industry, the term intelligent buildings describes facilities equipped with devices and systems that can be remotely controlled and programmed and that are able to communicate and collaborate in order to ensure convenient building environment and effective operation.
479	Flink2Go	Flink2Go Developed by ASCORA, Flink2Go is a fast way to document defects in construction processes. The software provides an overview of all construction of all construction defects or maintenance work and serves as a basis for unambiguous warranty documentation.
480	**FM**	Facility/ies Management Facility management (or facilities management or FM) is a professional management discipline focused upon the efficient and effective deliv-

		ery of support services for the organizations that it serves. The International Organization for Standardization (ISO) defines facility management as the "organizational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business".
481	**FM**	Facility Manager A Facility Manager is a job role that is responsible for making sure that buildings and their services meet the needs of the people that work in them. Facilities Managers are accountable for services such as cleaning, security, parking, comfort, etc. to make sure the surrounding environment is in a suitable condition to work.
482	**FMA**	Facilities Management Association Any of the National Associations related to Facilities Management
483	**FMI**	Facilities Maintenance Indexation
484	**FMI**	Finnish Meteorological Institute The Finnish Meteorological Institute produces observation and research data on the atmosphere, the near space and the seas, as well as weather, sea, air quality and climate services for the needs of public safety, business life and citizens. The Finnish Meteorological Institute is an administrative branch of the Ministry of Transport and Communications.
485	**FMI**	Functional Mock-up Interface FMI defines a standardized interface to be used in computer simulations to develop complex cyber-physical systems. The vision of FMI is to support this approach: if the real product is to be assembled from a wide range of parts interacting in complex ways, each controlled by a complex set of physical laws, then it should be possible to create a virtual product that can be assembled from a set of models that each represent a combination of parts, each a model of the physical laws as well as a model of the control systems assembled digitally.
486	**FMP**	Forward Maintenance Plans (or programme) A Forward Maintenance Plan (FMP) is an essential tool for building owners and property managers. Maintenance can increase the serviceable life of an asset which allows owners greater flexibility on the timing for potential major refurbishment or redevelopment works. It is a document setting out the specific maintenance activities (actions or tasks), resources and sequence of activities relevant for maintaining a building.
487	**FOAF**	Friend of a Friend FOAF (acronym of friend of a friend) is a machine-readable ontology describing persons, their activities and their relations to other people

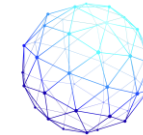|		and objects. Anyone can use FOAF to describe themselves. FOAF allows groups of people to describe social networks without the need for a centralised database. The FOAF project, which defines and extends the vocabulary of a FOAF profile, was started in 2000 by Libby Miller and Dan Brickley.
488	**FOG**	File Ontology for Geometry formats FOG provides geometry schema specific relations between things (e.g. building objects) and their geometry descriptions. The FOG ontology extends the Ontology for Managing Geometry (OMG) and consists of three taxonomies of properties. These geometry descriptions can be RDF-based (e.g. using specific ontologies), RDF literals containing embedded geometry of existing geometry formats and RDF literals containing a reference to an external geometry file.
489	**FRCT**	Fiber Reinforced Concrete Tool FRC is a tool from MBCC Group (formerly BASF) for designing precast panels and asses geometric and physical elements with BIM Object Information output
490	**FRI**	Function Re-investment Indexation
491	**FRS**	Factory Replication Factory Replication proposes to repurpose these factory simulations and make them factory replications by driving them, not from assumptions, but from real time information from Digital Twin factory floor equipment (Grieves, 2015). This Digital Twin of the factory and its equipment is a real-time window into the factory floor that would be available to anyone anywhere. See also FRS (Front Running Simulation)
492	**FRS**	Front Running Simulation The next step after replication would be to run a simulation in front of actual production from real-time data for a selected period of time, i.e., seconds, minutes, hours, etc., to predict potential problems. This is called Front Running Simulation (FRS) (Grieves, 2017). FRS would be based on up to the minute conditions on the factory floor.
493	**FRS**	First Run Studies Consists in the trial execution of a process in order to determine the best means, methods, sequencing, etc. to perform it. First-run studies are done a few weeks ahead of the scheduled execution of the process, while there is time to acquire different or additional prerequisites and resources. Is used in the context of Lean Construction.
494	**FTI**	Fast Track to Innovation The Fast Track to Innovation (FTI) is a fully-bottom-up innovation support programme promoting close-to-the-market innovation activities

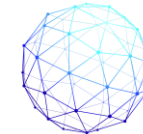|		open to industry-driven consortia that can be composed of all types of participants. The FTI is now central part of the European Innovation Council (EIC) pilot, targeting radically new, breakthrough products, services, processes or business models that open up new markets. FTI is a fully-bottom-up measure in Horizon 2020 promoting close-to-the-market innovation activities that is open to all types of participants.
495	**FTP**	File Transfer Protocol The File Transfer Protocol (FTP) is a standard network protocol used for the transfer of computer files between a client and server on a computer network. FTP is built on a client-server model architecture using separate control and data connections between the client and the server. FTP users may authenticate themselves with a clear-text sign-in protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it.
496	**FW**	Fresh Water (Use of) Water that is not salty, for instance water found in lakes, streams, and rivers, but not the ocean. Freshwater is water that contains only minimal quantities of dissolved salts, thus distinguishing it from sea water or brackish water. All freshwater ultimately comes from precipitation of atmospheric water vapor, reaching inland lakes, rivers, and groundwater bodies directly, or after melting of snow or ice. Also used to refer to things living in or related to freshwater (e.g., "freshwater fish").
497	**GA's**	General Arrangement Drawings General Arrangement's Drawings present the overall composition of an object such as a building. Depending on the complexity of the building, this is likely to require a number of different projections, such as plans, sections and elevations, and may be spread across several different drawings. They may be referred to as 'location drawings' as they show the location of various components and assemblies within the overall design, but this can be confused with location drawings indicating the geographical location of the building.
498	**GA**	General Assembly In a Horizon 2020 project, and really any other collaborative project, the main decision mechanism is democratic. The general assembly is, as the name already states, the assembly of all the partners; it includes one representative of each partner and is chaired by the coordinator. The General Assembly meets once every year. By default, any decision can be taken by a majority of 2/3 of the voters, and to vote there should be at least 2/3 of the members present or represented. The decisions made by the GA are mainly on proposal by the Executive Board.
499	**GA**	Grant Agreement Grant Agreement means a written document memorializing the terms and conditions of an Award granted pursuant to the Plan and shall incorporate the terms of the Plan. The H2020 grant agreements set out specific obligations to give other parties (e.g. other beneficiaries, affiliated entities of another beneficiary, EU bodies, etc.) access to use results or background related to the project

500	**GaBI**	GaBI LCA database
		GaBi LCA database has been developed by PE International about 20 years ago to support the LCA development by GaBi software. It contains 5000 LCI datasets based on primary data collection in the fields of agriculture, building & construction, chemicals & materials, consumer goods, education, electronics & ICT, energy & utilities, food & beverage, healthcare & life sciences, industrial products, metals & mining, plastics, retail, service sector, and textiles. The developers offer also the service of LCI development on demand
501	**GAMA**	Gas Appliance Manufacturers Association
		The Gas Appliance Manufacturers Association (GAMA) is a national trade association of manufacturers of gas, oil, and electric appliances and equipment and related products. GAMA's members account for more than 90% of U. S. shipments of gas, oil, and electric water heaters.
502	**GBCE**	Green Building Council España
		GBCe (Green Building Council España) is an autonomous organization, member of the World Green Building Council, WGBC, a non-profit International Association. GBCe has currently been recognized as the Spanish Established Council of this organization.
503	**GBXML**	Green Building Extensible Modelling Language
		The Green Building XML schema, or "gbXML", is the language of buildings. It was developed to facilitate the transfer of building information stored in CAD-based building information models, enabling interoperability between disparate building design and engineering analysis software tools. GbXML) is only justified if the parametric data is accurate and explicit and if the designers are proficient at console coding.
504	**GC**	General Contractor
		General Contractor means the party who signs the construction contract with the Owner to construct the entire project described in the final plans and specifications. Where the construction project involves more than one contractor, the general contractor will be the party responsible for managing the entire project on behalf of the Owner. In some cases, the Owner may be the general contractor. In these cases, the Owner will sign the permit application as the general contractor and would become the sole permittee.
505	**GCCB**	Government Construction Client Group
		A report was developed to brief the Construction Clients Group on the progress and findings of the BIM Industry Working Group. The working group looked at the construction and post-occupancy benefits of BIM for use in the UK building and infrastructure markets.
506	**GCS**	Government Construction Strategy
		The first Government Construction Strategy, Government Construction Strategy 2011 2015, was published in May 2011. The primary intention of the strategy was to reduce the cost of public sector construction in the UK by up to 20% by the end of the parliament, and to stimulate

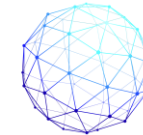|		growth.
507	**GD&T**	General Dimensioning and Tolerances Geometric dimensioning and tolerancing (GD&T) is a system for defining and communicating engineering tolerances. ... Tolerancing specifications define the allowable variation for the form and possibly the size of individual features, and the allowable variation in orientation and location between features.
508	**GDL**	Geometric Description Language In computer-aided design, Geometric Description Language (GDL) is the programming language of ArchiCAD library parts. GDL scripts define an ArchiCAD library part in its main roles, these are 3D model, 3D model projected to section/elevation or to 2D plan, 2D plan view, user interface display and behaviour and listing quantities.
509	**GDPR**	General Data Protection Regulation The General Data Protection Regulation (EU) 2016/679 (GDPR) is a regulation in EU law on data protection and privacy in the European Union (EU) and the European Economic Area (EEA). It also addresses the transfer of personal data outside the EU and EEA areas. The GDPR's primary aim is to give control to individuals over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU.
510	**GEA**	Global Energy Assessment The GEA, launched in 2012, defines a new global energy policy agenda, one that transforms the way society thinks about, uses, and delivers energy. Involving specialists from a range of disciplines, industry groups, and policy areas, GEA research aims to facilitate equitable and sustainable energy services for all, in particular the two billion people who currently lack access to clean, modern energy.
511	**GEA**	Gross External Area This is the Unit of Measurement with a Boundary Line that coincides with the external face of the building's external wall on any floor, measured at the height of the finished floor level. Includes: Thickness of external walls, half of the thickness of common walls, floor area occupied by internal walls, columns, pillars.
512	**GEOFIT**	GEOthermal systems, technologies and tools for energy efficient building retroFITting GEOFIT is a H2020 research project aimed at deployment of cost effective enhanced geothermal systems (EGS) on energy efficient building retrofitting. This entails the technical development of innovative EGS and its components, namely, non-standard heat exchanger configurations, a novel hybrid heat pump and electrically driven compression heat pump systems and suite of heating and cooling components to be integrated with the novel GSHP concepts, all specially designed to applied in energy efficient retrofitting projects.

513	**GFA**	Gross Floor Area
		The Gross Floor Area (GFA) is considered to be the total property square meterage, as measured between the exterior walls of a building. It includes all the finished areas inside the building including supporting areas. Typically, the GFA is measured in accordance with each Council's Local Environmental Plan Regulations.
514	**GHG**	Green House Gases
		A greenhouse gas is a gas that absorbs and emits radiant energy within the thermal infrared range, causing the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Without greenhouse gases, the average temperature of Earth's surface would be about −18 °C (0 °F), rather than the present average of 15 °C (59 °F). The atmospheres of Venus, Mars and Titan also contain greenhouse gases.
515	**GIA**	Gross Internal Area
		Gross Internal Area is the area of a building measured to the internal face of the perimeter walls at each floor level. Excludes: Perimeter wall thicknesses and external projections, external open-sided balconies, covered ways and fire escapes, canopies, voids over or under structural, raked or stepped floors, Greenhouses, garden stores, fuel stores, and the like in residential property.
516	**GIFA**	Gross Internal Floor Area
		The same than Gross Internal Area (see also GIA)
517	**GIGO**	Garbage In, Garbage Out
		In computer science, Garbage In, Garbage Out (GIGO) is the concept that flawed, or nonsense (garbage) input data produces nonsense output. The principle also applies more generally to all analysis and logic, in that arguments are unsound if their premises are flawed. It was popular in the early days of computing, but applies even more today, when powerful computers can produce large amounts of erroneous data or information in a short time.
518	**GIS**	Geographical Information System
		A Geographic Information System (GIS) is a system designed to capture, store, manipulate, analyse, manage, and present spatial or geographic data. GIS applications are tools that allow users to create interactive queries (user-created searches), analyse spatial information, edit data in maps, and present the results of all these operations. GIS (more commonly GIScience) sometimes refers to geographic information science (GIScience), the science underlying geographic concepts, applications, and systems.
519	**GML**	Geography Markup Language
		The Geography Markup Language (GML) is the XML grammar defined by the Open Geospatial Consortium (OGC) to express geographical fea-

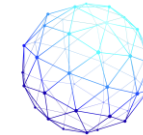|		
		tures. GML serves as a modelling language for geographic systems as well as an open interchange format for geographic transactions on the Internet. Key to GML's utility is its ability to integrate all forms of geographic information, including not only conventional "vector" or discrete objects, but coverages and sensor data.
520	**GMP**	Guaranteed Maximum Price A guaranteed maximum price contract sets a limit, or maximum price, that the customer will have to pay their contractor or subcontractor, regardless of the actual costs incurred. In its simplest form, a guaranteed maximum price contract simply puts a cap on the contract price that can't be exceeded. The contractor is responsible for cost overruns, unless the GMP has been increased via formal change order (only as a result of additional scope from the client, not price overruns, errors, or omissions).
521	**GMSD**	Generative Modular Building System Design This GMSD system includes application of the Quality Function Deployment (QFD) tool (Wee et al. 2017a, and Aurisicchio 2018). The research is based on a case study of a modular plant-room design.
522	**GMT**	Greenwich Mean Time Greenwich Mean Time (GMT) is the mean solar time at the Royal Observatory in Greenwich, London, reckoned from midnight. At different times in the past, it has been calculated in different ways, including being calculated from noon; as a consequence, it cannot be used to specify a precise time unless a context is given.
523	**GNSS**	Global Navigation Satellite System Global Navigation Satellite System (GNSS) refers to a constellation of satellites providing signals from space that transmit positioning and timing data to GNSS receivers. The receivers then use this data to determine location. The performance of GNSS is assessed using four criteria: Accuracy, Integrity, Continuity and Availability,
524	**GOM**	Geometry Metadata The Geometry Metadata Ontology contains terminology to Coordinate Systems (CS), length units and other metadata (file size, software of origin, etc.). GOM is designed to be at least compatible with OMG (Ontology for Managing Geometry) and FOG (File Ontology for Geometry formats), and their related graph patterns.
525	**GP**	Gemini Principles The Gemini principles (GP) is a paper by the Centre for Digital Built Britain (CDBB) that aims to provide main principles and definition for the Digital Twin (DT), the National Digital Twin (NDT) and the information management framework that will enable it. The GP are organized under three overarching headings: purpose, trust and function and composed of nine values

526	**GPS**	Global Positioning System The Global Positioning System (GPS), originally Navstar GPS (stylized in capital letters in its logo), is a satellite-based radionavigation system owned by the United States government and operated by the United States Space Force. It is one of the global navigation satellite systems (GNSS) that provides geolocation and time information to a GPS receiver anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. Obstacles such as mountains and buildings block the relatively weak GPS signals.
527	**GRIP**	Governance for Railway Investment Projects Governance for Railway Investment Projects (GRIP) is a key Network Rail process for effective control over railway projects. In a similar structure to the RIBA, it comprises of 8 stages from definition of required outputs through to handover for operational use and close out of the project. Each stage is designed to deliver a pre-determined set of outputs that demonstrate the readiness of the project to progress, or otherwise, to the next stage.
528	**GRNN**	Generalized Regression Neural Network Generalized Regression Neural Network (GRNN) is a variation to radial basis neural networks. GRNN was suggested by D.F. Specht in 1991. GRNN can be used for regression, prediction, and classification. GRNN can also be a good solution for online dynamical systems. GRNN represents an improved technique in the neural networks based on the nonparametric regression. The idea is that every training sample will represent a mean to a radial basis neuron.
529	**GSA**	Government Services Administration (US) The Government Services Administration (GSA) is responsible for broader oversight into federal contracts. They maintain a list of entities excluded from doing business with the federal government that is not limited to HHS.
530	**GSA**	General Services Administration The General Services Administration (GSA) is an independent agency of the United States government established in 1949 to help manage and support the basic functioning of federal agencies. GSA supplies products and communications for U.S. government offices, provides transportation and office space to federal employees, and develops government-wide cost-minimizing policies and other management tasks.
531	**GSL**	Government Soft Landings Government Soft Landings is not an integrated and collaborative client/delivery team process like BSRIA Soft Landings, but more a set of facilities management-driven requirements for a well-performing building. It contains a set of activities and tasks on project delivery. These are mostly defined and managed by a GSL client sponsor, and a project GSL Champion who could be either appointed by a Government department internally or sourced externally.

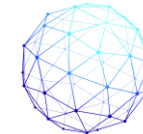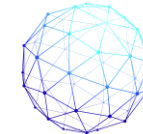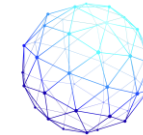| 532	GUI	Graphical User Interface
		GUI (gee-you-eye) is a form of user *interface* that allows *users* to interact with electronic devices through *graphical* icons and audio indicator such as primary rotation, instead of text-based *user interfaces*, typed command labels or text navigation.
533	GUID	Globally Unique Identifier
		A globally unique identifier (GUID) is a 128-bit number created by the Windows operating system or another Windows application to uniquely identify specific components, hardware, software, files, user accounts, database entries and other items. GUIDs are part of the universally unique ID (UUID) standard that is used in Windows and Windows applications.
534	GWP	Global Warming Potential
		GWP is the heat absorbed by any greenhouse gas in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of carbon dioxide (CO_2). GWP is 1 for CO_2. For other gases it depends on the gas and the time frame. Some gases, like methane, have large GWP, since a ton of methane absorbs much more heat than a ton of CO_2. Some gases, again like methane, break down over time, and their heat absorption, or GWP, over the next 20 years is a bigger multiple of CO_2 than their heat absorption will be over 100 or 500 years.
535	H2020	Horizon 2020
		Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.
536	H&S	Health and Safety
		Occupational health and safety refers to programs, guidelines and procedures that protect the safety, welfare and health of any person engaged in work or employment. ... When health and safety procedures are followed correctly, they can help to prevent accidents and reduce the risk of employee injury and illness.
537	HA	Highways Agency
		Executive Agency of the Department for Transport responsible for operating, maintaining and improving the strategic road network in England on behalf of the Secretary of State for Transport. The Highways Agency was created as an executive agency of the Department for Transport on 30 March 1994. It became a government-owned company with the name Highways England on 1 April 2015.
538	HADEA	Health and Digital Executive Agency

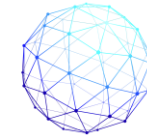|		The European Health and Digital Executive Agency (HaDEA) manages European programmes and initiatives on behalf of the European Commission. HaDEA was established on 16 February 2021 to allow for all necessary administrative preparations before its operational kick off on 1 April 2021. It works closely together with five Directorates-General and with the Commission's European Health Emergency Preparedness and Response Authority (HERA), which are focused on legislative and strategic tasks in policy making.
539	**HASL**	Height Above Sea Level Height above mean sea level is a measure of the vertical distance (height, elevation or altitude) of a location in reference to a historic mean sea level taken as a vertical datum. The combination of unit of measurement and the physical quantity (height) is called "metres above mean sea level" in the metric system, while in United States customary and imperial units it would be called "feet above mean sea level". Mean sea levels are affected by climate change and other factors and change over time.
540	**hBDTA**	Horizontal Building Digital Twin Aggregate This type of DT is following the same principle than in manufacturing use case, by linking similar DTIs. However, in general AECOO products present a smaller number of assets and much more heterogeneity than manufacturing products.
541	**HBI**	Human Building Interfaces Human-Building Interaction (HBI) is the study of the interface between the occupants and the building's physical space and the objects within it. HBI focuses on system interactions and interconnections with the aim of lowering the building-occupant system's energy use. Our built environment, including buildings and the urban landscape, is rapidly being reimagined and transformed in the current era of digitalization. We call this emerging field human-building interaction (HBI).
542	**HCI**	Human-Computer Interaction HCI is a multidisciplinary field of study focusing on the design of computer technology and, in particular, the interaction between humans (the users) and computers. While initially concerned with computers, HCI has since expanded to cover almost all forms of information technology design. Psychology and other social sciences unite with computer science and related technical fields have the goal of making computing systems that are both useful and usable.
543	**HCOME**	Human-Centered Ontology Engineering Methodology Human-Centered Ontology Engineering Methodology (HCOME) is intended for the development and evaluation of living ontologies in the context of communities of knowledge workers. The methodology aims to empower knowledge workers to continuously manage their formal conceptualizations in their day-to-day activities and shape their information space by being actively involved in the ontology life-cycle.
544	**HCONE**	Human-Centered ONtology Engineering Environment

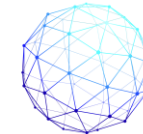|		
		HCONE is a modular and integrated environment, providing access to any functionality in any HCONE point. Doing so, workers are free to combine their own method using the environment, following an eclectic way to ontology development. For instance, a worker may construct an ontology in his personal space while receiving comments on a former version of the same ontology that has been shared with co-workers.
545	**HDD**	Heating Degree Days HDD is derived from measurements of outdoor air temperature. The heating requirements for a given building at a specific location are considered to be directly proportional to the number of HDD at that location. The HDD is the difference between a given base temperature and the outdoor temperature If this difference is negative, HDD=0.
546	**HDR**	Hot Dry Rock Hot dry rock (HDR) is an abundant source of geothermal energy available for use. A vast store of thermal energy is contained within hot – but essentially dry – impervious crystalline basement rocks found almost everywhere deep beneath the Earth's surface. A concept for the extraction of useful amounts of geothermal energy from HDR originated at the Los Alamos National Laboratory in 1970, and Laboratory researchers were awarded a U.S. patent covering it.
547	**HERA**	Health Emergency Response Authority A European HERA is a central element for strengthening the European Health Union with better EU preparedness and response to serious cross-border health threats, by enabling rapid availability, access and distribution of needed countermeasures.
548	**HIL**	Hardware in the Loop HIL simulation, is a technique that is used in the development and test of complex real-time embedded systems. HIL simulation provides an effective platform by adding the complexity of the plant under control to the test platform. The complexity of the plant under control is included in test and development by adding a mathematical representation of all related dynamic systems. These mathematical representations are referred to as the "plant simulation". The embedded system to be tested interacts with this plant simulation.
549	**HHS**	Health and Human Services (US) Department of Health and Human Services: The United States government's principal agency for "protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves."
550	**HMG**	Her Majesty's Government The phrase Her Majesty's Government (His Majesty's Government during the reign of a male monarch) is a formal term referring to the government of a Commonwealth realm or one of its constituent provinces, states or territories. In use since at least the height of the British Empire, the phrase has been inherited and integrated into the countries that emerged from that polity and which remain Commonwealth

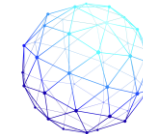|		realms.
551	**HMI**	Human Machine Interface A Human-Machine Interface (HMI) is a user interface or dashboard that connects a person to a machine, system, or device. While the term can technically be applied to any screen that allows a user to interact with a device, HMI is most commonly used in the context of an industrial process. Similar to how you would interact with your air-conditioning system to check and control the temperature in your house, a plant-floor operator might use an HMI to check and control the temperature of an industrial water tank, or to see if a certain pump in the facility is currently running.
552	**HOAI**	Honorarordnung für Architekten und Ingenieure Since the opening of the EU domestic market, foreign investors and exporting companies have been increasingly active in the German market. By contrast, foreign clients want to know what regulations their German architect uses to set their fees. The fifth edition of the bilingual text edition HOAI has been completely updated and revised in accordance with the seventh amendment to the HOAI of July 10, 2013. In the 1st part you will find the HOAI in German, in the 2nd part the English translation.
553	**HQE**	The Haute Qualité Environnementale or HQE (High Quality Environmental standard) is a standard for green building in France, based on the principles of sustainable development first set out at the 1992 Earth Summit. The standard is controlled by the Paris-based Association pour la Haute Qualité Environnementale (ASSOHQE).
554	**HR**	Human Resources Human resources are the set of the people who make up the workforce of an organization, business sector, industry, or economy. A narrower concept is human capital, the knowledge which the individuals embody. Similar terms include manpower, labor, personnel, associates or simply people. A human-resources department (HR department) of an organization performs human resource management, overseeing various aspects of employment, such as compliance with labor law and employment standards, administration of employee benefits, etc.
555	**HSE**	Health and Safety Executive The Health and Safety Executive (HSE) is a UK government agency responsible for the encouragement, regulation and enforcement of workplace health, safety and welfare, and for research into occupational risks in Great Britain. It is a non-departmental public body of the United Kingdom with its headquarters in Bootle, England. In Northern Ireland, these duties lie with the Health and Safety Executive for Northern Ireland. The HSE was created by the Health and Safety at Work etc. Act 1974, and has since absorbed earlier regulatory bodies.
556	**HTM**	Hypertext Markup HTM is an extension for an HTML (Hypertext Markup Language) file, which is a markup language for creating Web pages. HTML defines how a

		Web browser displays every browser page element, including pictures, text, hyperlinks and many others. Sometimes you'll see an HTML file as ".html," but it is more frequent to see the 3 letter file extension of ".htm" used.
557	**HTM**	Human Thermal Model
		Human Thermal Models represent the human body from a thermokinetic point of view and they have been used for modelling the thermoregulation system. HTM can be used for predicting thermal behavior of the human body under both steady-state and transient indoor environment conditions. The simulated thermal sensations with the HTM method showed a better correlation with measured values than the Fanger's PMV method.
558	**HTMD**	Human Thermal Model Description
		The Human Thermal Model Description (HTMD) language enables an easy adjustment of parameters for tissue temperature and thermal sensation calculation. The human geometry is represented with surfaces, which enables the reliable calculation of radiation heat transfer and a possible integration with a Computational Fluid Dynamics (CFD) tool.
559	**HTML**	Hypertext Markup Language
		Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.
560	**HTTP**	Hypertext Transfer Protocol
		HTTP is the protocol used to transfer data over the web. It is part of the Internet protocol suite and defines commands and services used for transmitting webpage data. HTTP uses a server-client model. A client, for example, may be a home computer, laptop, or mobile device. When you access a website, your browser sends a request to the corresponding web server and it responds with an HTTP status code.
561	**HTTPS**	HyperText Transfer Protocol Secure
		Hypertext Transfer Protocol Secure (HTTPS) is an extension of the Hypertext Transfer Protocol (HTTP). It is used for secure communication over a computer network, and is widely used on the Internet. In HTTPS, the communication protocol is encrypted using Transport Layer Security (TLS) or, formerly, Secure Sockets Layer (SSL). The protocol is therefore also referred to as HTTP over TLS, or HTTP over SSL.
562	**HUB**	HUB
		A network hub is a node that broadcasts data to every computer or Ethernet-based device connected to it. A hub is less sophisticated than a switch, the latter of which can isolate data transmissions to specific devices. Network hubs are best suited for small, simple local area net-

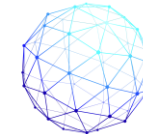|		
		work (LAN) environments.
563	**HV**	High Voltage High voltage electricity refers to electrical potential large enough to cause injury or damage. In certain industries, high voltage refers to voltage above a certain threshold. Equipment and conductors that carry high voltage warrant special safety requirements and procedures. High voltage is used in electrical power distribution, in cathode ray tubes, to generate X-rays and particle beams, to produce electrical arcs, for ignition, in photomultiplier tubes, and in high-power amplifier vacuum tubes, as well as other industrial, military and scientific applications.
564	**HVAC**	Heating, Ventilation and Air Conditioning Heating, Ventilation, and Air Conditioning is the technology of indoor and vehicular environmental comfort. Its goal is to provide thermal comfort and acceptable indoor air quality. HVAC system design is a subdiscipline of mechanical engineering, based on the principles of thermodynamics, fluid mechanics and heat transfer.
565	**HVM**	Home Ventilation Machine
566	**HVM**	Human Ventilation Model Set of mathematic equations that reproduce human breathing, considering gas composition, metabolism and aspects such as age, BMI (Body Mass Index), or weight and height.
567	**HWD**	Hazardous Waste Disposed Hazardous waste is waste that has substantial or potential threats to public health or the environment. Characteristic hazardous wastes are materials that are known or tested to exhibit one or more of the following hazardous traits: • Ignitability • Reactivity • Corrosivity • Toxicity
568	**IA**	Innovation Actions Concerning H2020, Innovation Actions are activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. The IA's are 70% funding rate (100% for non-profit legal entities). At least three legal entities each established in a different Member State or an Associated Country, must participate on IA's.

569	IaaS	Infrastructure as a Service
		Infrastructure as a service (IaaS) are online services that provide high-level APIs used to dereference various low-level details of underlying network infrastructure like physical computing resources, location, data partitioning, scaling, security, backup etc. Typically IaaS involves the use of a cloud orchestration technology like OpenStack, Apache CloudStack or OpenNebula.
570	IAC	Industry Advisory Council
		The Industry Advisory Council (IAC) was created by the American Council for Technology in 1989 to provide an objective and ethical forum where government and industry can work together to improve government. IAC provides a trusted forum where private sector companies can communicate with, learn from and advise government. IAC is the only organization where a true partnership between industry and government exists.
571	IAI	International Alliance for Interoperability
		Predecessor organisation of the Building Smart. In 1994, 12 US based companies joined together to examine the potential for making different software applications work together. Their mission is to provide a universal basis for process improvement and information sharing in the construction and facilities management industries. In 2005 was renamed buildingSMART
572	IAM	Institute of Asset Management
		The Institute of Asset Management is a UK-based not-for-profit professional body for those involved in acquisition, operation and care of physical assets, especially critical infrastructure. The IAM develops asset management knowledge and best practice, and generates awareness of the benefits of the asset management discipline for the individual, organisations and wider society. It was instrumental in the development of the international standard ISO 55000 for asset management.
573	IAQ	Indoor Air Quality
		Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. Poor indoor air quality has been linked to sick building syndrome, reduced productivity, and impaired learning in schools. IAQ can be affected by gases (including carbon monoxide, radon, volatile organic compounds), particulates, microbial contaminants or any mass or energy stressor that can induce adverse health conditions.
574	IB	Intelligent Building
		Intelligent Building is the future of our building industry. All new commercial buildings and probably luxurious domestic buildings are designed with a common goal to become intelligent buildings. In the USA, an IB is categorised by four basic elements, namely building structure, building systems, building services and building management. In Europe, the emphasis is on information technology and the genuine need of

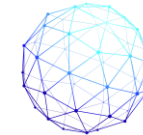|		the user. In Singapore and China, it appears that the term "automation" has been dominating with a great emphasis on high technology.
575	**IBACOS**	Integrated Building and Construction Solutions In Pittsburgh, IBACOS Inc. opened up as a research consortium comprised of GE Plastics, Masco Corp., USG Corp., and other building-product suppliers, as well as architectural firms and suppliers of appliances and furniture. Though its director, Michael Dickens (the former head of GE Plastics' Living Environments House in Pittsfield) says IBACOS is not in the business of "pushing plastic," some of the new construction technologies under development do prominently feature plastics-based solutions.
576	**IBC**	International Building Code The IBC is a model building code developed by the International Code Council (ICC). It has been adopted for use as a base code standard by most jurisdictions in the United States. The IBC addresses both health and safety concerns for buildings based upon prescriptive and performance related requirements. The IBC is fully compatible with all other published ICC codes. The code provisions are intended to protect public health and safety while avoiding both unnecessary costs and preferential treatment of specific materials or methods of construction.
577	**IBC**	Institute for BIM in Canada BC acts as the authoritative voice for BIM in Canada to lead and facilitate the coordinated use of BIM in the design, construction, and management of the Canadian built environment. To define collaborative approaches and solutions between stakeholders in the BIM environment. To develop and recommend "best practices" policies, tools, and procedures to support BIM utilization.
578	**IBD**	Intelligent Building Data Intelligent Building Data are used to identify potential issues before they can happen. Sensors monitor equipment and gauge performance to activate maintenance procedures only when actually required. While advanced BEMSs can aggregate, filter, and translate large amounts of data to provide actionable insights, facilities managers and other employees should be trained to also analyse the relevant data in order to make smart decisions. Predictive maintenance is another benefit of the Intelligent Building Data.
579	**iBIM**	Integrated BIM
580	**ICAEN**	Institut Català d'Energia Founded in 1991, the Catalan Energy Institute aims to promote and carry out initiatives and action programmes for research, study and support for the knowledge, development and application of energy technologies, including renewable energy technologies, the improvement of energy saving and efficiency, the promotion of the rational use of energy and, in general, the optimal management of energy resources in the different economic sectors of Catalonia.

581	**ICC**	International Code Council
		ICC is a U.S.-based membership association. It is dedicated to developing model codes and standards used in the design, build and compliance process to construct safe, sustainable, affordable and resilient structures in the built environment. The International Code Council was established in 1994, with the goal of developing a single set of national model construction codes.
582	**ICD**	Integrated Cycle Design
583	**ICD**	Intelligent Community Design
		Going beyond just zoning and massing, integrate analysis across a wide range of sustainable metrics. iCD undertakes energy analysis using the proven VE simulation engine, so you can be assured of robust and reliable results
584	**ICD**	Interface Control Document
		An interface control document (ICD) in systems engineering and software engineering, provides a record of all interface information (such as drawings, diagrams, tables, and textual information) generated for a project. The underlying interface documents provide the details and describe the interface or interfaces between subsystems or to a system or subsystem.
585	**ICE**	Institution of Civil Engineers and Innovative Contractor Engagement
		The ICE is a charity and international membership from UK that construct, maintain and improve the physical environment, including; bridges, tunnels, roads, railways, canals, dams, buildings, flood and coastal defences, airports and other large structures. The term 'civil' engineer was originally coined to distinguish it from military engineering, which was the main engineering discipline before the 18th century.
586	**iCIM**	iCIM is a community resource monitoring and management platform that improves sustainability performance (see also IESVE)
587	**ICIS**	International Construction Information Society
		The ICIS is an association of organisations that provides national master specification systems, cost information systems, and/or building product information for the construction industry. The ICIS mission is to advance the globalisation, standardisation, harmonisation and interoperability of construction information. This is achieved both formally and informally through an annual conference, joint projects and informal discussions.
588	**ICL**	Intelligent Communities Lyfecicle
		Launched in April 2019, the ICL (Intelligent Communities Lifecycle) Digital Twin is a platform of interconnected decision support tools that facilitate the planning, design and operation of energy efficient and sustainable communities of any size and purpose, whether that be a company, campus, city or country. It is the most holistic tool for assessing any configuration of buildings throughout their lifecycle.

589	**ICONDA**	International CONstruction Database
		ICONDA database of the International Council for Building Research, Studies and Documentation (CIB) covers worldwide technical literature on all fields of building construction, civil and construction engineering, and architecture and town planning. The database offers quick and concise support in retrieval and access of specialist information from the domain of planning and building - for professionals from the planning and building industries ; for research experts ; for lecturing staff and students in academic training.
590	**ICT**	Information and Communication Technologies
		Information and communications technology (ICT) is an extensional term for information and technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage, and audio-visual systems, that enable users to access, store, transmit, and manipulate information.
591	**ID**	Identification
		A card or document, serving to establish the identity of someone or something. If you have an ID, you are carrying a document such as an identity card or driving licence which proves that you are a particular person.
592	**IDABC**	Interoperable Delivery of European eGovernment Services to public Administrations, Business and Citizens
		IDABC was a European Union Program launched in 2004 that promoted the correct use of Information and Communication Technologies (ICT) for cross-border services in Europe. It aimed to stimulate the development of online platforms delivering public e-Services in Europe. It used the opportunities offered by ICT to encourage and support the delivery of cross-border public sector services to citizens and enterprises in Europe, to improve efficiency and collaboration between European public administrations.
593	**IDAE**	Instituto para la Diversificación y Ahorro de la Energía (Spain)
		IDEA, is a public business entity, attached to the Ministry for Ecological Transition through the Secretary of State for Energy, which acts as a tool of the Spanish Government to contribute to the achievement of Spain's objectives in terms of improving energy efficiency, renewable energies and other low-carbon technologies. In this regard, the IDAE carries out dissemination and training activities, technical advice, development of specific programmes and financing of innovative and replicable technological projects.
594	**IDD**	Integrated Design and Delivery
		Over the years, different approaches have been developed to help building professionals execute a construction project more collaboratively. These include: Partnering, Integrated Design Process, Lean Design and Construction, Integrative Process, or Integrated Project Delivery. Each approach has helped project teams achieve higher levels of success by encouraging some level of integration among the responsibilities of the various team members. These various approaches, are known "Integrated Design and Delivery,"

595	IDD	Integrated Digital Delivery
		Integrated Digital Delivery is the use of digital technologies to integrate work processes and connect stakeholders working on the same project throughout the construction and building life-cycle. This includes design, fabrication and assembly on-site, as well as the operations and maintenance of buildings
596	IDDS	Integrated Design & Delivery Solutions
		Integrated Design and Delivery Solutions use collaborative work processes and enhanced skills, with integrated data, information and knowledge management to minimize structural and process inefficiencies and to enhance the value delivered during design, build and operation, and across projects.
597	IDM	Information Delivery Manual
		The Information Delivery Manual (IDM) is a methodology that aims to provide the integrated reference for process and data required by BIM. The IDM identifies the discrete processes undertaken within building construction, the information required for their execution and the results of that activity.
598	IDP	IDP Ingeniería, Medio Ambiente y Arquitectura
		The IDP Group is a global and multisectoral technical service company, founded in 1998, which is specialized in the fields of engineering, environment and architecture. The evolution of the market; our clear customer-oriented framework; a technical and multidisciplinary team; the high efficiency and specialization of our services; as well as the firm commitment to technology have enabled IDP to be present in 4 out of the 5 continents, carrying out projects both for the public and the private sectors. Partner of SPHERE Project.
599	IDP	Integrated Design Process
		IDP can be defined as an interdisciplinary design approach with the emphasis on collaboration. All the stakeholders involved in the project met during the design of the plans and specifications to develop optimum solutions for each discipline. This is a comprehensive process that concentrates as much on design, construction and operation as on the occupancy of the building. The objective of this operating mode is to optimize the interaction among the various disciplines and not only each discipline's systems.
600	IDP	Intelligent Design Planning
		Intelligent Design Planning help guide you through the process in a simple and stress free manner with our online step by step process from Inception to submission to your local planning authority.
601	IDS	Integrated Design Solutions

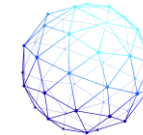|		
		An Integrated Design Solution incorporates research and continuous collaboration. In a traditional design model, everyone goes to their corner to develop their piece of the project. CIB defines Integrated Design Solutions as those using collaborative work processes and enhanced skills, and integrated data, information, and knowledge management. IDS has been under development since early 2006.
602	**IDT**	Infrastructure Digital Twins An Infrastructure Digital Twin is a digital representation of an asset or system and the context and controls of its surrounding environment. Infrastructure owners and operators are embracing digital twins for better planning, delivery, operation and maintenance of their assets. The heart of an Infrastructure Digital Twin is a relational database — known as an iModel — that contains components assembled from many sources. Changes to an iModel are managed by iModelHub and synchronized with distributed copies — creating a distributed database.
603	**IE**	Information Exchange Information Exchange or information sharing means that people or other entities pass information from one to another. This could be done electronically or through certain systems. These are terms that can either refer to bidirectional information transfer in telecommunications and computer science or communication seen from a system-theoretic. As, "information," in this context invariably refers to (electronic) data that encodes and represents the information at hand, a broader treatment can be found under data exchange.
604	**IEC**	International Electrotechnical Commission IEC; in French CEI: Commission Électrotechnique Internationale) is an international standards organization that prepares and publishes international standards for all electrical, electronic and related technologies – collectively known as "electrotechnology". IEC standards cover a vast range of technologies from power generation, transmission and distribution to home appliances and office equipment, semiconductors, fibre optics, batteries, solar energy, nanotechnology and marine energy as well as many others.
605	**IEEE**	Institute of Electrical and Electronics Engineers The IEEE is a professional association that develops, defines, and reviews electronics and computer science standards. Its mission is "to foster technological innovation and excellence for the benefit of humanity". While the IEEE is based in the United States, IEEE standards often become international standards. The history of the IEEE dates back to the 1800s, when electricity started to influence society.
606	**IEP**	Individual Education Plan Essentially, an IEP is a plan that is developed so that an educational programme is tailored to the needs of an individual child. The IEP would be developed with input from the child's parents as well as through assessments carried various different professionals, such as Teachers, Behaviour Analysts, Clinical Psychologists, Educational Psychologists, Occupational Therapists, Speech and Language Therapists, etc.
607	**IEQ**	Indoor Environmental Quality

		Indoor Environmental Quality (IEQ) refers to the quality of a building's environment in relation to the health and wellbeing of those who occupy space within it. IEQ is determined by many factors, including lighting, air quality, and damp conditions. Understanding the sources of indoor environmental contaminants and controlling them can often help prevent or resolve building-related worker symptoms. Practical guidance for improving and maintaining the indoor environment is available.
608	**IES**	Integrated Environmental Solutions
		Integrated Environmental Solutions, Inc. (IES) was established in 1995 to provide quality environmental consulting services through personal attention of the founders. IES provides services to Commercial Clients and Local and State Government entities. IES is a full-service turnkey provider of environmental services along with construction services, thus providing a one-stop service to our clients in development of their properties. We eliminate the clients need to work with multiple contractors.
609	**iESD_E**	Intelligent Energy System Designer
		iESD_E is a decision support tool developed by EURECAT that permits to determine the optimal constructive actions and technologies to be implemented in a given building of the tertiary sector, based on its architectonic characteristics, climatic conditions and operation profiles. The developed tool is capable of evaluating simultaneously multiple constructive solutions, for both new constructions and retrofitting. The iESD_E has been developed as a standalone application for windows environment and is located to a TRL 5.
610	**IESVE**	IES Virtual Environment
		Used by sustainable design experts around the globe IESVE is a fast, accurate, sub-hourly, thermal simulation suite that can model new and existing buildings of any size and complexity. For architects, engineers and contractors, the platform allows cross-team collaboration from concept design to operation. Its power embeds energy and performance assessment across the entire building lifecycle. Integrate Performance Analysis into the heart of the design process.
611	**IFB**	Invitation for Bid
		See Request for Quotation (RFQ)
612	**IFC**	Industry Foundation Classes
		The Industry Foundation Classes (IFC) data model is intended to describe architectural, building and construction industry data. It is a platform neutral, open file format specification that is not controlled by a single vendor. It is an object-based file format with a data model developed by buildingSMART (formerly the International Alliance for Interoperability, IAI) to facilitate interoperability in the architecture, engineering and construction (AEC) industry, and is a commonly used in Building information modelling (BIM) based projects
613	**IFC**	Information For Construction

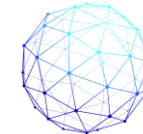| 614 | **IFD** | International Framework for Dictionaries (Library) |
		IFD Library provides the needed flexibility for an IFC-based Building Information Model (BIM) allowing for the link between the model and various databases with project and product specific data. IFD Library opens up for a model enrichment that will allow for advanced analysis, simulation and design checks at a very early phase. ISO 12006-3:2007 specifies a language-independent information model which can be used for the development of dictionaries used to store or provide information about construction works.
615	**IFMA**	International Facilities Management Association
		Founded in 1980, IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting over 23.000 members in more than 100 countries. This diverse membership participates in focused component groups equipped to address their unique situations by region (142 chapters), industry (16 councils) and areas of interest (six communities).
616	**IFoA**	Integrated Form of Agreement
		IFOA is a new standard form of work market needed to promote the introduction of lean construction principles and address high amounts of waste and low labour productivity in construction projects in Australia. The use of separate contracts for design and construction does not promote cooperation and communication, which means that the owner may not get what he wants. With an IFOA, all parties are bound by the contract and share the vision and reward.
617	**IG**	Irish Grid
		Irish Grid is a plane co-ordinate system based on a modified Transverse Mercator Projection. Map positions expressed in this system are based on a co-ordinate reference frame observed by two primary triangulations during the 1950's and 60's, and combined in one adjustment in 1975 to produce geographic positions (latitude and longitude) for the primary stations in the reference frame. Recent measurements have confirmed the consistency of positions within the network as generally better than 25 cm.
618	**IGES**	International Graphics Exchange Standard
		The International Graphics Exchange Standard (IGES) format was first developed in 1980 to facilitate the translation between heterogeneous CAD systems. IGES was the first attempt at resolving the data exchange challenge between CAD systems. It works by translating the CAD model of each system to its basic geometric data and is the most widely used neutral format today.
619	**IGLC**	International Group of Learn Construction
		The International Group For Lean Construction (IGLC) is an international conference started in 1993. The IGLC brings together an internation-al community of researchers and industry practitioners each summer to advance the research and practical applications of Lean Design and Construction. IGLC makes up a network of professionals and researchers in architecture, engineering, and construction (AEC) who feel that

		the practice, education, and research of AEC have to be radically renewed in order to respond to the challenges ahead.
620	**IIOT**	Industrial Internet of Things
		The Industrial Internet of Things (IIoT) refers to interconnected sensors, instruments, and other devices networked together with computers' industrial applications, including manufacturing and energy management. This connectivity allows for data collection, exchange, and analysis, potentially facilitating improvements in productivity and efficiency as well as other economic benefits. The IIoT is an evolution of a distributed control system (DCS) that allows for a higher degree of automation by using cloud computing to refine and optimize the process controls.
621	**IIRA**	Industrial Internet Reference Architecture
		First published in 2015 and best known as the IIRA, this standards-based architectural template and methodology enables Industrial Internet of Things (IIoT) system architects to design their own systems based on a common framework and concepts.
622	**ILCD**	Integrated Life Cycle Design
		Integrated life cycle design is an important tool for sustainable civil engineering. It aims to concretise the multiple requirements of functionality, economy, resistance, aesthetics and ecology into technical specifications and further into designs of materials and structures. The methodology of integrated life cycle design can be used at the design of individual buildings or other structural facilities, as well as in the development of new materials and structures or structural systems.
623	**ILCD**	International Reference Life Cycle Data System
		The International Reference Life Cycle Data System provides a common basis for consistent, robust and quality-assured life cycle data and studies. Such data and studies support coherent SCP instruments, such as Ecolabelling, Ecodesign, Carbon footprinting, and Green Public Procurement. This guide is a component of the International Reference Life Cycle Data System Handbook. It provides technical guidance for detailed Life Cycle Assessment (LCA) studies and provides the technical basis to derive product-specific criteria, guides, and simplified tools.
624	**IM**	Information Model/Modelling
		An 'information model' consists if the 3D Model geometry, non-graphical information, documents and drawings. It is a set of structured and unstructured information containers /hat is retrievable as a file, system or application storage in a hierarchy.
625	**IMAN**	Inventario y Mantenimiento
		IMAN is a multiplatform application developed entirely by the IT Department of COMSA Service. a) Web access technology and Android APP for mobility. b) Report management using QlikView. c) Preventive / Regulatory, Conductive, Corrective and Predictive maintenance management. d) Management of Notices linking to Corrective maintenance.

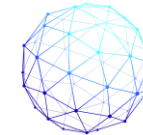| 626	**IMM**	Information Mirroring Model
		Digital twin was first introduced as an unnamed concept for Product Lifecycle Management (PLM) back in 2002, and was subsequently called Mirrored Spaces Model, Information Mirroring Model and even Virtual Twin until its final denomination as Digital Twin in 2011.
627	**IMO**	International Meteorological Organization
		The IMO (1873–1951) was the first organization formed with the purpose of exchanging weather information among the countries of the world. It came into existence from the realization that weather systems move across country boundaries; and that knowledge of pressure, temperature, precipitations, etc. upstream and downstream is needed for weather forecasting. It was superseded by the World Meteorological Organization.
628	**IMP**	Information Management Process
		An Information Management Process is the method an organisation uses to: Acquire or retrieve information, Organise information, and Maintain information. Data management holds a key role in the Information Management Process as ensuring the accuracy of the data you capture and hold is vital if you are to extract value from it.
629	**IMU**	Inertial Measurement Unit
		An IMU is an electronic device that measures and reports a body's specific force, angular rate, and sometimes the orientation of the body, using a combination of accelerometers, gyroscopes, and sometimes magnetometers. IMUs are typically used to maneuver aircraft (an attitude and heading reference system). An inertial measurement unit works by detecting linear acceleration using one or more accelerometers and rotational rate using one or more gyroscopes. Some also include a magnetometer which is commonly used as a heading reference.
630	**INE**	Instituto Nacional de Estadística (Spain)
		The National Statistics Institute is a legally independent administrative Autonomous institution assigned to the Ministry of Economic Affairs and Digital Transformation, via the Secretary of State for the Economy and Business Support. The Law assigns the National Statistics Institute an important role in public statistic activity, expressly placing it in charge of large scale statistical operations (demographic and economic censuses, national accounts, demographic and social statistics, economic and social indicators, …)
631	**INSEE**	Institut National de la Statistique et des Études Économiques (France)
		The National Institute of Statistics and Economic Studies (French: Institut national de la statistique et des études économiques), is the national statistics bureau of France. It collects and publishes information about the French economy and people and carries out the periodic national census. collects, analyses and disseminates information on the French economy and society.

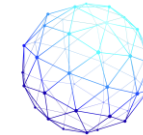| 632	**IOT**	Internet of Things
		The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. The definition of the Internet of Things has evolved due to the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems.
633	**IOT HUB**	Internet of Things HUB
		IoT Hub is a site focused on the growing connectivity between software, the cloud, and the devices we use in everyday business operations. The IoT Hub is a secure, resilient and open platform, ready to host new types of IoT protocols. It can build notification-based scenarios and connect to 3rd party applications such as the Rainbow CPaaS Platform, to initiate this new type of conversation.
634	**IP**	Intellectual Property
		IP is a category of property that includes intangible creations of the human intellect. There are many types of intellectual property, and some countries recognize more than others. The most well-known types are copyrights, patents, trademarks, and trade secrets. The modern concept of intellectual property was developed in England in the 17th and 18th centuries. The term "intellectual property" began to be used in the 19th century, though it was not until the late 20th century that intellectual property became usual in most of countries.
635	**IP**	Internet Protocol
		The IP is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet. IP has the task of delivering packets from the source host to the destination host solely based on the IP addresses in the packet headers. For this purpose, IP defines packet structures that encapsulate the data to be delivered. It also defines addressing methods that are used to label the datagram with source and destination information.
636	**IPC**	Integrated Project Coordinator
		In the ILPD context, the Integrated Project Manager (IPM) is typically one of five to seven individuals, usually a primary leader from each of the signatory partners to the IFOA. Other individuals will take on a similar role from time to time, as their area of expertise becomes the hot topic. This role most likely will be filled by multiple individuals on the project team, not one individual, as might be the traditional role.
637	**IPCC**	Intergovernmental Panel on Climate Change
		The Intergovernmental Panel on Climate Change (IPCC) is an intergovernmental body of the United Nations dedicated to providing the world with objective, scientific information relevant to understanding the scientific basis of the risk of human-induced climate change, its natural, political, and economic impacts and risks, and possible response options. The IPCC was established in 1988 by the World Meteorological Or-

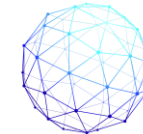|		
		ganization (WMO) and the United Nations Environment Programme (UNEP) and was later endorsed by the United Nations General Assembly.
638	**IPD**	Integrated Project Delivery
		IPD is a collaborative alliance of people, systems, business structures and practices into a process that harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication, and construction. IPD is a delivery system that seeks to align interests, objectives and practices, even in a single business, through a team-based approach. The primary team members include the architect, key technical consultants as well as a general contractor and key subcontractors.
639	**IPI**	Integrated Project Insurance
		Integrated Project Insurance (IPI) is an innovative insurance product which gives the IPI model its name. It collectively insures the client and all the other Alliance partners: consultants, specialists, manufacturers, construction managers and their supply chains. In particular it replaces liability-driven professional indemnity insurance (which requires proof of fault before responding) with financial loss cover where the outturn cost above the target cost plus pain-share is insured.
640	**iPIM**	Intelligent Portfolio Information Model
		Related to IES and IESVE, PIM is a building portfolio and asset management tool for the visualisation of key performance indicators and data. The tool can be used to analyse a Portfolio across any geographical scale – Global, Country, City, and Campus.
641	**IPLV**	Integrated Part Load Value
		The IPLV is a performance characteristic developed by AHRI. It is most commonly used to describe the performance of a chiller. Unlike EER or COP which describe the efficiency under full load conditions, the IPLV is calculated from the efficiency of the equipment at different % load. Since a chiller does not always operate at 100% of load, the EER or COP is not an ideal representation of typical equipment performance.
		IPLV = 0,01A + 0,42B + 0,45C + 0,12D; where A, B, C & D are the EER (or COP) values at 4 loading points (100%, 75%, 50% and 25%)
642	**IPMVP**	International Performance Measurement and Verification Protocol
		The IPMVP® defines standard terms and suggests best practise for quantifying the results of energy efficiency investments and increase investment in energy and water efficiency, demand management and renewable energy projects. The IPMVP was developed by a coalition of international organizations (led by the United States Department of Energy) starting in 1994-1995. The Protocol has become the national measurement and verification standard in the United States and many other countries, and has been translated into 10 languages.
643	**IPP**	Initial Project Proposals
		Initial Project Proposals provide necessary information for the Board to consider a proposed project. The Initial Project Proposals should ex-

		plain the concept behind the project, its projected impact on agency mission, the strength of the project team and execution strategy, and other foundational details.
644	**IPP**	Inspection Point Program
		This program shall include the manufacturing, inspection, and test operations which are required for Contractor to demonstrate product or works quality, whether performed in its or its Subcontractor's or supplier's facilities.
645	**IPR**	Intellectual Property Rights
		Intellectual property rights are the rights given to persons over the creations of their minds, including creativity concepts, inventions, industrial models, trademarks, songs, literature, symbols, names, brands, etc. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time. PR is not a new concept. It is believed that IPR initially started in North Italy during the Renaissance era. In 1474, Venice issued a law regulating patents protection that granted an exclusive right for the owner.
646	**iPredict**	Intelligent Prediction
		iPredict is a tool developed by EURECAT in the context of the SPHERE Project, which consists in the prediction of the HVAC energy consumption of a building considering the historical monitored data. The output of the iPredict algorithm sends a predictive alarm to a CMMS tool when this consumption is not reasonable taking into account the independent variables analysed, such as outdoor temperature, HVAC set-point temperature, occupancy, and other thermal loads involved, such as lighting, appliances, cooking, etc.
647	**IR**	Information Requirements
		Defining Information Requirements is perhaps the most critical aspect of systems development, yet it is the Achilles' heel of most developers today and an area where they typically spend the least amount of time. Consequently, considerable effort and money is lost developing an elegant system for the wrong problem and, as such, developers spend an inordinate amount of time re-writing systems until they get it right.
648	**IR**	Infrared
		Invisible radiation in the part of the electromagnetic spectrum characterized by wavelengths just longer than those of ordinary visible red light and shorter than those of microwaves or radio waves.
649	**IRMP**	Integrated Risk Management Plan
		IRMP is an assessment of all risks to life and injury to the community, resulting in a long-term plan to make the Fire and Rescue Service more responsive to locally identified needs. This means targeting our resources so that we can prevent incidents from happening, while also making sure our resources are in the right location to best protect the community.

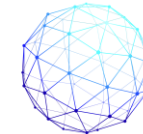| 650	IRR	Internal Rate of Return
		The Internal Rate of Return is a metric used in financial analysis to estimate the profitability of potential investments. The internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows equal to zero in a discounted cash flow analysis. It can also be defined as the percentage rate earned on each dollar invested, in a defined period of time. It compares expected cash flow of a project to the cost of the capital involved.
651	IS	International Standard
		IS are technical standards developed by international organizations (intergovernmental organizations), such as Codex Alimentarius in food, the World Health Organization Guidelines in health, or ITU Recommendations in ICT and being publicly funded, are freely available for consideration and use worldwide. IS are one way of overcoming technical barriers in international commerce caused by differences among technical regulations and standards developed independently and separately by each nation, national standards organization, or company.
652	iSCAN	Intelligent Control and Analysis
		iSCAN is a Single Platform to Optimise the Operational Performance of Buildings, that allows you to centralise any time-series data from different BMS systems, utility meters, sensors and portable data loggers in one platform. Organise and analyse this data to gain hidden insights to improve building or portfolio operation
653	ISE	The Institution of Structural Engineers
		The Institution of Structural Engineers is a professional body for structural engineering based in the United Kingdom. The Institution has 27,000 members operating in over 100 countries. The Institution provides professional accreditation for structural engineers and publishes a monthly magazine, The Structural Engineer. The Institution also has a research journal titled Structures, published by Elsevier, Inc.
654	ISES	Intelligent Services For Energy-Efficient Design and Life Cycle Simulation
		ISES is a project undertaken under the FP7-ICT programme, headed by the TECHNISCHE UNIVERSITAET DRESDEN. The objective of ISES is to develop ICT building blocks to integrate, complement and empower existing tools for design and operation management to a Virtual Energy Lab (VEL). This will allow evaluating, simulating and optimizing the energy efficiency of products for built facilities and facility components in variations of real life scenarios before their realization, acknowledging the stochastic life-cycle nature.
655	ISG	Implementation Support Group
		The Implementation Support Group (ISG) serves the various software implementation activities for buildingSMART standards. The mission of the ISG is to discuss and promote the use of bSI standards - Industry Foundation Classes (IFC) and the BIM Collaboration Format (BCF). The goal is to enable digital workflows for the exchange of built asset data among different software products and platforms.

656	**ISI**	Information Sciences Institute
		The Information Sciences Institute (ISI) is a component of the University of Southern California (USC) Viterbi School of Engineering, and specializes in research and development in information processing, computing, and communications technologies. It is located in Marina del Rey, California. ISI actively participated in the information revolution, and it played a leading role in developing and managing the early Internet. ISI employs about 350 research scientists, research programmers, graduate students and administrative staff.
657	**ISIC**	International Standard Industrial Classification
		The ISIC of All Economic Activities is a United Nations industry classification system. Wide use has been made of ISIC in classifying data according to kind of economic activity in the fields of employment and health data. It is maintained by the United Nations Statistics Division. ISIC classifies entities by activity. The most detailed categories are defined by combinations of activities described in statistical units, considering the relative importance of the activities included in these classes.
658	**ISO**	International Standards Organisation
		The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from various national standards organizations. Founded on 23 February 1947, the organization promotes worldwide proprietary, industrial and commercial standards.
659	**ISS**	International Space Station
		The International Space Station (ISS) is a modular space station (habitable artificial satellite) in low Earth orbit. It is a multinational collaborative project involving five participating space agencies. The ownership and use of the space station are established by intergovernmental treaties and agreements. The station serves as a microgravity and space environment research laboratory in which scientific research is conducted in astrobiology, astronomy, meteorology, physics, and other fields.
660	**ISV**	Independent Software Vendor
		An Independent Software Vendor, also known as a software publisher, is an organization specializing in making and selling software, as opposed to computer hardware, designed for mass or niche markets. This is in contrast to in-house software, which is developed by the organization that will use it, or custom software, which is designed or adapted for a single, specific third party. Although ISV-provided software is consumed by end users, it remains the property of the vendor.
661	**IT**	Information Technology
		Information Technology (IT) is the use of computers to store, retrieve, transmit, and manipulate data or information. IT is typically used within the context of business operations as opposed to personal or entertainment technologies. IT is considered to be a subset of information

		and communications technology (ICT).
662	**ITeC**	Institut de Tecnologia de la Construcció de Catalunya
		The private Foundation ITeC is a non-profit foundation created in 1978, which carries out its activities in the field of the construction sector. The objective of ITeC, as an innovation support entity, is the generation and transfer of information and knowledge, and the provision of technological services, to improve the competitiveness of the agents in the construction sector: professionals, companies and entities. This objective is framed within the commitment with sustainability understood from its triple aspect: technological, economic and social.
663	**ITIL**	Information Technology Infrastructure Library
		ITIL describes processes, procedures, tasks, and checklists which are not organization-specific nor technology-specific, but can be applied by an organization towards strategy, delivering value, and maintaining a minimum level of competency. It allows the organization to establish a baseline from which it can plan, implement, and measure. It is used to demonstrate compliance and to measure improvement. It is a set of detailed practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business.
664	**ITSM**	IT Service Management
		ITSM refers to the entirety of activities – directed by policies, organized and structured in processes and supporting procedures – that are performed by an organization to design, plan, deliver, operate and control information technology (IT) services offered to customers. ITSM is characterized by adopting a process approach towards management, focusing on customer needs and IT services for customers rather than IT systems, and stressing continual improvement
665	**ITU**	International Telecommunication Union
		The ITU is a specialized agency of the United Nations responsible for all matters related to information and communication technologies. Established in 1865 as the International Telegraph Union, it is one of the oldest international organizations in operation. The ITU was initially aimed at helping connect telegraphic networks between countries, with its mandate consistently broadening with the advent of new communications technologies; it adopted its current name in 1934 to reflect its expanded responsibilities over radio and the telephone.
666	**IUK**	Infrastructure UK
		Infrastructure UK (IUK) was a division of HM Treasury that advised government on the long-term infrastructure needs of the UK and provided commercial expertise to support major projects and programmes. It was created in 2010. On 1 January 2016, it was merged with Major Projects Authority to form Infrastructure and Projects Authority.
667	**IVN**	Intelligent Virtual Network
		The iVN is a network modelling tool designed to perform "as-is" and future scenario simulations of a community's distribution networks.

		Model, integrate and optimise their design and management across electricity, heating, cooling and waste heat
668	**IWBI**	International Well Building Institute
		The International WELL Building Institute™ (IWBI™) is involved in the movement to transform buildings and communities in ways that help people thrive. IWBI delivers the cutting-edge WELL Building Standard™, a rating system focused exclusively on the ways in which buildings, and everything in them, can improve comfort, drive better choices, and generally enhance, not compromise, the health and wellness of their users.
669	**IWMS**	Integrated Workplace Management System
		An IWMS is a software platform that helps organizations optimizes the use of workplace resources, including the management of a company's real estate portfolio, infrastructure and facilities assets. They are used by corporate occupiers, real estate services firms, facilities services providers, landlords and managing agents. Traditionally focused on supporting real estate and facilities professionals, IWMS solutions are becoming more employee-centric, expanding their touchpoints to include all building occupants and visitors.
670	**JCT**	Joint Contracts Tribunal
		The Joint Contracts Tribunal, also known as the JCT, produces standard forms of contract for construction, guidance notes and other standard documentation for use in the construction industry in the United Kingdom. From its establishment in 1931, JCT has expanded the number of contributing organisations. The JCT was formed by the Royal Institute of British Architects (RIBA) in 1931 when the first JCT standard form of building contract was issued (although the forms were not referred to as 'JCT' until 1977). JCT became a Limited Company in 1998.
671	**JIB**	Joint Industry Board
		The JIB is an impartial organisation in the UK, that sets the standards for employment, welfare, grading and apprentice training in the electrical contracting industry. This includes industry agreed terms and conditions for those employed under the collective agreement.
672	**JIT**	Just in Time
		In the manufacturing and logistics world, Just in Time (JIT) inventory management helps companies reduce storage costs and improve quality. Originated by the Toyota Motor Company, just in time practices help companies reduce waste and align all processes of their production. Raw materials arrive at the worksite in concert with manufacturing schedules, which are then turned into works-in-progress. These schedules focus on producing in-demand items and reducing their standing inventory.
673	**JRC**	Joint Research Centre
		The JRC is the Commission's science and knowledge service. The JRC employs scientists to carry out research in order to provide independent scientific advice and support to EU policy.

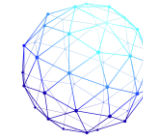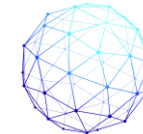| 674	**JSON**	JavaScript Object Notation JSON is an open standard file format, and data interchange format, that uses human-readable text to store and transmit data objects consisting of attribute–value pairs and array data types (or any other serializable value). JSON is a text-based, human-readable data interchange format used for representing simple data structures and objects in Web browser-based code. Each object is defined with an operator like "text :" or "image :" and then grouped with a value for that operator.
675	**JSON-LD**	JavaScript Object Notation for Linked Data JSON-LD is a method of encoding linked data using JSON. One goal for JSON-LD was to require as little effort as possible from developers to transform their existing JSON to JSON-LD. JSON-LD allows data to be serialized in a way that is similar to traditional JSON. It was initially developed by the JSON for Linking Data Community Group before being transferred to the RDF Working Group for review, improvement, and standardization, and is currently maintained by the JSON-LD Working Group. JSON-LD is a World Wide Web Consortium Recommendation.
676	**JV**	Joint Venture A Joint Venture (JV) is a business arrangement in which two or more parties agree to pool their resources for the purpose of accomplishing a specific task. This task can be a new project or any other business activity. However, the venture is its own entity, separate from the participants' other business interests. In a Joint Venture, each of the participants is responsible for profits, losses, and costs associated with it.
677	**KER**	Key Exploitable Results A KER is an identified main interesting result which has been selected due to its high potential to be 'exploited' downstream the value chain of a product, process or solution, or act as an important input to policy, research or education. According to the Horizon 2020 text, a result is defined as "Any tangible or intangible output of the action, such as data, knowledge and information whatever their form or nature, whether or not they can be protected, which are generated in the action as well as any attached rights, including Intellectual Property Rights (IPR).
678	**KET**	Key Enabling Technologies Key Enabling Technologies (KETs) are investments and technologies that will allow European industries to retain competitiveness and capitalise on new markets. It focuses in: nanotechnologies, advanced materials, advanced manufacturing and processing, and biotechnology. Investing in these areas will boost competitiveness, create jobs, and support growth in Europe.
679	**KMS**	Knowledge Management System A knowledge management system is any kind of IT system that stores and retrieves knowledge to improve understanding, collaboration, and process alignment. Knowledge management systems can exist within organizations or teams, but they can also be used to centre your knowledge base for your users or customers. It is a system for applying and using knowledge management principles. These include data-

		driven objectives around business productivity, a competitive business model, business intelligence analysis and more.
680	**KNX**	Konnex KNX is an open standard (see EN 50090, ISO/IEC 14543) for commercial and domestic building automation. KNX devices can manage lighting, blinds and shutters, HVAC, security systems, energy management, audio video, white goods, displays, remote control, etc. KNX evolved from three earlier standards; the European Home Systems Protocol (EHS), BatiBUS, and the European Installation Bus (EIB or Instabus). It can use twisted pair (in a tree, line or star topology), powerline, RF, or IP links.
681	**KoM**	Kick-off Meeting A Kick-off Meeting is the first meeting with the project team and the client of the project. This meeting would follow definition of the base elements for the project and other project planning activities. This meeting introduces the members of the project team and the client and provides the opportunity to discuss the role of team members. Other base elements in the project that involve the client may also be discussed at this meeting (schedule, status reporting, etc.).
682	**KOS**	Knowledge Organization Systems KOS, concept system or concept scheme is a generic term used in knowledge organization about authority files, classification schemes, thesauri, topic maps, ontologies etc.
683	**KPIs**	Key Performance Indicator A Key Performance Indicator is a measurable value that demonstrates how effectively a company is achieving key business objectives. Organizations use KPIs at multiple levels to evaluate their success at reaching targets. High-level KPIs may focus on the overall performance of the business, while low-level KPIs may focus on processes in departments such as sales, marketing, HR, support and others.
684	**KRS**	Knowledge Representation Systems When we talk about KRS in research infrastructures, we usually mean a specific category of hierarchical systems of terms known more commonly as 'ontology'. KRS works at the representational level. It manages pieces of information and relate them to senses previously established by knowledge representation means. These sense definitions are mainly captured by ontologies, one of the components of knowledge representation. The other non-computational component, logic, may also capture some representational semantics as built-in ontologies.
685	**L3P**	Linked Third Party Under H2020, LTPs are ruled by Article 14 of the GA. A LTP is a third party with a legal link to a beneficiary. A LTP is any legal entity which has a legal link to the beneficiary implying collaboration that is not limited to the action. Only affiliated entities or entities with a legal link to a beneficiary can be linked third parties. Linked third parties do NOT sign the GA (and are therefore not beneficiaries).

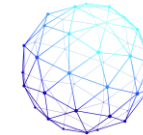| 686	**LADAR**	Laser Detection and Ranging
		Laser Detection and Ranging (LADAR), also known as Light Detection and Ranging (LIDAR) or optical radar, is an active remote sensing technique which uses electromagnetic energy in the optical range to detect an object (target), determine the distance between the target and the instrument (range).
687	**LAM**	Laser Aided Modelling
		Laser Aided Modelling (LAM®) is a phrase used to define the process of integrating the application of Laser scanning survey technology within the project BIM environment. Now, with LAM technology, BIM can be extended to include existing buildings, structures and the landscape and the possibilities this brings to building reuse are enormous.
688	**LAN**	Local Area Network
		A local area network (LAN) is a collection of devices connected together in one physical location, such as a building, office, or home. A LAN can be small or large, ranging from a home network with one user to an enterprise network with thousands of users and devices in an office or school. A LAN is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university campus or office building.
689	**LAS**	Look-ahead Schedule
		Usually, a look ahead schedule is simply a drop out from the higher level schedule, occasionally at a greater level of detail, but with no screening of scheduled activities against soundness or other criteria. The prevailing idea seems to be simply that thinking ahead is beneficial. Look ahead schedules are commonly used in the construction industry in order to focus management attention on what is supposed to happen at some time in the future, and to encourage actions in the present that cause that desired future.
690	**LBC**	Lean BIM Construction
		Lean BIM Construction is the application of techniques that increase the productivity of construction processes, improve the total profitability of the project and eliminate waste, and "everything that does not add value to the final product".
691	**LBD**	Linked Building Data
		The mission of the Linked Building Data Community Group, as described in its charter, is to enable all stakeholders in the building life cycle to access and query required data to support their business use cases using web technologies. Its scope is then Web technologies as they may be applied to buildings (products, geometry, usage, and topology). Infrastructure data (bridges, roads, railroads).
692	**LC**	Lean Construction

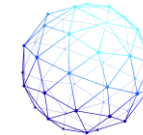|		Lean Construction is a combination of operational research and practical development in design and construction with an adaption of lean manufacturing principles and practices to the end-to-end design and construction process. Unlike manufacturing, construction is a project-based production process. Lean Construction is concerned with the alignment and holistic pursuit of concurrent and continuous improve-ments in all dimensions of the built and natural environment: design, construction, activation, maintenance, salvaging, and recycling.
693	**LCA**	Life Cycle Assessment Life Cycle Assessment (LCA, also known as Life Cycle Analysis) is a methodology for assessing environmental impacts associated with all the stages of the life-cycle of a commercial product, process, or service. For instance, in the case of a manufactured product, environmental im-pacts are assessed from raw material extraction and processing (cradle), through the product's manufacture, distribution and use, to the re-cycling or final disposal of the materials composing it (grave).
694	**LCC**	Life Cycle Contract The Life Cycle Contract can be defined as a contractual form of PPP, according to which a public partner makes a designing, constructing and exploitation agreement with a private partner on a competitive base for the life cycle period of an object, and makes equal payments after putting the object into operation providing that the private partner maintains the object in accordance with its functional requirements.
695	**LCC**	Life Cycle Cost Life Cycle Cost (LCC) means considering all the costs that will be incurred during the lifetime of the product, work or service: Initial invest-ment, operating costs, including energy, fuel and water use, spares, and maintenance. End-of-life costs (such as decommissioning or disposal) or residual value. The LCC is the process of compiling all costs that the owner or producer of an asset will incur over its lifespan. These costs include the initial investment, future additional investments, and annually recurring costs, minus any salvage value.
696	**LCCA**	Life-Cycle Cost Analysis LCCA is a method for assessing the total cost of facility ownership. It takes into account all costs of acquiring, owning, and disposing of a building or building system. LCCA is especially useful when project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs, have to be compared in order to select the one that maximizes net savings.
697	**LCCCA**	Life Cycle Cost Concrete Assessment Spreadsheet Life Cycle Costing Tool developed by MBCC Group (formerly BASF) for concrete that allows to compare repair and coating solu-tions for concrete on the basis of Life Cycle Costs (LCC), to provide a solid economic foundation to select the best repair/coating solution for an specific situation in a building
698	**LCD**	Liquid Crystal Display

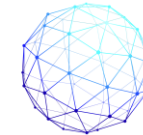|		A Liquid-Crystal Display (LCD) is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals combined with polarizers. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden.
699	**LCDN**	Life Cycle Data Network The Life Cycle Data Network (LCDN) was launched in 2014. It aims to provide a globally usable infrastructure for the publication of quality assured LCA dataset (i.e. LCI datasets and LCIA method datasets) from different organizations (e.g. industry, national LCA projects, research groups, and consultants). The LCDN is a non-centralized web-based infrastructure composed by Nodes (i.e. the repository of a developer/owner dataset), and it also called Registry.
700	**LCI**	Lean Construction Institute Lean Construction Institute (LCI) is a US-based not for profit organization established in 1997. They define lean construction as, "the application of lean thinking to the design and construction process, creating improved project delivery to meet client needs and improved efficiency for constructors."
701	**LCI**	Life Cycle Inventory Life cycle inventory (LCI) is the methodology step that involves creating an inventory of input and output flows for a product system. Such flows include inputs of water, energy, and raw materials, and releases to air, land, and water. The inventory can be based on literature analysis or on process simulation.
702	**LCIA**	Life Cycle Impact Assessment Life cycle impact assessment (LCIA) is the method for converting inventory data from a LCA into a set of potential impacts. This enables practitioners and decision makers to better understand the damage caused by resource use and emissions. LCIA is the phase of an LCA where the evaluation takes place of the potential environmental impacts stemming from the elementary flows (environmental resources and releases) obtained in the LCI.
703	**LCIE**	Life Cycle Information Exchange From the private industry perspective, Life Cycle Information Exchange was evaluated based on the business cases, specific business requirements, information handover plan, and implementation with software applications. LCIE and several others are currently being developed (BuildingSMART 2015).
704	**LCR**	Life Cycle Repairs /Replacement (Renewal)

		Life Cycle Replacement means any works for the renewal of any Life Cycle Assets that are necessary to ensure that the Facilities are maintained in accordance with the Service Level Specification and Method.
705	**LCS**	Location Coding System A functional location coding system would have a structure that identified the general areas, and then identified the individual buildings within each area. Within a particular building there may be several kitchens. Each kitchen has a functional location code.
706	**LCT**	Life Cycle Tower Life Cycle Tower is a multi-storey tower based on wood, from Cree by Rhomberg, Austria. Cree by Rhomberg is a company that offers sustainable & ecofriendly construction solutions.
707	**LD**	Linked Data In computing, Linked Data is structured data which is interlinked with other data so it becomes more useful through semantic queries. It builds upon standard Web technologies such as HTTP, RDF and URIs, but rather than using them to serve web pages only for human readers, it extends them to share information in a way that can be read automatically by computers. Part of the vision of linked data is for the Internet to become a global database.
708	**LDAC**	Linked Data in Architecture and Construction The LDAC workshop series provides a focused overview on technical and applied research on the usage of semantic web, linked data and web of data technologies for architecture and construction (design, engineering, construction, operation, etc.). The workshop aims at gathering researchers, industry stakeholders, and standardization bodies of the broader Linked Building Data (LBD) community.
709	**LE**	Large Enterprise According the criteria of the INSEE (Institut National de la Statistique et des Études Économiques), a large enterprise is an enterprise that checks at least one of the following two conditions: has at least 5.000 employees ; has an annual turnover greater than 1,5 billion euros and a balance sheet total of more than 2 billion euros.
710	**LEAR**	Legal Entity Appointed Representative LEAR is the main administrative contact between an organization and the Commission appointed by an organization. LEARs have system rights to: update their organization's data on the Funding & Tenders Portal. LEAR may delegate tasks to one or more Account Administrators.
711	**LEC**	Local Energy Community A Local Energy Community is a legal entity, effectively controlled by local shareholders or members, that manages the LES. Generally, value-

		rather than profit driven: an association, a cooperative. LECs will be an essential element of any future energy system, enabling communities to be directly involved in the decision-making of how local energy generation and distribution is used within households. LECs typically refers to the cooperation among consumers to satisfy their community's energy needs by using locally produced renewable electricity.
712	**LED**	Light-Emitting Diode Light Emitting Diode, in electronics, is a semiconductor device that emits infrared or visible light when charged with an electric current. Visible LEDs are used in many electronic devices as indicator lamps, in automobiles as rear-window and brake lights, and on billboards and signs as alphanumeric displays or even full-color posters.
713	**LEED**	Leadership in Energy and Environmental Design LEED is an internationally recognized green building programme that certifies buildings according to their ecological footprint upon their environment. LEED is an internationally accepted green building criteria and has been used in many countries. LEED awards points to buildings on a 136-point scale, depending on how they perform on different criteria of sustainability. Eventually, all points are totaled and a certification level (LEED gold, LEED platinum, etc.) is awarded depending on cumulative performance.
714	**LHC**	Large Hadron Collider The Large Hadron Collider (LHC) is the world's largest and most powerful particle accelerator. It first started up on 10 September 2008, and remains the latest addition to CERN's accelerator complex. The LHC consists of a 27-kilometre ring of superconducting magnets with a number of accelerating structures to boost the energy of the particles along the way. Inside the accelerator, two high-energy particle beams travel at close to the speed of light before they are made to collide. The beams travel in opposite directions in separate beam pipes.
715	**LIDAR**	Light Detection and Ranging Light Detection and Ranging, also known as Lase Detection and Ranging (LADAR) is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth
716	**LIPS**	Lean in Public Sector Lean in the Public Sector (LIPS) is an international forum where practitioners share lessons learned during lean transformation in public sector and non-profit organizations. Content that educates, informs, and inspires Lean Construction, Lean Government, Lean Service, and Lean Enterprise is a focus of the group.
717	**Ln**	Linkedin LinkedIn is a social networking website for people in professional jobs. The company started in December 2002, and the website opened May 5, 2003. Users can make connections with other people they have worked with, post their work experience and skills, look for jobs, and look

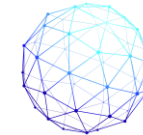|		for workers.
718	**LOD**	Level of model Detail
		The Level of Model Detail is the description of graphical content of models at each of the stages defined. The "level of model information" is the description of non-graphical content of models at each of the stages defined.
719	**LOD**	Level of Definition
		The Level of Definition is a reference that enables practitioners in the AEC Industry to specify and articulate with a high level of clarity the content and reliability of Building Information Models (BIMs) at various stages in the design and construction process. The LOD Specification utilizes the basic LOD definitions developed by the AIA for the AIA G202-2013 Building Information Modeling Protocol Form and. It defines and illustrates characteristics of model elements of different building systems at different Levels of Development
720	**LOD**	Linked Open Data
		Linked Open Data (LOD) is linked data that is open data. Tim Berners-Lee gives the clearest definition of linked open data in differentiation with linked data: "Linked Open Data is Linked Data which is released under an open license, which does not impede its reuse for free." The label "Linked Open Data" is widely used, but often to refer to Linked Data in general, rather than to Linked Data that is explicitly published under an open license. Not all Linked Data will be open, and not all Open Data will be linked.
721	**LOI**	Level of model Information
		This is the amount of unmodelled information that our BIM object has. For example, a family has its types and within these types it can have an enormous amount of parameters that can be from something as simple as height and width to something as complex as a mathematical formula that changes the spacing of the elements depending on the occupancy of the room they are in. The LOI can be tables, specifications and parametric information.
722	**LOIN**	Level of Information Need
		Level of Information Need defines the quality, quantity and granularity of information. Information can be in the form of geometric information (or Level of graphical Detail) and alpha-numeric (or Level of Information). Level of Information Need is now included in the ISO19650 series, the new international standards on BIM.
723	**Lo-Ra**	Long Range
		LoRa is a low-power wide-area network (LPWAN) technology. It is based on spread spectrum modulation techniques.
724	**LPD**	Lean Project Delivery

		Lean Project Delivery encourages cooperation in the context of a single integrated team involving the owner, designer, constructor and other critical participants as equal in the pursuit of a shared goal (Mossman et al., 2010) by working together of the three domains. To accomplish this, and as previously explained, the organizational structure is conceived under the formation of teams working collaboratively.
725	**LPDS**	Lean Project Delivery System The Lean Project Delivery System (LPDS) was first introduced by Glenn Ballard in 2001. LPDS is a philosophy, but also a delivery system in which the project team help customers to decide what they want, not only realize decisions and perform activities. In the Lean Project Delivery System, it is assumed that the job of the project delivery team is not only to provide what the customer wants, but to first help the customer decide what he wants.
726	**LPN**	Low Power Network See LPWAN (Low Power Wide Area Network)
727	**LPS**	Last Planner System The Last Planner® System (LPS) is a realistic way to collaboratively manage project-based production. Simply put, LPS is exactly what its namesake suggests, a system that engages last planners—the people ultimately responsible for getting the work done—in the planning and efficient execution of a project. LPS is a collaborative planning process that involves trade foremen or design team leaders (the last planners) in planning in greater and greater detail as the time for the work to be done gets closer.
728	**LPT**	Lean Production Theory A new understanding of the construction process is offered in the paper submitted by Greg Howell and Glenn Ballard in 1994. Next the concepts of flows and the role of Lean Production Theory (LPT) are examined. The paper closes with a reflection on the mental models which support current thinking.
729	**LPWA**	Low Power Wide Area See LPWAN (Low Power Wide Area Network)
730	**LPWAN**	Low Power Wide Area Network A LPWAN or LPWA network or Low Power Network (LPN) is a type of wireless telecommunication wide area network designed to allow long-range communications at a low bit rate among things (connected objects), such as sensors operated on a battery. The low power, low bit rate and intended use distinguish this type of network from a wireless WAN that is designed to connect users or businesses, and carry more data,

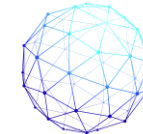|		
		using more power. The LPWAN data rate ranges from 0,3 kbit/s to 50 kbit/s per channel.
731	**LRM**	Last Responsible Moment The last responsible moment is the instant in which the cost of the delay of a decision surpasses the benefit of delay; or the moment when failing to take a decision eliminates an important alternative. It is a strategy of not making a premature decision but instead delaying commitment and keeping important and irreversible decisions open until the cost of not making a decision becomes greater than the cost of making a decision.
732	**LRM**	Linear Referencing Method A linear referencing method (LRM) is a means of determining locations along linear features. A location is a distance along a route from a known point of reference. Locations are relative to the length of the route and may change positionally when the route changes. Positions, on the other hand, are discrete points on the ground and have no direct relationship to a route. Positions do not change when the route changes. LRMs must consider both location and position when referencing assets along a route.
733	**LRS**	Linear Referencing System Linear Referencing, also called linear reference system (LRS), is a method of spatial referencing in engineering and construction, in which the locations of physical features along a linear element are described in terms of measurements from a fixed point, such as a milestone along a road. Each feature is located by either a point (e.g. a signpost) or a line (e.g. a no-passing zone). If a segment of the linear element or route is changed, only those locations on the changed segment need to be updated.
734	**LTOs**	Long-Term Objectives For each of the different skills a Long-Term Objective (LTO) may be created which is basically the long-term educational goal of this particular program.
735	**LTP**	Linked Third Party Under H2020, LTPs are ruled by Article 14 of the GA. A LTP is a third party with a legal link to a beneficiary. A LTP is any legal entity which has a legal link to the beneficiary implying collaboration that is not limited to the action. Only affiliated entities or entities with a legal link to a beneficiary can be linked third parties. Linked third parties do NOT sign the GA (and are therefore not beneficiaries).
736	**LU**	London Underground The London Underground (also known simply as the Underground or by its nickname the Tube) is a rapid transit system serving Greater London and some parts of the adjacent counties of Buckinghamshire, Essex and Hertfordshire in the United Kingdom. The Underground has its origins in the Metropolitan Railway, the world's first underground passenger railway. Opened in January 1863.

737	**LV**	Low Voltage
		In electrical engineering, Low Voltage is a relative term, the definition varying by context. Different definitions are used in electric power transmission and distribution, and electrical safety codes define "low voltage" circuits that are exempt from the protection required at higher voltages. These definitions vary by country and specific codes or regulations.
738	**LZC**	Low to Zero Carbon
		Low and zero carbon technology (LZC) is the term given to technologies that emit low levels of CO_2 emissions, or no net CO_2 emissions. The incorporation of these technologies is more effective within buildings with a highly energy efficient fabric after heat demand and loss have been reduced to a minimum.
739	**M&E**	Mechanical and Electrical
		M&E in construction refers to mechanical and electrical systems. Mechanical systems can include elements of infrastructure, plant and machinery, tool and components, heating and ventilation and so on. Electrical systems might include, power supply and distribution, telecommunications, computing instrumentation, control systems and so on. Clearly there is a great deal of overlap, with many systems including both mechanical and electrical components, hence the term M&E.
740	**M&O**	Maintenance and Operation
		See O&M (Operations & Maintenance)
741	**M&V**	Measurement & Verification
		M&V is the process of using measurement to reliably determine actual savings created within an individual facility by an energy management, energy conservation or energy efficiency project or program. As savings cannot be directly measured, the savings can be determined by comparing measured use before and after implementation of a project. In shortened form, M&V is measuring past results against future changes. This can be in reference to individual or whole building energy centric practices.
742	**M2M**	Machine-to-Machine
		Machine to Machine (M2M) is direct communication between devices using any communications channel, including wired and wireless. Machine to machine communication can include industrial instrumentation, enabling a sensor or meter to communicate the information it records (such as temperature, inventory level, etc.) to application software that can use it (for example, adjusting an industrial process based on temperature or placing orders to replenish inventory).
743	**MAE**	Mean Absolute Error

		In statistics, Mean Absolute Error (MAE) is a measure of errors between paired observations expressing the same phenomenon. The Mean Absolute Error is the average of all absolute errors.
744	**MAPD**	Mean Absolute Percentage Deviation See MAPE (Mean Absolute Percentage Error)
745	**MAPE**	Mean Absolute Percentage Error The Mean Absolute Percentage Error (MAPE), also known as Mean Absolute Percentage Deviation (MAPD), is a measure of prediction accuracy of a forecasting method in statistics. Mean absolute percentage error is commonly used as a loss function for regression problems and in model evaluation, because of its very intuitive interpretation in terms of relative error.
746	**MBCC**	Master Builders Construction Chemicals MBCC Group is one of the leading suppliers of construction chemicals and solutions worldwide and has emerged from the former BASF Construction Chemicals business after its acquisition by an affiliate of Lone Star, a global private equity firm. The global headquarters for the Group is located in Mannheim, Germany, and home to several global functions.
747	**MBD**	Multi-Body Dynamics Multi-body dynamics is a branch of computational mechanics that generally includes rigid bodies, but may also include flexible bodies represented by springs and dampers. Solutions to multi-body dynamics problems generally involve algebraic and ordinary differential equations. The important elements in a multi-body dynamics analysis include structural dynamics, mechanics, computational mathematics and control theory. Multi-body dynamics has been typically used in motion simulation and neuromus-culoskeletal models.
748	**MBE**	Mean Bias Error Mean Bias Error (MBE) quantifies the overall bias and detects if the model is producing overestimation (MBE>0) or underestimation (MBE<0). Mean bias error is primarily used to estimate the average bias in the model and to decide if any steps need to be taken to correct the model bias.
749	**MBR**	Membrane bioreactor MBR is the combination of a membrane process like microfiltration or ultrafiltration with a biological wastewater treatment process, the activated sludge process. It is now widely used for municipal and industrial wastewater treatment.
750	**MBS**	Master Builders Solutions Master Builders Solutions is the global brand of advanced chemical solutions for construction of the group MBCC (formerly BASF). The com-

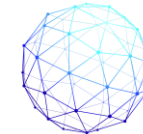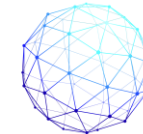|		
		prehensive construction chemicals portfolio includes concrete admixtures, waterproofing solutions, concrete repair and protection solutions, performance grouts and performance flooring solutions.
751	**MBSD**	See MBS
752	**MC**	Main Contractor A Main Contractor, General Contractor or Prime Contractor is responsible for the day-to-day oversight of a construction site, management of vendors and trades, and the communication of information to all involved parties throughout the course of a building project. A general contractor is responsible for providing all of the material, labor, equipment and services necessary for the construction of the project. A general contractor often hires specialized subcontractors to perform all or portions of the construction work.
753	**MCIA**	Material Cost Impact Analysis See CIA (Cost Impact Analysis)
754	**MDS**	Manufacturing Digital Shadow See DS (Digital Shadow)
755	**MDT**	Manufacturing Digital Twin A digital model of a particular physical element or process with data connections that enable convergence between the physical and virtual states at an appropriate rate of synchronization. A virtual representation of a physical manufacturing system that is able to run different simulation disciplines and characterized by the synchronization between the virtual and real system in a bi-directional manner with feed-back loops using sensed data and connected smart devices
756	**MEET**	Metered Energy Efficiency Transaction The Metered Energy Efficiency Transaction Structure (MEETS) is a radical new approach designed to achieve deep energy efficiency improvements in commercial buildings. It protects utility revenues, eliminates utility risk, and provides strong financial returns for investors in deep (35% savings or greater) energy efficiency. The 35% threshold represents a level of savings below which there are currently numerous alternatives for financing.
757	**MEP**	Mechanical, Electrical, Plumbing MEP refers to these aspects of building design and construction. In commercial buildings, these elements are often designed by a specialized engineering firm. MEP design is important for planning, decision making, accurate documentation, performance- and cost-estimation, construction, and operating/maintaining the resulting facilities. MEP specifically encompasses the in-depth design and selection of these sys-

758	**MER**	Materials for Energy Recovery
		Energy recovery includes any technique or method of minimizing the input of energy to an overall system by the exchange of energy from one sub-system of the overall system with another. The energy can be in any form in either subsystem, but most energy recovery systems exchange thermal energy in either sensible or latent form. EPA's approach disrupts the large economic activity associated with the recycling of secondary materials for energy recovery, with significant detriment to the environment.
759	**MES**	Manufacturing Execution System
		MES are computerized systems used in manufacturing, to track and document the transformation of raw materials to finished goods. MES provides information that helps manufacturing decision makers understand how current conditions on the plant floor can be optimized to improve production output. MES works in real time to enable the control of multiple elements of the production process (e.g. inputs, personnel, machines and support services).
760	**MET**	Metabolic Equivalent of Task
		The metabolic equivalent of task (MET) is the objective measure of the ratio of the rate at which a person expends energy, relative to the mass of that person, while performing some specific physical activity compared to a reference, set by convention at 3,5 mL of oxygen per kilogram per minute, which is roughly equivalent to the energy expended when sitting quietly.
761	**MET**	Middle European Time
		See CET (Central European Time)
762	**MFA**	Material Flow Analysis
		Material Flow Analysis (MFA), also referred as Substance Flow Analysis (SFA) is a systematic assessment of the flows and stocks of materials within a system defined in space and time. MFA is an important tool to study the bio-physical aspects of human activity on different spatial and temporal scales. It is considered a core method of industrial ecology or anthropogenic, urban, social and industrial metabolism.
763	**MFA**	Material Footprint Assessment
		Mentioned by Stefan Giljum et al. in a paper in the Journal of Industrial Ecology, Vol. 19, Issue 5, pp. 792-804, 2015. Material flow-based indicators play an important role in measuring green and resource-efficient growth. This article examines the global flows of materials and the amounts of materials directly and indirectly necessary to satisfy domestic final demand in different countries world-wide.
764	**MFR**	Materials For Recycling

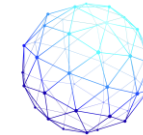tems, as opposed to a tradesperson simply installing equipment.

		Material for recycling may be collected separately from general waste using dedicated bins and collection vehicles, or sorted directly from mixed waste streams. Recycling is a resource recovery practice that refers to the collection and reuse of disposed materials such as empty beverage containers. The materials from which the items are made can be reprocessed into new products.
765	**MIDI**	Master Information Delivery Index PAS 1192-2 defines the Master Information Document Index (MIDI) as the: Index specifying a detailed list of the deliverables for a project; for model, sub models, documents and data also allocating responsibility to deliver and the programme for delivery of a project supply chain. However, there is no other reference to the master information document index, who produces it or when, and how it differs from the Master Information Delivery Plan (MIDP).
766	**MIDP**	Master Information Delivery Plan MIDP, is a primary plan which is used to manage the delivery of information during the project lifecycle. Essentially the MIDP is a collation of Individual Task Information Delivery Plans (TIDP), prepared by other team members, and includes details of when project information is to be prepared, who is responsible for producing the information as what protocols and procedures for each stage shall be followed
767	**MIL**	Model in the Loop Model in the Loop (MIL) is the simulation of an embedded system in a first phase of development of modelling in the area of model-based software development. Embedded systems communicate with their environment and often wait for plausible sensor signals as input and then stimulate the physical system. To function correctly, the environment of the embedded system must be simulated. If the embedded system (model) is now simulated in a loop together with the environment model, it is referred to as a model in the loop simulation.
768	**MIPS**	Material Input per Unit of Service MIPS is an economic concept, originally developed at the Wuppertal Institute, Germany in the 1990s. The MIPS concept can be used to measure eco-efficiency of a product or service and applied in all scales from a single product to complex systems. The calculation takes into account materials required to produce a product or service. For example, in case of a passenger car, the number of service units is the total number of passenger kilometres during the whole life span of the vehicle.
769	**ML**	Machine Learning Machine learning (ML) is the study of computer algorithms that improve automatically through experience. It is seen as a subset of artificial intelligence. Machine learning algorithms build a model based on sample data, known as "training data", in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as email filtering and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

770	**MLB**	Mouse Left Button
		The left button on a mouse is the default button used to click, select, drag to highlight a word and/or object and used as a pointer.
771	**MLP**	Machine Learning Perceptron
		In Machine Learning, the Perceptron is an algorithm for supervised learning of binary classifiers. A binary classifier is a function which can decide whether or not an input, represented by a vector of numbers, belongs to some specific class. It is a type of linear classifier, i.e. a classification algorithm that makes its predictions based on a linear predictor function combining a set of weights with the feature vector. The perceptron algorithm was invented in 1958 at the Cornell Aeronautical Laboratory by Frank Rosenblatt.
772	**MLVS**	Main Low-Voltage Switchboard
		MVLS is the switchboard which is directly supplied by the main source of electrical power in Low Voltage, and is intended to distribute electrical energy to the separate circuits, each of which is managed and safeguarded by the fuses or switchgears of the switchboard.
773	**MMHW**	Method of Measurement for Highway Works (Highway Agency)
		It is a method used in the UK to measure the works executed on Higways.
774	**ModSCO**	Model -Supported Control
		This is a web application currently in development within the IRUSE group of the National University of Ireland Galway (NUIG). The main purpose of this tool is the implementation of Reduced Order Models (ROM) to assess HVAC performance of buildings by offering simulation capabilities to a number of users/stakeholders in order to analyse and optimise HVAC control strategies in a targeted zone of a building.
775	**MOPU**	Ministerio de Obras Públicas y Urbanismo (Spain)
		Creado en 1977, el Ministerio de Obras Públicas y Urbanismo (MOPU), fue un departamento ministerial español que existió desde el inicio de la Legislatura Constituyente hasta el final de la IV Legislatura en 1991, a partir de cuyo momento pasó a denominarse Ministerio de Obras Públicas, Transportes y Medio Ambiente. Se encargaba de regular las obras civiles en el territorio español.
776	**MP**	Management Plan
		A Management Plan is a comprehensive plan for the program that clearly specifies intended objectives of the proposed project, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks. It is used to describe every phase of a project. The components may include initiating, planning, executing, monitoring and controlling, and closing.
777	**MPA**	Multi-Party Agreement
		Multi-party contracts are defined by Agreements signed by several stakeholders in a business deal. A contract of this nature cannot be de-

		composed within a set of bilateral contracts, where the arrangements are firmed by stakeholders in pairs, without loss of information. It means any agreement entered into by Seller, Purchaser and one or more third parties providing for the financing, securitization or other similar purposes with respect to the Purchased Loans and this Agreement.
778	**MPC**	Model Predictive Control MPC is an advanced method of process control that is used to control a process while satisfying a set of constraints. It has been in use in the process industries in chemical plants and oil refineries since the 1980s. In recent years it has also been used in power system balancing models and in power electronics. Model predictive controllers rely on dynamic models of the process, most often linear empirical models obtained by system identification. The main advantage of MPC is the fact that it allows the current timeslot to be optimized.
779	**MPDS**	Multi-Purpose Dynamic Simulator Multi-Purpose Dynamic Simulator (MPDS) is the concept of maximising the use of one dynamic process model throughout the design, development and operational phases of a project. MPDS is a collection of proprietary software used to build and run a simulation model that represents the dynamic operation of a process, its controls and associated logic. MPDS is the core simulation of a process, which is applied to different activities as a project.
780	**MPDT**	Model Production and Delivery Table The Model Production and Delivery Table (MPDT) is an appendix to the Construction Industry Council's CIC BIM protocol. The CIC BIM protocol can be adopted on projects that use BIM to define specific obligations and liabilities, and to set out limitations placed on the agreed use of the model. It is incorporated into contractual documents by the inclusion of a model enabling amendment.
781	**MPM**	Manufacturing Process Management MPM is a collection of technologies and methods used to define how products are to be manufactured. MPM differs from ERP/MRP which is used to plan the ordering of materials and other resources, set manufacturing schedules, and compile cost data. A cornerstone of MPM is the central repository for the integration of all these tools and activities aids in the exploration of alternative production line scenarios.
782	**MQC**	Model Quality Control A Model of Quality Control is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer. QC is similar to, but not identical with, quality assurance (QA).
783	**MQTT**	Message Queuing Telemetry Transport MQTT is an open OASIS and ISO standard (ISO/IEC 20922) lightweight, publish-subscribe network protocol that transports messages between

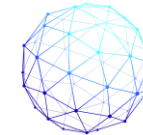|		devices. The protocol usually runs over TCP/IP; however, any network protocol that provides ordered, lossless, bi-directional connections can support MQTT. It is designed for connections with remote locations where a "small code footprint" is required or the network bandwidth is limited.
784	**MR**	Mixed Reality Mixed reality (MR) is the merging of real and virtual worlds to produce new environments and visualizations, where physical and digital objects co-exist and interact in real time. Mixed reality does not exclusively take place in either the physical or virtual world, but is a hybrid of reality and virtual reality. There are many practical applications of mixed reality, including entertainment, military training, and remote working. There are also different display technologies used to facilitate the interaction between users and mixed reality applications.
785	**MRB**	Material Review Board Material Review Board is a board consisting of authorized Supplier Quality and Engineering members necessary to review, evaluate and determine the proper disposition of nonconforming material referred to it, by means of a system of recorded investigative checks done on failed components or processes to improve quality.
786	**MRT**	Mean Radiant Temperature The mean radiant temperature (MRT) is defined as the uniform temperature of an imaginary enclosure in which the radiant heat transfer from the human body is equal to the radiant heat transfer in the actual non-uniform enclosure. MRT is a concept arising from the fact that the net exchange of radiant energy between two objects is approximately proportional to their temperature difference multiplied by their ability to emit and absorb heat (emissivity). It is simply the area weighted mean temperature of all the objects surrounding the body.
787	**MSD**	Manpower Sources Diagram The Manpower Sources Diagram expresses the composition of the maintenance personnel, i.e. in-house provision vs. external contractors (outsourcing). The rationale behind the development of this diagram was the need to examine the costs of the various work sources and their ratio.
788	**MSD**	Mean Square Deviation See MSE (Mean Square Error)
789	**MSE**	Mean Square Error The Mean Squared Error (MSE) or Mean Squared Deviation (MSD) of an estimator measures the average of the squares of the errors, that is, the average squared difference between the estimated values and the actual value. MSE is a risk function, corresponding to the expected value of the squared error loss. The fact that MSE is almost always strictly positive is because of randomness or because the estimator does

		not account for information that could produce a more accurate estimate. The MSE is a measure of the quality of an estimator.
790	**MSG**	Model Support Group (Building Smart)
		The Model Support Group (MSG) was a team of international experts from buildingSMART membership that build buildingSMART data model standards. Currently, the MSG does not exist anymore and is replaced by the "IFC Release Teams".
791	**MSM**	Mirrored Spaces Model
		Digital twin was first introduced as an unnamed concept for Product Lifecycle Management (PLM) back in 2002, and was subsequently called Mirrored Spaces Model, Information Mirroring Model and even Virtual Twin until its final denomination as Digital Twin in 2011.
792	**MTBF**	Mean Time Between Failures
		Mean Time Between Failures (MTBF) is the predicted elapsed time between inherent failures of a mechanical or electronic system, during normal system operation. MTBF can be calculated as the arithmetic mean (average) time between failures of a system. The term is used for repairable systems, while mean time to failure (MTTF) denotes the expected time to failure for a non-repairable system. The definition of MTBF depends on the definition of what is considered a failure.
793	**MTOE**	Million Tons of Oil Equivalent
		The tonne of oil equivalent (toe) is a unit of energy defined as the amount of energy released by burning one tonne of crude oil. Multiples of the toe are used, in particular the megatoe (Mtoe, one million toe) and the gigatoe (Gtoe, one billion toe). It is a standardized unit, assigned a net calorific value of 41.868 kilojoules/kg and may be used to compare the energy from different sources.
794	**MTTF**	Mean Time to Failure
		Mean Time to Failure (MTTF) is the amount of time on average that a part can run before it breaks. Because you use this maintenance metric only for things that you can't repair, you can also think of MTTF as a part's average lifespan. It's worth looking a bit more closely at the idea of something being "repairable." In many cases, the non-repairable part lives inside a repairable asset. For example, you can calculate the MTTF for a fan belt inside a forklift. When the fan belt breaks, you can't safely repair it, but once you replace it, the forklift works fine again.
795	**MTTR**	Mean Time to Resolution (Recovery, Repair)
		MTTR Is the average amount of time that it takes a customer service team to resolve a case after it has been opened. It's usually measured in days or business hours, so it doesn't factor in time when your team is off the clock.
796	**MVD**	Model View Definition
		An IFC View Definition, or Model View Definition, MVD, defines a subset of the IFC schema, that is needed to satisfy one or many Exchange

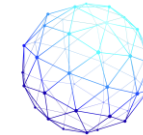|		
		Requirements of the AEC industry. The method used and propagated by buildingSMART to define such Exchange Requirements is the Information Delivery Manual, IDM (also ISO 29481).
797	**MVP**	Market Validation Program The Market Validation Program is a service instituted by certain lenders to market test the current offer under review by evaluating it via a one-time online auction.
798	**MVP**	Minimum Viable Product A Minimum Viable Product (MVP) is a version of a product with just enough features to be usable by early customers who can then provide feedback for future product development. A focus on releasing an MVP means that developers potentially avoid lengthy and (ultimately) unnecessary work. Instead, they iterate on working versions and respond to feedback, challenging and validating assumptions about a product's requirements. The term was coined and defined in 2001 by Frank Robinson and then popularized by Steve Blank and Eric Ries.
799	**MWI**	Municipal Waste Incinerators Municipal waste-incineration plant' means any technical equipment used for the treatment of municipal waste by incineration, with or without recovery of the combustion heat generated, but excluding plants used specifically for the incineration of sewage sludge, chemical, toxic and dangerous waste, medical waste from hospitals or other types of special waste, on land or at sea, even if these plants may burn municipal waste as well.
800	**N3**	Notation 3 Notation3, or N3 as it is more commonly known, is a shorthand non-XML serialization of Resource Description Framework (RDF) models, designed with human-readability in mind: N3 is much more compact and readable than XML RDF notation.
801	**N3Logic**	Notation 3 Logic These properties are not part of the N3 language, but are properties which allow N3 to be used to express rules, and rules which talk about the provenance of information, contents of documents on the web, and so on. Â Just as OWL is expressed in RDF by defining properties, so rules, queries, differences, and so on can be expressed in RDF with the N3 extension to formulae.
802	**NaaS**	Native as a Service Native as a Service is a white-label offering, meaning it is software plumbing for software vendors to buy and use to turn their desktop products into cloud products. According to Numecent CEO and co-founder Osman Kent, NaaS can't come a moment too soon for Independent Software Vendors (ISV's).

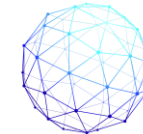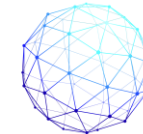| 803	**NACE**	The Statistical Classification of Economic Activities in the European Community, commonly referred to as NACE (for the French term "nomenclature statistique des activités économiques dans la Communauté européenne"), is the industry standard classification system used in the European Union. The current version is revision 2 and was established by Regulation (EC) No 1893/2006. It is the European implementation of the UN classification ISIC, revision 4.
804	**NACUBO**	National Association of College and University Business Officers The NACUBO is a membership organization providing leadership and sector-wide guidance on accounting, finance, and tax issues in higher education. The organization represents more than 1,900 educational institutions in the United States. It does this through public outreach and political lobbying, while also offering discounts and other benefits to its members.
805	**NaN**	Not a Number In computing, NaN is a member of a numeric data type that can be interpreted as a value that is undefined or unrepresentable, especially in floating-point arithmetic. Systematic use of NaNs was introduced by the IEEE 754 floating-point standard in 1985, along with the representation of other non-finite quantities such as infinities. In mathematics, zero divided by zero is undefined as a real number, and is therefore represented by NaN in computing systems. The square root of a negative number is not a real number, and is therefore also represented by NaN in compliant computing systems. NaNs may also be used to represent missing values in computations.
806	**NAO**	National Audit Office The National Audit Office is an independent Parliamentary body in the United Kingdom which is responsible for auditing central government departments, government agencies and non-departmental public bodies. The NAO also carries out Value for Money (VFM) audits into the administration of public policy.
807	**NASA**	National Aeronautics and Space Administration The National Aeronautics and Space Administration (NASA) is an independent agency of the United States Federal Government responsible for the civilian space program, as well as aeronautics and aerospace research. NASA was established in 1958. NASA conducts its work in three principal organizations, called mission directorates: • Aeronautics • Human Exploration and Operations • Science
808	**NBE**	Norma Básica de Edificación (Spain) The NBEs (Spanish Basic Building Regulations) were established by Royal Decree in 1977. Are those which, based on the foundations of scien-

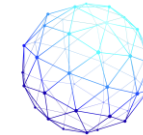|		tific and technological knowledge, establish the necessary rules for their correct application in the design and execution of buildings. Their fundamental purpose is to protect the safety of people, to establish the remaining minimum conditions to meet human requirements and to protect the economy of society. As a consequence of these aims, the NBEs are mandatory standards for all building projects and works. Currently they are repealed and replaced by the CTE.
809	**NBI**	Northbound Interfaces In computer networking and computer architecture, a NBI of a component is an interface that allows the component to communicate with a higher-level component, using the latter component's southbound interface. The northbound interface conceptualizes the lower-level details (e.g., data or functions) used by, or in, the component, allowing the component to interface with higher level layers. In architectural overviews, the northbound interface is normally drawn at the top of the component it is defined in; hence the name northbound interface.
810	**NBIMS**	National BIM Standard (US) The National BIM Standard-United States™ (NBIMS-US™) provides consensus based standards through referencing existing standards, documenting information exchanges and delivering best business practices for the entire built environment. With open BIM standards we can build detailed models then deliver accurate products that can be used during commissioning and operation to ensure facility functionality throughout the life of the facility and to deliver high performance, carbon neutral, and net zero energy based facilities.
811	**NB-IoT**	Narrow Band-Internet of Things NB-IoT is a standards-based low power wide area (LPWA) technology developed to enable a wide range of new IoT devices and services. NB-IoT significantly improves the power consumption of user devices, system capacity and spectrum efficiency, especially in deep coverage. Battery life of more than 10 years can be supported for a wide range of use cases.
812	**NBS**	National Building Specification NBS is a UK-based system of construction specification used by architects and other building professionals to describe the materials, standards and workmanship of a construction project. It was launched in 1973 and is now used by over 5000 offices. A specification often forms part of the tender documentation along with architectural drawings for a contractor to price and then forms part of the contract documentation for the builder to construct the building. Since 1988 the NBS has been structured on the Common Arrangement of Work Sections.
813	**NBS**	National Bureau of Standards The National Bureau of Standards (NBS) was founded by Congress on March 3, 1901 as an authoritative domestic measurement and standards laboratory, and was the first physical science research laboratory of the federal government. In 1988, the National Bureau of Standards was renamed the National Institute of Standards and Technology (NIST).

814	NC	Numerical Control
		Numerical Control is any machining process in which the operations are executed automatically in sequences as specified by the program that contains the information for the tool movements. Numerical Control, popularly known as the NC is very commonly used in the machine tools. Numerical control is defined as the form of programmable automation, in which the process is controlled by the number, letters, and symbols.
815	NCM	National Calculation Methodology
		The National Calculation Methodology (NCM) for the EPBD (Energy Performance of Buildings Directive) is defined by the Ministry for Housing, Communities, and Local Government of the UK. The procedure for demonstrating compliance with the Building Regulations for buildings other than dwellings is by calculating the annual energy use for a proposed building and comparing it with the energy use of a comparable 'notional' building.
816	NDA	Non-Disclosure Agreement
		A non-disclosure agreement is a legally binding contract that establishes a confidential relationship. The party or parties signing the agreement agree that sensitive information they may obtain will not be made available to any others. Non-disclosure agreements are common for businesses entering into negotiations with other businesses. They allow the parties to share sensitive information without fear that it will end up in the hands of competitors. In this case, it may be called a mutual non-disclosure agreement.
817	NDEA	Non-Domestic Energy Assessment
		Energy Assessment is a regulated industry in the UK and is undertaken across a number of different situations including domestic buildings, non-domestic and commercial buildings, and air-conditioning systems. The Non-Domestic Energy Assessor collects data on dimensions, construction, heating and hot water provision of commercial and non-commercial buildings in order to produce an EPC using the Simplified Building Energy Model (SBEM).
818	NDT	National Digital Twin
		Launched by the CDBB, The main purpose of NDT is to help to improve outcomes of construction process. It must be trustworthy and comply with the Data Ethics Framework. NDT must function effectively in support of its purpose and it must be available to users when required.
819	NEC	New Engineering Contracts
		The NEC is a formalised system created by the UK Institution of Civil Engineers that guides the drafting of documents on civil engineering and construction projects for the purpose of obtaining tenders, awarding and administering contracts. As such they legally define the responsibilities and duties of Employers (who commission work) and Contractors (who carry out work) in the Works Information. The contract consists of

		two key parts the Contract Data part one (Data provided by the Employer) and Contract Data part two (Data provided by the Contractor).
820	**NEC3**	New Engineering Contract (3rd Iteration of the NEC contract)
		NEC3 is a family of contracts unique in offering a complete end-to-end project management solution for the entire project life-cycle; from planning, defining legal relationships and procurement of works, all the way through to project completion, management and beyond. NEC3 has always been a forward thinking contract. Its collaborative, straightforward approach - which has resulted in well documented time and money saved on some of the biggest projects around the world.
821	**NEEDS**	New Energy Externalities Development for Sustainability
		NEEDS is an Integrated Project that aims to continue the work on the external costs of energy use initiated by past projects. Its ultimate objective is to evaluate the full costs and benefits (i.e. direct and external) of energy policies and of future energy systems, both at the level of individual countries and for the enlarged EU as a whole.
822	**NEN**	Nederlandse Norm
		NEN manages over 31.000 standards. Those are the international (ISO, IEC), European (EN) and national (NEN) standards accepted in The Netherlands. In total over 800 standards committees are active, with in total over 5.000 standard committee members. Properly managing the extensive standards collection and coordinating the national, European and international standards committees, requires a high-quality infrastructure.
823	**NEX**	NEANEX
		Neanex was founded in 2014 in Belgium by co-founders Johan Kuppens and Peter Imbrechts. Initially as a spin-off of iNFRANEA, consultants specialised in 3D Engineering, Systems Engineering and BIM for complex construction and infrastructure projects. Neanex is looking for junior and senior consultants & project managers to shape the AECO industry towards the digital era.
824	**NF**	National Framework
		See NHS (National Health Service)
825	**NHS**	National Health Service
		The NHS is the publicly funded national healthcare system in the United Kingdom. The organization, funded primarily by taxation, provides free or low-cost healthcare to all legal residents of the U.K. Medications are subsidized as well and prescriptions may be free when situations warrant. Specific policies vary among England, Scotland, Wales and Northern Ireland.
826	**NHWD**	Non Hazardous Waste Dispose

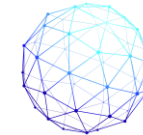|		
		Non-hazardous waste does not pose a direct threat to human health or the environment, but it still cannot be dumped into a trash receptacle or a sewer line because of the risks it could pose. Most of the waste produced in the United States — paper, plastics, glass, metals, etc. — is non-hazardous waste because it is not toxic by nature. Disposal methods for non-hazardous wastes vary because there are so many different types of waste and various regulations governing them.
827	**NIA**	Net Internal Area According the Code of measuring practice, from RICS, the Net Internal Area (NIA) also called Usable Floor Aera (UFA) of a building is the usable area measured to the internal finish of the perimeter or party walls, ignoring skirting boards, at each floor level. Net internal area covers all of those areas that can be used for a particular purpose.
828	**NIBS**	National Institute of Building Sciences (US) The National Institute of Building Sciences was established by the U.S. Congress in the Housing and Community Development Act of 1974, Public Law 93-383. NIBS is an authoritative voice that supports advances in building science and technology to improve the built environment. NIBS is a resource to those who plan, design, procure, construct, use, operate, maintain, renovate, and retire physical facilities.
829	**NIEM**	National Information Exchange Model The National Information Exchange Model (NIEM) is an XML-based information exchange framework from the United States. NIEM represents a collaborative partnership of agencies and organizations across all levels of government (federal, state, tribal, and local) and with private industry. The purpose of this partnership is to effectively and efficiently share critical information at key decision points throughout the whole of the justice, public safety, emergency and disaster management, intelligence, and homeland security.
830	**NIF's**	National Interoperability Frameworks The aim of the National Interoperability Framework is the creation of the necessary conditions to guarantee the suitable level of technical, semantic and organizational interoperability of the systems and applications used by Public Administrations, that would allow the exercise of rights and the fulfilment of obligations through the electronic access to public services, benefiting the efficacy and the efficiency at the same time.
831	**NIST**	National Institute of Standards and Technology (US) The National Institute of Standards and Technology (NIST) is a physical sciences laboratory and a non-regulatory agency of the United States Department of Commerce. Its mission is to promote innovation and industrial competitiveness. NIST's activities are organized into laboratory programs that include nanoscale science and technology, engineering, information technology, neutron research, material measurement, and physical measurement. From 1901–1988, the agency was named the National Bureau of Standards.

832	**NLP**	Natural Language Processing
		NLP is a subfield of linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language, in particular how to program computers to process and analyze large amounts of natural language data. The result is a computer capable of "understanding" the contents of documents, including the contextual nuances of the language within them. The technology can then accurately extract information and insights contained in the documents as well as categorize and organize the documents themselves.
833	**NLTK**	Natural Language Toolkit
		The Natural Language Toolkit (NLTK) is a platform used for building Python programs that work with human language data for applying in statistical natural language processing (NLP). It contains text processing libraries for tokenization, parsing, classification, stemming, tagging and semantic reasoning. It also includes graphical demonstrations and sample data sets as well as accompanied by a cook book and a book which explains the principles behind the underlying language processing tasks that NLTK supports.
834	**NMS**	National Master Specification
		The National Master Specification (NMS) is a comprehensive text base, containing descriptions of every procedure, product or method likely to be encountered. This collection of specifications can be used in developing a project specification by editing contents to suit the require-ments of a project. It is intended for use by the federal government, other public organizations and the private sector in the preparation of construction and renovation contract documents.
835	**NOK**	Not Okay
		Used in Quality Management processes in opposition to OK, when the answer to a check control is not achieved.
836	**NPC**	Net Present Cost
		The net present cost (or life-cycle cost) of a Component is the present value of all the costs of installing and operating the Component over the project lifetime, minus the present value of all the revenues that it earns over the project lifetime.
837	**NPV**	Net Present Value
		Net present value (NPV) is an economic tool used to equate the total cost of a project over a specified time period to the total cost today, taking into account the time value of money. NPV is determined by calculating the costs (negative cash flows) and benefits (positive cash flows) for each period of an investment. NPV is a good indicator of how much value an investment or project brings to an investor, and is widely used in economic engineering to assess feasibility.
838	**NRM**	New Rules of Measurement

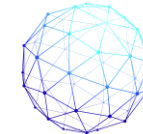|		
		The New Rules of Measurement are published by the Royal Institute of Chartered Surveyors (RICS) and prepared by the Quantity Surveying and Construction Professional Group. They provide a standard set of measurement rules for estimating, cost planning, procurement and whole-life costing for construction projects. Adopting a standard methodology such as NRM facilitates consistency and benchmarking and helps avoid disputes. It comprises three volumes: NRM1, NRM2 and NRM3
839	**NRM2**	New Rules of Measurement
		Developed by RICS, NRM2 provides a set of detailed measurement rules for the preparation of bills of quantities or schedules of rates for the purpose of obtaining a tender price. It also deals with the quantification of non-measurable work items, contractor designed works and risks. Guidance is also provided on the content, structure and format of bills of quantities, as well as the benefits and uses of bills of quantities.
840	**NRSF**	Non Renewable Secondary Fuels
		Secondary fuels are fuels that are derived from some primary fuel or fuels through chemical or physical processes. These are fuels that are not found as a natural resource. The energy for these secondary fuels comes initially from primary energy sources. It is taken in consideration in the life cycle assessment (LCA) of building products in the context of environmental product declarations (EPDs).
841	**NS**	Net Savings
		Net saving is net disposable income less final consumption expenditure.
842	**NSB**	National Standards Body
		Whereas, the term national standards body (NSB) generally refers to the one-per-country standardization organization that is that country's member of the ISO, the term Standards Developing Organization (SDO) generally refers to the thousands of industry- or sector-based standards organizations that develop and publish industry specific standards.
843	**NSSDC**	National Space Science Data Center
		Founded in 1966, The National Space Science Data Center becames the NSSDCA in March 2015 (see NSSDCA).
844	**NSSDCA**	NASA Space Science Data Coordinated Archive
		The NSSDCA serves as the permanent archive for NASA space science mission data. "Space science" includes astronomy and astrophysics, solar and space plasma physics, and planetary and lunar science. As the permanent archive, NSSDCA teams with NASA's discipline-specific space science "active archives" which provide access to data to researchers and, in some cases, to the general public. NSSDCA also serves as NASA's permanent archive for space physics mission data. NSSDCA was called the National Space Science Data Center (NSSDC) prior to 2015.
845	**NST**	Negotiated Select Team

		This delivery option, sometimes called design-assist, has evolved from design bid-build in which there are separate contracts for design and construction. At the beginning of the project, the Owner selects an architect and a contractor with whom fees are negotiated. The three prime players, owner, architect and contractor, work together cooperatively from very early on in the design process.
846	**NUIG**	National University of Ireland, Galway Since 1845, NUI Galway has been sharing the highest quality teaching and research with Ireland and the world. Find out what makes our University so special – from our distinguished history to the latest news and campus developments. NUI Galway has grown massively in size and reputation over the past 175 years, with a student population today of over 18.000. According to World University Rankings, we are ranked 259 in the world and have been increasing our global reach and reputation over the past decade. Partner of SPHERE Project.
847	**NURBS**	Non-Uniform Rational B-Spline Surfaces Non-uniform rational basis spline (NURBS) is a mathematical model using basis splines (B-splines) that is commonly used in computer graphics for representing curves and surfaces. The shape of the surface is determined by control points. In a compact form, NURBS surfaces can represent simple geometrical shapes. It offers great flexibility and precision for handling both analytic (defined by common mathematical formulae) and modelled shapes. It is a type of curve modelling, as opposed to polygonal modelling or digital sculpting.
848	**NZEB**	Near Zero Energy Buildings According to Article 2 of the EPBD, "nearly zero-energy building" means a building that has a very high energy performance, as determined in accordance with Annex I. The nearly zero or very low amount of energy required should be covered to a very significant extent from renewable sources, including sources produced on-site or nearby. An area in which the EPBD is clear is that NZEBs should be measured in primary energy – a different metric to the UK's current approach of carbon emissions reduction.
849	**O&M**	Operations and Maintenance Operations & Maintenance (O&M) means the functions, duties and labour associated with the daily operations and normal repairs, replacement of parts and structural components, and other activities needed to preserve an asset so that it continues to provide acceptable services and achieves its expected life. O&M comprises all actions aimed at preserving an item or restoring it to a state in which it can perform some required function.
850	**OA**	Open Access By 'open access' to the literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.

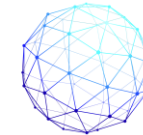| 851 | **OASIS** | Organisation for the Advancement of Structured Information Standards |
		OASIS is a non-profit, international consortium whose goal is to promote the adoption of product-independent standards for information formats such as Standard Generalized Markup Language (SGML), Extensible Markup Language (XML), and Hypertext Markup Language (HTML). Currently, OASIS (formerly known as SGML Open) is working to bring together competitors and industry standards groups with conflicting perspectives to discuss using XML as a common Web language that can be shared across applications and platforms.
852	**OBDA**	Ontology-Based Data Access
		Ontology-based data integration (OBDI) system is an information management system consisting of three components: an ontology, a set of data sources, and the mapping between the two. The data sources are the repositories accessible by the organization where data concerning the domain are stored. OBDI involves the use of one or more ontology to effectively combine data or information from multiple heterogeneous sources.
853	**oBIX**	Open Building Information Xchange
		The purpose of oBIX (open Building Information Exchange) is to enable the mechanical and electrical control systems in buildings to communicate with enterprise applications, and to provide a platform for developing new classes of applications that integrate control systems with other enterprise functions. oBIX is about reading and writing data over a network of devices using XML and URIs, within a framework specifically designed for building automation.
854	**OBS**	Organisation Breakdown Structures
		OBS is a hierarchical model describing the established organizational framework for project planning, resource management, time and expense tracking, cost allocation, revenue/profit reporting, and work management. The OBS groups together similar project activities or "work packages" and relates them to the organization's structure. OBS (also known as Organizational Breakdown Structure) is used to define the responsibilities for project management, cost reporting, billing, budgeting and project control.
855	**OCC**	Occupant-centric Controls
		Occupant-centric controls (OCC) integrate real-time or model-predicted building occupancy and comfort data with centralized building controls, tuning energy related building services to when/where they are needed by occupants. OCC yield a median ofV15/38% HVAC savings when based on occupancy feedback (detection/counting), and a median of 20% HVAC savings when based on comfort feedback.
856	**OCCS**	OmniClass Construction Classification System
		The OmniClass Construction Classification System, also known as OmniClass or OCCS, is a classification system used for the organising and retrieving of information for the construction industry. It is the North American equivalent of Uniclass. It covers the full facility lifecycle from

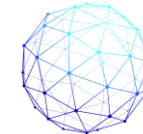|		conception to demolition or reuse, and all types of construction in the built environment. It is useful for Building Information Modelling (BIM), organising reports and object libraries.
857	**OCDE**	Organisation de Coopération et de Développement Économiques French name of OECD. See OECD (Organisation for Economic Co-operation and Development)
858	**OCE**	Order of Cost Estimates Order of Cost Estimate (OCE) is a term using by the Royal Institution of Chartered Surveyors (RICS) under the New Rules of Measurement, specifically NRM 1 for capital building projects. An OCE is prepared as an intrinsic part of RIBA Stage 1: Preparation and Briefing. The purpose is to establish if the proposed building project is affordable and if so, to set a realistic cost limit for the development project.
859	**OCI**	Optimised Contractor Involvement Optimised Contractor Involvement (OCI) is a variation of the 'early contractor involvement' (ECI) model that has been adopted widely in the infrastructure sector on large and complex projects. The first stage is based on an assessment of the contractor's technical and quality competence. The OCI approach may adopt a two stage selection process. The first stage is based on an assessment of the contractor's technical and quality competence. The second stage involves the shortlisted tenderers carrying out a review of the client's design.
860	**OCIP**	Owner Controller Insurance Program An owner controlled insurance program (OCIP) is an insurance policy held by a property owner during the construction or renovation of a property, which is typically designed to cover virtually all liability and loss arising from the construction project (subject to the usual exclusions). In OCIP, all construction, materials, hazard, workers' compensation, environmental, terrorism, and other building-related insurance is purchased by the property owner as part of a single policy from a single insurer.
861	**OCX**	OLE Control EXtension OCX is a component software technology from Microsoft that enables a Windows program to add functionality by calling ready-made components. Generally called "OLE controls" or "OLE custom controls," they appear to the end user as just another part of the program.
862	**ODA**	Olympic Delivery Authority The Olympic Delivery Authority (ODA) was a non-departmental public body of the Department for Culture, Media and Sport, responsible for ensuring the delivery of venues, infrastructure and legacy for the 2012 Summer Olympic and Paralympic Games in London.
863	**ODP**	Ozone Depletion Potential The ODP of a chemical compound is the relative amount of degradation to the ozone layer it can cause, with trichlorofluoromethane (R-11 or

		CFC-11) being fixed at an ODP of 1.0. Chlorodifluoromethane (R-22), for example, has an ODP of 0.05. CFC 11, or R-11 has the maximum potential amongst chlorocarbons because of the presence of three chlorine atoms in the molecule. The first proposal of ODP was defined as a measure of destructive effects of a substance compared to a reference substance.
864	**OECD**	Organisation for Economic Co-operation and Development The OECD (French: Organisation de Coopération et de Développement Économiques, OCDE) is an intergovernmental economic organisation with 38 member countries, founded in 1961 to stimulate economic progress and world trade. It is a forum of countries describing themselves as committed to democracy and the market economy, providing a platform to compare policy experiences, seek answers to common problems, identify good practices and coordinate domestic and international policies of its members.
865	**OEE**	Overall Equipment Effectiveness OEE is the gold standard for measuring manufacturing productivity. Simply put – it identifies the percentage of manufacturing time that is truly productive. An OEE score of 100% means you are manufacturing only Good Parts, as fast as possible, with no Stop Time. In the language of OEE that means 100% Quality (only Good Parts), 100% Performance (as fast as possible), and 100% Availability (no Stop Time).
866	**OEF**	Organisational Environmental Footprint The OEF is a multi-criteria measure of the environmental performance of a goods/services-providing Organisation from a life cycle perspective. OEF studies are produced for the overarching purpose of seeking to reduce the environmental impacts associated with organisational activities, taking into account supply chain1 activities (from extraction of raw materials, through production and use, to final waste management). The Organisations involved include companies, public administrative entities, non-profit organisations and other bodies.
867	**OEM**	Original Equipment Manufacturer OEMs are typically manufacturers who resell another company's product under their own name and branding. An original equipment manufacturer (OEM) traditionally is defined as a company whose goods are used as components in the products of another company, which then sells the finished item to users.
868	**OGC**	Office of Government Commerce The OGC was a UK Government Office established as part of HM Treasury in 2000. It was moved into the Efficiency and Reform Group of the Cabinet Office in 2010, before being closed in 2011. The OGC operated through the Government Procurement Service, an executive agency now known as the Crown Commercial Service. The purpose of the OGC was to support the procurement and acquisition process of public sector organisations in the UK through policy and process guidance and the negotiation of overarching service and provision frameworks.
869	**OGC**	Open Geospatial Consortium

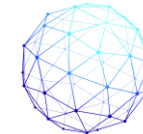|		
		The Open Geospatial Consortium (OGC) is an international voluntary consensus standards organization, originated in 1994. In the OGC, more than 500 commercial, governmental, non-profit and research organizations worldwide collaborate in a consensus process encouraging development and implementation of open standards for geospatial content and services, sensor web and Internet of Things, GIS data processing and data sharing.
870	**ÖGNI**	Österreichische Gesellschaft für Nachhaltige Immobilienwirtschaft ÖGNI certifies sustainable buildings and districts according to the DGNB system. The basis for this is provided by ÖGNI auditors, the training of which is organised by ÖGNI. ÖGNI auditors register projects for certification, accompany the projects and submit the necessary evidence for compliance testing, which is coordinated by ÖGNI. For the further development and updating of the certification systems, but also for the development of position papers on political communication and as guidelines for current industry topics, ÖGNI establishes working groups.
871	**OHLE**	Overhead Line Electrification See OLE (Overhead Line Electrification)
872	**OIR**	Organization Information Requirement OIR describe the information required by an organisation for asset management systems and other organisational functions. The OIR involves establishing and categorising the information requirements to meet the needs of its asset management system. Identifying the OIR's will require input from various departments within the organisation.
873	**OLE**	Object Linking & Embedding OLE is a proprietary technology developed by Microsoft that allows embedding and linking to documents and other objects. For developers, it brought OLE Control Extension (OCX), a way to develop and use custom user interface elements. On a technical level, an OLE object is any object that implements the IOleObject interface, possibly along with a wide range of other interfaces, depending on the object's needs.
874	**OLE**	Overhead Line Electrification A railway electrification system supplies electric power to railway trains and trams without an on-board prime mover or local fuel supply. Electric railways use either electric locomotives (hauling passengers or freight in separate cars), electric multiple units (passenger cars with their own motors) or both. Electricity is typically generated in large and relatively efficient generating stations, transmitted to the railway network and distributed to the trains.
875	**OMG**	Ontology for Managing Geometry The Ontology for Managing Geometry (OMG) is an ontology for attaching geometry descriptions to their corresponding things (e.g. building objects). The OMG is designed to provide three levels of adding the geometry descriptions which can be used and combined flexibly. The

		levels are designed to enable the attachment of metadata and comprise of different functionalities.
876	**OMS**	Operations and Maintenance Support
		It refers to the different services provided in the activities of Operation and Maintenance, rather in the world of technical facilities in the building sector, but also in infrastructures, industry and offshore.
877	**OOP**	Objective Oriented Production
		Objective Oriented Production, allows agents to autonomously design, control, and contribute to a production line.
878	**OPA**	Organizational Process Assets
		Organizational Process Assets are "the plans, processes, policies, procedures, and knowledge bases specific to and used by the performing organization". OPA would include anything the organization has acquired that you can use in the management of the project. They include formal and informal plans, policies, procedures, and guidelines. These are very important for the planning stage, irrespective of the nature of the project. Whether your project is long-term or short-term, OPAs are a must.
879	**OPC**	Object Linking and Embedding for Process Control
		OPC Foundation is an industry consortium that creates and maintains standards for open connectivity of industrial automation devices and systems, such as industrial control systems and process control generally. The OPC standards specify the communication of industrial process data, alarms and events, historical data and batch process data between sensors, instruments, controllers, software systems, and notification devices.
880	**OPC UA**	OPC Unified Architecture
		Released in 2008, OPC UA is a platform independent service-oriented architecture that integrates all the functionality of the individual OPC Classic specifications into one extensible framework. Is a machine to machine communication protocol for industrial automation developed by the OPC Foundation
881	**OPex**	Operating Expenses
		An operating expense is an expense a business incurs through its normal business operations. Often abbreviated as OPEX, operating expenses include rent, equipment, inventory costs, marketing, payroll, insurance, step costs, and funds allocated for research and development. OPEX are expenses a business incurs in order to keep it running, such as staff wages and office supplies. Operating expenses do not include cost of goods sold (materials, direct labor, manufacturing overhead) or capital expenditures (larger expenses such as buildings or machines).
882	**OPex**	Operational Expenditures

		The same than Operating Expenses (See Operating Expenses)
883	**OPM**	Ofek Property Management
		OPM facilities management and financial software suite that covers all aspects of property management, accounting, financials and performance analysis. OPM is used by property management companies, investment houses, government agencies and local authorities, publicly listed companies and owners of large portfolios.
884	**OPS**	Outline Procurement Strategy
		The term procurement strategy refers to a long-term plan to cost-effectively acquire the necessary supplies from a list of efficient vendors who will deliver quality goods on time, abiding by the purchasing terms. A procurement strategy documents how your organisation runs its procurement function. It provides an overview of your governance framework and a roadmap for the way your organisation conducts its procurement activity.
885	**OPT**	On-line Planning Tool
		Linked As an external online tool, OPT, a tool developed by Master Builders Solutions (MBS), helps to overcome information overload issues by offering an efficient way to manage the project specifications. Additionally, incorporated BIM objects libraries and pricing information (upon request) enable construction professionals to complete project task in a shorter time
886	**OPY**	Octopussy Agence pour la création et la diffusion d'activités culturelles artistiques technologiques et Scientifiques
887	**OR**	Operational Rating
		Operational Rating means an energy performance indicator determined from the amount of energy consumed during the occupation of a building over a period of time and the energy demand associated with a typical use of the building over that period. OR means a numerical indicator of the amount of energy consumed. It can be expressed in different ways, in primary energy, on-site electrical energy, etc., the standard units being kWh/m^2·a.
888	**ORD**	Open Research Data
		Open Research Data refers to the data underpinning scientific research results that has no restrictions on its access, enabling anyone to access it. The indicators chosen are: availability of data repositories, policies of research funders and journals, researchers' attitude towards data sharing. ORD is a type of open data focused on publishing observations and results of scientific activities available for anyone to analyze and reuse.
889	**OS**	Ordnance Survey

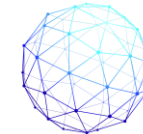|		Ordnance Survey (OS) is the national mapping agency for Great Britain. They produce digital map data, online route planning and sharing services and mobile apps, plus many other location-based products for business, government and consumers. Ordnance Survey mapping is usually classified as either "large-scale" (in other words, more detailed) or "small-scale".
890	**OTL**	Object Type Library An Object Type Library (OTL) is a library with standardised object-types names (e.g. road, viaduct) and properties or specifications. An object is described with its object-type data, geometry data and metadata, Metadata are data (or information) about the data of objects. Metadata are needed because each object type has its own properties. How the object types are grouped is called an ontology. The OTL can be linked to a data dictionary, with the definitions of object-types.
891	**OWA**	Open World Assumption In a formal system of logic used for knowledge representation, the open-world assumption is the assumption that the truth value of a statement may be true irrespective of whether or not it is known to be true. It is the opposite of the closed-world assumption, which holds that any statement that is true is also known to be true. The open-world assumption (OWA) codifies the informal notion that in general no single agent or observer has complete knowledge, and therefore cannot make the closed-world assumption.
892	**OWL**	Ontology Web Language The Web Ontology Language (OWL) is a family of knowledge representation languages for authoring ontologies. Ontologies are a formal way to describe taxonomies and classification networks, essentially defining the structure of knowledge for various domains: the nouns representing classes of objects and the verbs representing relations between the objects. Ontologies resemble class hierarchies in object-oriented programming but there are several critical differences.
893	**P&ID**	Piping and Instrumentation Diagrams Piping and Instrumentation Diagrams are graphical representations of a process system. These are fundamental to every standardized engineering project. These two-dimensional diagrams function as a blueprint for the engineering system's design. Piping and Instrumentation Diagrams detail the specific processes within a plant or industrial facility, including symbols that represent actuators, equipment, flow elements, instrumentation, piping fittings, valves. and more. P&IDs follow a selection of industry-standard engineering symbology to highlight the required instruments, equipment, pipe, and interconnecting lines.
894	**P3**	3P (Public Private Partnership) See PPP (Public Private Partnership).
895	**PaaS**	Platform as a Service

		Platform as a Service (PaaS) is a category of cloud computing services that provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app. PaaS is a cloud computing model where a third-party provider delivers hardware and software tools to users over the internet.
896	**PACE**	Property Advisers to the Civil Estate In April 1996, was created the Property Advisers to the Civil Estate (PACE) in the UK, as an executive agency of the Office of Public Service. PACE will be responsible for monitoring the internal Government market for premises, and will have a significant role to play in assisting estate managers in identifying prospects for reuse by other departments. The PACE merged with The Buying Agency, and the Central Computer and Telecommunications Agency (CCTA) in 2001 to join the Office of Government Commerce.
897	**PAM**	Property Asset Management Property Asset Management is defined as the strategy and skill-set to manage real estate property interests in order to increase investment values and reduce costs long term. In terms then of a final more concise summary of Property Asset Management, it is the process of maximising the value of a property interest through proactive and cost-effective measures. The PAM objective is the disposition of assets in such a way as to maximize the financial value of the asset to the investor.
898	**PARL**	Percentage Asset Remaining Life The PARL is the period during which a building or component may reasonably be expected to continue to fulfil its present function provided it is given normal routine maintenance expressed as a percentage. Remaining life is the future expected life of an asset at a given point in time. This is calculated from the Asset Remaining Life (ARL) from the latest survey information divided by the Asset Life Expectancy (ALE) and then multiplying it by 100 to give PARL.
899	**PaRS**	Pilot-Activated Recovery System Pilot-activated automatic recovery systems (PARS) are a common feature of combat aircraft and are used to recover an aircraft to straight and level flight in the event of the pilot experiencing disorientation
900	**PAS**	Publically Available Specification Publicly Available Specifications (PAS) are fast-tracked standards, specifications, codes of practice or guidelines developed by sponsoring organisations to meet an immediate market need following guidelines set out by BSI (British Standards Institution). Within 2 years they are reviewed to assess whether they should be revised, withdrawn, or become formal British Standards or international standards.
901	**PBX**	Private Branch Exchange A Private Branch Exchange (PBX) is a private telephone network used within an enterprise. It is a business-oriented phone system designed to

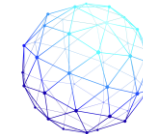|		supply efficient voice communications between the users of an organization. Acting as the phone company's central office within an organization, a PBX works as the exchange point and point for routing calls. The word private refers to its use in the private sector, as opposed to a public telecommunications company.
902	**PC**	Personal Computer PC is a digital computer designed for use by only one person at a time. A typical personal computer assemblage consists of a central processing unit (CPU), which contains the computer's arithmetic, logic, and control circuitry on an integrated circuit; two types of computer memory, main memory, such as digital random-access memory (RAM), and auxiliary memory, such as magnetic hard disks and special optical compact discs, or read-only memory (ROM) discs (CD-ROMs and DVD-ROMs)
903	**PCI**	Pre-Construction Information Pre-construction Information is defined as information about the project that is already in the client's possession or which is reasonably obtainable by or on behalf of the client. The information must: be relevant to the particular project; have an appropriate level of detail. Pre-construction information should be provided in a convenient form and should be clear, concise and easily understandable. It should be prepared early in the project so that it can be provided to designers and contractors as part of the tendering or procurement process.
904	**PCI**	Payment Card Industry The Payment Card Industry (PCI) is the segment of the financial industry that governs the use of all electronic forms of payment. In many places around the world, most payments made for goods and services go through the PCI rather than as cash transactions. The payment card industry consists of all the organizations which store, process and transmit cardholder data, most notably for debit cards and credit cards.
905	**PC Price**	Prime Cost Price PC prices shall exclude any allowance for the main contractor's overheads and profit, which are dealt with separately. According the NRM's from RICS, where the exact type of product or component cannot be specified, an estimated price for the product or component shall be given in the description as a prime cost price.
906	**PCR**	Product Category Rules Product Category Rules (PCR) are documents that provide rules, requirements, and guidelines for developing an EPD for a specific product category. They are a key part of ISO 14025 as they enable transparency and comparability between EPDs.
907	**PC Sum**	Prime Cost Sum A prime cost sum (PC or PC sum) is an allowance, usually calculated by the cost consultant, for the supply of work or materials to be provided by a contractor or supplier that will be nominated by the client (that is, a supplier that is selected by the client to carry out an element of the

		works and imposed on the main contractor after the main contractor has been appointed). The allowance is exclusive of any profit mark up or attendance (such as material handling, scaffolding and rubbish clearance, etc.) by the main contractor.
908	**PD**	Predicted Desirable In the context of Digital Twin, Predicted Desirable is one of the four categories in which is divided the static emergent behaviour in complex systems. The other three categories are Predicted Undesirable (PU), Unpredicted Desirable (UD), and Unpredicted Undesirable (UU).
909	**PDCA**	Plan – Do – Check – Adjust PDCA (plan–do–check–act or plan–do–check–adjust) is an iterative four-step management method used in business for the control and continuous improvement of processes and products. A fundamental principle of the scientific method and PDCA is iteration—once a hypothesis is confirmed (or negated), executing the cycle again will extend the knowledge further. Repeating the PDCA cycle can bring its users closer to the goal, usually a perfect operation and output.
910	**PDF**	Portable Document Format Portable Document Format (PDF) is a file format developed by Adobe in 1993 to present documents, including text formatting and images, in a manner independent of application software, hardware, and operating systems. Based on the PostScript language, each PDF file encapsulates a complete description of a fixed-layout flat document, including the text, fonts, vector graphics, raster images and other information needed to display it. PDF was standardized as ISO 32000 in 2008 and therefore no longer requires royalties for its implementation.
911	**PdM**	Predictive Maintenance Predictive Maintenance is a technique that uses data analysis tools and techniques to detect anomalies in your operation and possible defects in equipment and processes so you can fix them before they result in failure, thanks they have been "predicted". Ideally, predictive maintenance allows the maintenance frequency to be as low as possible to prevent unplanned reactive (corrective) maintenance, without incurring costs associated with doing too much unnecessary preventive maintenance.
912	**PDM**	Project Delivery Manager Project Delivery Managers are the key in successfully delivering projects and ensuring customer satisfaction. PDM should be able to ensure project "green" delivery diving deeply in technical details if needed. Meanwhile Project Manager should be able to build proper processes to make project robust (keep it on track), predictable and transparent for customer, PDM should be able to support pre-sale activities like understanding customer's business needs, analysing technical requirements, reviewing existing architecture and proposing technical solutions.
913	**PDP**	Project Definition Plan The purpose of the Project Definition Plan is to provide the basis for a decision to commence the delivery phase of the project. This Plan pro-

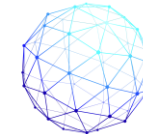|		
		vides the level of definition required for the preparation of detailed documentation to take the project to market for tender. Accordingly, the Project Definition Plan confirms the endorsed parameters of the project, including their impact on cost, time program and scope.
914	**PDSM**	Project Driven Scope Management PDSM refers to the set of processes that ensure a project's scope is accurately defined and mapped. Scope Management techniques enable project managers and supervisors to allocate the right amount of work necessary to successfully complete a project, concerned primarily with controlling what is and what is not part of the project's scope. It is an essential element for the function of any team, ensuring maximum efficiency, eliminating unnecessary or redundant work, and keeping a team on the same page every step of the way.
915	**PDT**	Product Data Templates A Product Data Template is a common data structure defining the 'properties' (essential and non-essential product characteristics such as fire rating and colour) that describe any type of product in a way that can be traced to a credible source. Such credible sources are product standards declaring the performance characteristics of products and the methods they should be tested against. There is a specific hierarchy of credible data sources taken into account in the PDT structure.
916	**PE**	Primary Energy Content (Use of) The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE can be specified in MJ and calculated from the lower calorific value of the energy resources deployed.
917	**PEB**	Positive Energy Block/District A Positive Energy Block/District is a group of at least three connected neighbouring buildings producing on a yearly basis more primary energy than what they use. The initiative links-in directly with the EU Strategic Implementation Plan's ambition to improve the energy efficiency of Europe's buildings and districts. The concept of PEB is now fully recognised by the European Commission, with the objective to realise a large deployment of PEB in Europe by 2050.
918	**PEB**	Proyectos de Ejecución BIM PEB is the Spanish acronym for BIM Execution Plan (See BEP)
919	**PEF**	Product Environmental Footprint Product Environmental Footprint (PEF) is a new method for measuring sustainability performance developed by the European Commission in cooperation with companies and sustainability experts. The aim is to improve the validity and comparability of the environmental performance evaluation compared to existing methods. With PEF results in hand, you can inform consumers and customers about the environmental performance of your products.

920	**PENR**	Primary Energy Non-Renewable Resources (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PENR" section specifies the primary energy content of all non-renewable resources (crude oil, coal, etc.).
921	**PENRE**	Primary Energy Non-Renewable, Energy Resources (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PENR" section specifies the primary energy content of all non-renewable resources (crude oil, coal, etc.). The "PENRE" includes only resources used for energy.
922	**PENRM**	Primary Energy Non-Renewable Resources used as raw materials (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PENR" section specifies the primary energy content of all non-renewable resources (crude oil, coal, etc.). The "PENRM" includes only resources used for material use.
923	**PENRT**	Primary Energy Non-Renewable, Energy Resources (Total Use)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PENR" section specifies the primary energy content of all non-renewable resources (crude oil, coal, etc.). The "PENRT" includes resources for energy-related as well as material uses.
924	**PEOU**	Perceived Ease-of-Use
		Davis defined PEOU as "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989). If the technology is easy to use, then the barriers conquered. If it's not easy to use and the interface is complicated, no one has positive attitudes towards it.
925	**PEP**	Project Execution Plan
		The Project Execution Plan (PEP) is the governing document that establishes the means to execute, monitor, and control projects. The plan is a living document and should be updated to describe current and future processes and procedures, such as integrating safety into the design process. PEP is a document that describes various aspects of a project, such as scheduling, objectives, costs, benefits etc. The PEP sets out the strategy for managing the project, describes the policies, procedures and priorities that will be adopted.

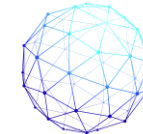| 926	**PER**	Primary Energy Content of all Renewable Resources (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PER" section specifies the primary energy content of all renewable resources (biomass).
927	**PERE**	Use of renewable primary energy (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PER" section specifies the primary energy content of all renewable resources (biomass). The "PERE" includes only resources used for energy.
928	**PERM**	Renewable Primary Energy resources used as Raw Materials (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PER" section specifies the primary energy content of all renewable resources (biomass). The "PERM" includes only resources used for material use.
929	**PERT**	Renewable Primary Energy Resources (Use of)
		The total energy resources required to produce a product or service are collectively referred to as the primary energy content (PE for short). The PE is specified in MJ and calculated from the lower calorific value of the energy resources deployed. The "PER" section specifies the primary energy content of all renewable resources (biomass). The "PERT" includes resources for energy-related as well as material uses.
930	**PESTEL or PESTLE**	Political, Economic, Social, Technological, Legal, and Environmental analysis
		A PESTLE analysis is a method for reviewing the macro environment (external forces that impact a company's ability to plan). It stands for: Political, Economic, Social, Technological, Legal and Environmental aspects. These forces, although out of the company's control, may have an impact on the success of any future plans. By considering them, a company can change direction, build contingencies, identify new opportunities or do nothing at all: it is an important part in the strategic decision making.
931	**PFD**	Process Flow Diagram
		Process Flow Diagram is a diagram commonly used in chemical and process engineering to indicate the general flow of plant processes and equipment. The PFD displays the relationship between major equipment of a plant facility and does not show minor details such as piping details and designations. Another commonly used term for a PFD is flowsheet.
932	**PFI**	Private Finance Initiative
		The PFI was a UK government procurement policy aimed at creating PPPs where private firms are contracted to complete and manage public

		projects. Launched in 1992 by Prime Minister John Major, PFI is part of the wider programme of privatisation, and presented as a means for increasing accountability and efficiency for public spending. PFI was controversial in the UK; the National Audit Office felt in 2003 that it provided good value for money overall, but according to critics; PFI has been used simply to place a great amount of debt "off-balance-sheet".
933	**PHP**	Hypertext Pre-processor PHP is an HTML-embedded Web scripting language. This means PHP code can be inserted into the HTML of a Web page. When a PHP page is accessed, the PHP code is read or "parsed" by the server the page resides on. PHP is a programming dialect that takes into account the client to have more control over the HTML that makes up a website page.
934	**PIB**	Planned Inspection of Buildings Planned Inspection of Buildings is the set of actions and procedures to carry out a proactive maintenance of the conservation state of buildings, by means of tests, material tests, analysis, monitoring, etc.
935	**PID**	Proportional, Integral, and Derivative A PID controller or three-term controller is a control loop mechanism employing feedback that is widely used in industrial control systems and a variety of other applications requiring continuously modulated control. A PID controller continuously calculates an error value $e(t)$) as the difference between a desired setpoint (SP) and a measured process variable (PV) and applies a correction based on proportional, integral, and derivative terms (denoted P, I, and D respectively), hence the name.
936	**PII**	Professional Indemnity Insurance PII is an important type of business insurance, especially for businesses that give advice or provide a professional service to clients. It can cover compensation claims if a business is sued by a client for making a mistake that leads to financial loss. Any organisation which provides a professional service or gives advice could be sued if the recipient is unhappy with their work. PII protects you and your business against claims for alleged negligence or breach of duty arising from an act, error or omission in the performance of professional services.
937	**PIM**	Project Information Model Information model relating to the building delivery phase providing a long-term project archive that is auditable, including details of project geometry, location of equipment performance requirements across the life cycle, method of construction details, scheduling and consulting of installed systems, components and equipment, and maintenance requirements.
938	**PIN**	Prior Information/Indicative Notice Prior Information/Indicative Notice is a notice published on a tender procedure which sets out a contracting authority's purchasing intentions. PINs only need to be used when a contracting authority wishes to take advantage of the shorter timescales that the timely publication

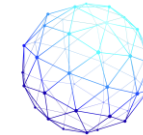|		
		of a detailed PIN will allow. PIN is the first step of an Open Procurement Process leading to the award of a Service Contract. The purpose of this document is to provide a basic summary of the technical content in terms of the scope of work, and the tendering process.
939	**PIP**	Project Implementation Plan A Project Implementation Plan breaks down a project into the distinct steps required to accomplish a particular goal. Within the plan, each step required to achieve the goal has an owner and a due date. Often, the goal of the plan supports larger business objectives. The purpose of the project implementation plan is to provide stakeholders with the confidence that accomplishment of the current project has been well considered, and to list the tasks, activities and processes involved in producing deliverables.
940	**PIR**	Passive Infrared A Passive Infrared sensor (PIR sensor) is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. They are most often used in PIR-based motion detectors. The term passive refers to the fact that PIR devices do not radiate energy for detection purposes. PIR sensors use a pair of pyroelectric sensors to detect heat energy in the surrounding environment. PIR sensors are used in security alarm systems to detect motion of an infrared emitting source, usually a human body.
941	**PIR**	Project Information Requirement Project information requirements (PIR) set out the information required by the client for decision-making about the project throughout its duration. These requirements can include excerpts of construction and project management documents and/or purpose-written reports including cost and progress reports. Organisational policies, such as financial reporting procedures and formats, also influence project information requirements (PIR). Experienced clients usually have generic PIR that they adopt or customise for each of their projects.
942	**PIT**	Project Implementation Team PITs are nimble, multidisciplinary groups of project participants assigned by the PMT to conduct deep dives into specific project needs (e.g., building envelope, mechanical systems). PITs typically have an initial mission, a time frame in order to perform their work and report back, and the authority to incorporate the right people to perform the work. These are sometimes called clusters or cluster groups. PITs can include all members of the team PMT, signatories, non-signatories, owners, architects, contractor, trades, and suppliers.
943	**PIX**	Project Information Exchange The goal of a Project Information Exchange is to simplify and streamline planning, design, construction, and operations processes using the United States National Building Information Model Standard (NBIMS-US). An information exchange project supports the development, adoption, and management of standards developed through the buildingSMART alliance process. PIX have, at their heart, a consensus-based, technical specification. That technical specification consists of a statement of requirements and the resulting technical specification.

944	**PLC**	Power Line Communication
		Also known as power-line carrier, carries data on a conductor that is also used simultaneously for AC electric power transmission or electric power distribution to consumers. A wide range of power-line communication technologies are needed for different applications, ranging from home automation to Internet access which is often called broadband over power lines (BPL). Most PLC technologies limit themselves to one type of wires (such as premises wiring within a single building), but some can cross between two levels.
945	**PLC**	Product Life Cycle
		Product Life Cycle means the sequence of stages that every product progresses through until it reaches the stage where it is finally abandoned or discontinued from the market. In other words, the life of a product is finite and advances through several stages i.e. from the introduction to growth, maturity and decline which are associated with the changes in the marketing situations and hence the marketing strategies and the marketing mix also get affected.
946	**PLC**	Programmable Logic Controllers
		A PLC or programmable controller is an industrial digital computer which has been ruggedized and adapted for the control of manufacturing processes, such as assembly lines, or robotic devices, or any activity that requires high reliability control and ease of programming and process fault diagnosis.
947	**PLM**	Product Lifecycle Management
		Product Lifecycle Management (PLM) is the process of managing the entire lifecycle of a product from inception, through engineering design and manufacture, to service and disposal of manufactured products. PLM integrates people, data, processes and business systems and provides a product information backbone for companies and their extended enterprise.
948	**PM**	Person Month
		Person Month means the amount of time equivalent to one person working full-time (i.e., forty (40) hours per week) for one full calendar month (taking into account weekends and nationally recognized holidays). PM is the metric for the time (effort) that the key personnel of an organisation devotes to a specific project. It is a value expressed in full months equivalent to the total work of a researcher throughout all the project.
949	**PM**	Portfolio Manager
		A Portfolio Manager is a professional responsible for making investment decisions and carrying out investment activities on behalf of vested individuals or institutions. PMs work with a team of analysts and researchers, and are responsible for establishing an investment strategy, selecting appropriate investments, and allocating each investment properly towards an investment fund or asset management vehicle.

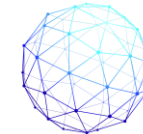| 950	**PM**	Project Management/Manager
		Project management is the process of leading the work of a team to achieve goals and meet success criteria at a specified time. The primary challenge of project management is to achieve all of the project goals within the given constraints. This information is usually described in project documentation, created at the beginning of the development process. The primary constraints are scope, time, and budget. The secondary challenge is to optimize the allocation of necessary inputs and apply them to meet pre-defined objectives.
951	**PM**	Property Manager
		A property manager is an individual or company that is hired to oversee the day-to-day operations of a unit of real estate. Property owners and real estate investors typically hire property managers when they are unwilling or unable to manage the properties themselves. The cost of employing a property manager is often tax-deductible against the income generated by the property. Apartment complexes, retail malls, and business offices are common types of commercial property that are run by property managers.
952	**PMB**	Protocolo de Modelos BIM
		A BIM protocol is a manual of good practices internal to each company. Within the company, it may or may not be mandatory. But basically it serves to document the best BIM practices of the company. Normally, if the company has negotiating power, it will try to ensure that what is defined in the BEP is compatible with its internal BIM protocol
953	**PMI**	Project Management Institute
		The Project Management Institute was founded at the Georgia Institute of Technology in 1969 as a non-profit organization. The PMI serves more than 2,9 million professionals including over 600.000 members in 214 countries and territories around the world, with 300 chapters and 10.000 volunteers serving local members in over 80 countries
954	**PMO**	Project Management Office
		A Project Management Office (PMO) is a group — internal or external to a company — that sets, maintains and ensures standards for project management across that organization. They're the keepers of best practices, project status and direction — all in one spot. They are in charge of creating procedures and best practices that will help operations go smoothly, complete on time, and result in quality deliverables. PMO help Project Managers in project management by monitoring and controlling the project.
955	**PMO**	Product Modelling Ontology
		PMO contains all necessary and sufficient modelling constructs to define any end-user product ontology, taking into account all relevant end-user's product classes, properties and relationships (in particular the predefined 'specialization' and 'decomposition' relationships) together with cardinalities, data types, units and default values.

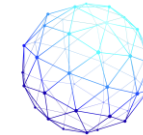| 956	**PMT**	Project Management Team
		the project management team is broken down into some sort of a hierarchal format and that structure is typically headed up by a project management team leader, a term which is often used interchangeably with project manager. The PMT includes a group of people working together in collaboration or cooperation towards a common goal.
957	**PMV**	Predicted Mean Vote
		PMV is an index that aims to predict the mean value of votes of a group of occupants on a seven-point thermal sensation scale. Thermal equilibrium is obtained when an occupant's internal heat production is the same as its heat loss. The heat balance of an individual can be influenced by levels of physical activity, clothing insulation, as well as the parameters of the thermal environment.
958	**PO**	Policy Officer
		The Policy Officer covers practically the whole range of jobs exercised by the graduates of the Master in EU Studies Online: senior officials in European institutions, policy officers within the UN framework, administrators, diplomats, consultants, researchers for think tanks, lobbyists, and academic experts.
959	**PO**	Project Officer
		Project Officers plan and coordinate project activities, including scheduling, reporting and document control. Project Officers play a support role to Project Managers and Project Administrators. Project Officers are responsible for maintaining crucial project documents which track project progress. They file all project documents in an appropriate database or library. In the framework of H2020, the PO is responsible to the EC for the fulfilment of the objectives of the Grant Agreement for each H2020 project.
960	**POC**	Proof of Concept
		Proof of concept (PoC), also known as proof of principle, is a realization of a certain method or idea in order to demonstrate its feasibility, or a demonstration in principle with the aim of verifying that some concept or theory has practical potential. A proof of concept is usually small and may or may not be complete. A PoC is evidence that a business idea works. It's usually a document that presents the feasibility of an idea, as well as verifiable test results of the concept, design, or plan in question.
961	**POCP**	Photochemical Ozone Creation Potential
		The Photochemical Ozone Creation Potential (POCP) scale quantifies the relative abilities of volatile organic compounds (VOCs) to produce ground level ozone. POCP values are usually calculated using atmospheric boundary layer models containing detailed representations of atmospheric VOC degradation chemistry.

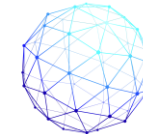| 962	POE	**Post Occupancy Evaluation** Post-Occupancy Evaluation (POE) is the process of obtaining feedback on a building's performance in use. The value of POE is being increasingly recognised, and it is becoming mandatory on many public projects. POE is valuable in all construction sectors, especially healthcare, education, offices, commercial and housing, where poor building performance will impact on running costs, occupant well-being and business efficiency.
963	POS	**Proof of Stake** Proof of stake (PoS) protocols are a class of consensus mechanisms for blockchains that work by selecting validators in proportion to their quantity of holdings in the associated cryptocurrency. Unlike a proof of work (PoW) protocol, PoS systems do not incentivize extreme amounts of energy consumption. The first functioning use of PoS for cryptocurrency was Peercoin in 2012. Proof-of-stake (PoS) is a consensus mechanism used by blockchain networks. The most common consensus mechanisms are proof-of-stake and proof-of-work (PoW).
964	POW	**Proof of Work** Proof of work (PoW) is a form of cryptographic zero-knowledge proof in which one party (the prover) proves to others (the verifiers) that a certain amount of a specific computational effort has been expended. Verifiers can subsequently confirm this expenditure with minimal effort on their part. Proof of Work (POW) requires huge amounts of energy, with miners needing to sell their coins to ultimately foot the bill; Proof of Stake (PoS) gives mining power based on the percentage of coins held by a miner.
965	PP	**Phases Table (CPIC Uniclass 2)** Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
966	PPA	**Power Purchase Agreement** A Power Purchase Agreement is generally the primary contract between the public and private sector parties which underpin a power sector PPP. Therefore, the structure and risk allocation regime under the PPA is central to the private sector participant's ability to raise finance for the project, recover its capital costs and earn a return on equity.
967	PPC	**Project Partnering Contracts** Partnering is a project approach designed to allow the design and construction process to be performed within an environment of mutual trust, commitment to shared goals, and open communication among the client, architect/engineer, construction manager, general contractor (if applicable), and subcontractors.

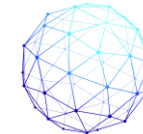| 968	PPC	Percent Plan Complete
		Percent Plan Complete (PPC) is a basic measure of how well the planning system is working – calculated as the 'number of promises/activities completed on the day stated', divided by the 'total number of promises/activities made/planned for the week'. It is a metric used in Last Planner System to gauge reliability. The number of actual completions divided by the number of planned.
969	PPD	Predicted Percentage of Dissatisfied
		The Predicted Percentage of Dissatisfied (PPD) index provides an estimate of how many occupants in a space would feel dissatisfied by the thermal conditions. All occupied areas in a space should be kept below 20% PPD in order to ensure thermal comfort according to the known standards (ASHRAE 55 and ISO 7730). It is an index that establishes a quantitative prediction of the percentage of thermally dissatisfied people who feel too cool or too warm.
970	PPDP	Privacy-Preserving Data Publishing
		Privacy-Preserving Data Publishing (PPDP) provides methods and tools for publishing useful information while preserving data privacy. Recently, PPDP has received considerable attention in research communities, and many approaches have been proposed for different data publishing scenarios. In this survey, we will systematically summarize and evaluate different approaches to PPDP, study the challenges in practical data publishing, clarify the differences and requirements that distinguish PPDP from other related problems.
971	PPM	Planned Preventive Maintenance
		Planned Preventative Maintenance (PPM), also commonly referred to as planned or scheduled maintenance, is essentially a scheduled maintenance routine, set out to ensure machinery, services and equipment are all maintained at regular intervals. In a nutshell, it means that instead of waiting for the machine to malfunction or stop working completely, you schedule maintenance and inspections at pre-determined intervals. This allows you to discover things that may become issues before they actually become an issue.
972	PPML	Privacy Preserving Machine Learning
		Privacy Preserving Machine Learning is a comprehensive guide to avoiding data breaches in your machine learning projects. You'll get to grips with modern privacy-enhancing techniques such as differential privacy, compressive privacy, and synthetic data generation. Many privacy-enhancing techniques concentrated on allowing multiple input parties to collaboratively train ML models without releasing their private data in its original form.
973	PPP	Public Private Partnership
		A Public–Private Partnership (PPP, 3P, or P3) is an arrangement between two or more public and private sectors of a long-term nature. Typically, it involves private capital financing government projects and services up-front, and then drawing operating profits from taxpayers

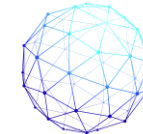|		
		and/or users over the course of the PPP contract. Public–Private Partnerships have been implemented in multiple countries and are primarily used for infrastructure projects, such as building and equipping schools, hospitals, transport systems, and water and sewerage systems.
974	**PQQ**	Pre-Qualification Questionnaire A pre-qualification questionnaire, is a pre-tender document, used in the construction industry as part of a tender process. A pre-qualification document for construction company sets out a number of questions for potential applicants to assess their ability to undertake the proposed tender. is a list of questions for a potential supplier. It qualifies you to go through to the tender stage. It is important to note that the PQQ has a job to do: eliminating applicants for a tender process. If you don't fulfil the criteria in a PQQ, you will not go through to the next round.
975	**Pr**	Products Table (CPIC Uniclass 2) Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
976	**PSCD**	Public Sector Construction Database As part of the Plan for Growth of the UK Government, published alongside the Budget 2011, the Cabinet Office will, working with other departments of the government, reinvigorate the Public Sector Construction Database to provide the basis of the information concerning public projects.
977	**PSRL**	Product Semantics Representation Language The primary purpose of the PSRL is to serve as an interlingua to enable integration in PLM. The scope of the PSRL is limited to terminologies and their semantics that are based on concepts from NIST's Core Product Model. CAD modelling concepts derived by a study of Unigraphics and Solidworks are used to demonstrate the extensibility of the PSRL to the CAD modelling domain. PSRL is encoded using Web Ontology Language (OWL).
978	**PTEC**	Plataforma Tecnológica Española de Construcción PTEC is a Spanish Foundation created in 2004 that aims to contribute to the improvement of the construction sector through public-private cooperation in research, development and innovation.
979	**PU**	Predicted Undesirable In the context of Digital Twin, Predicted Undesirable is one of the four categories in which is divided the static emergent behaviour in complex systems. The other three categories are Predicted Desirable (PD), Unpredicted Desirable (UD), and Unpredicted Undesirable (UU).

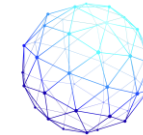| 980	**PU**	Perceived Usefulness
		PU was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance". It means whether or not someone perceives that technology to be useful for what they want to do.
981	**P&ID**	Piping and Instrumentation Diagram
		A piping and instrumentation diagram (P&ID) is a detailed diagram in the process industry which shows the piping and process equipment together with the instrumentation and control devices. Superordinate to the P&ID is the Process Flow Diagram (PFD) which indicates the more general flow of plant processes and the relationship between major equipment of a plant facility.
982	**P&CM**	Project and Construction Management
		Construction project management involves directing and organizing each part of the project life cycle, from ideation to completion. It's a holistic practice with the goal of delivering projects on time and under budget. Construction project management is a complex discipline that requires addressing many important concerns, including cost control, scheduling, procurement, and risk assessment. Project managers interact with all team members involved in a construction project, from architects to owners to contractors.
983	**PV**	Photovoltaics
		Photovoltaics (PV) is the conversion of light into electricity using semiconducting materials that exhibit the photovoltaic effect, a phenomenon studied in physics, photochemistry, and electrochemistry. A photovoltaic system employs solar modules, each comprising a number of solar cells, which generate electrical power. PV installations may be ground-mounted, rooftop mounted, wall mounted or floating. The mount may be fixed or use a solar tracker to follow the sun across the sky.
984	**PV**	Present Value
		The Present value is the value in the present of a sum of money, in contrast to some future value it will have when it has been invested at compound interest. Also known as Discounted Value, is a financial calculation that measures the current worth of a future amount of money or stream of payments.
985	**PV**	Process Variable
		A process variable, process value or process parameter is the current measured value of a particular part of a process which is being monitored or controlled. An example of this would be the temperature of a furnace. The current temperature is called the process variable, while the desired temperature is known as the set-point (SP).
986	**PVGIS**	Photovoltaic Geographical Information System

		PVGIS provides in all Europe and Africa locations, and part of Asia and America, free and open access to: PV potential for different technologies and configurations of grid connected and stand-alone systems; Solar radiation and temperature, as monthly averages or daily profiles; Full time series of hourly values of both solar radiation and PV performance; Typical Meteorological Year data for nine climatic variables; Maps, by country or region, of solar resource and PV potential ready to print; PVMAPS software includes all the estimation models used in PVGIS.
987	**Q&A**	Questions and Answers Q & A is a situation in which a person or group of people asks questions and another person or group of people answers them. A session of Q&A is a period of time when people can have their questions answered.
988	**QA**	Quality Assurance Quality Assurance (QA) is the maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production. It can be also defined as "part of quality management focused on providing confidence that quality requirements will be fulfilled."
989	**QC**	Quality Control Quality Control is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer. QC is similar to, but not identical with, quality assurance (QA).
990	**QFD**	Quality Function Deployment QFD is a process and set of tools used to effectively define customer requirements and convert them into detailed engineering specifications and plans to produce the products that fulfil those requirements. QFD is used to translate customer requirements into measurable design targets and drive them from the assembly level down through the sub-assembly, component and production process levels. QFD methodology provides a defined set of matrices utilized to facilitate this progression.
991	**QL**	Quality Level See AQL (Acceptable Quality Level)
992	**QoS**	Quality of Service Quality of Service (QoS) is a set of technologies that work on a network to guarantee its ability to dependably run high-priority applications and traffic under limited network capacity. QoS technologies accomplish this by providing differentiated handling and capacity allocation to specific flows in network traffic. QoS is the description or measurement of the overall performance of a service, such as a telephony or com-

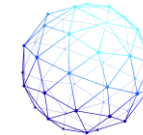|		puter network or a cloud computing service, particularly the performance seen by the users of the network.
993	**QoS**	Quality of Signal The Quality of Signal is measured by how noisy a band is. In essence, is like how much water there is (voice and data transmission capability), versus how many waves are in the water (noise that disrupts, distorts, or alters the core transmission). Quality of Signal is how much interference there is between the cell tower and your cellular device.
994	**QR**	Quick Response A QR code (an initialism for Quick Response code) is a type of matrix barcode (or two-dimensional barcode) invented in 1994 by the Japanese automotive company Denso Wave. A barcode is a machine-readable optical label that contains information about the item to which it is attached. In practice, QR codes often contain data for a locator, identifier, or tracker that points to a website or application. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte/binary, and kanji) to store data efficiently; extensions may also be used.
995	**QS**	Quantity Surveyor A Quantity Surveyor is a person who calculates the cost and amount of materials and workers needed for a job such as building a house or a road. He/she must be a construction industry professional with expert knowledge on construction costs and contracts. They help ensure that the construction project is completed within budget. Quantity surveyors can be employed either by the owner or by contractors to assist them in the evaluation of the work performed and, in the drafting and signature of completion certificates.
996	**QTO**	Quantity Take Off QTO are a detailed measurement of materials and labour needed to complete a construction project. They are developed by an estimator during the pre-construction phase. This process includes breaking the project down into smaller and more manageable units that are easier to measure or estimate. These measurements are used to format a bid on the scope of construction. Many programs have been developed to aid in the efficiency of these processes. With BIM quantity take-off can be conducted almost automatically.
997	**QUDT**	Quantity, Unit, Dimension and Type QUDT collection of ontologies define the base classes properties, and restrictions used for modelling physical quantities, units of measure, and their dimensions in various measurement systems. The goal of the QUDT ontology is to provide a unified model of, measurable quantities, units for measuring different kinds of quantities, the numerical values of quantities in different units of measure and the data structures and data types used to store and manipulate these objects in software.
998	**R&M**	Renovation & Modernization

999	**R&D (R+D)**	Research and Development
		Research and development (R&D, R+D), known in Europe as research and technological development (RTD), is the set of innovative activities undertaken by corporations or governments in developing new services or products and improving existing ones. Research and development constitute the first stage of development of a potential new service or the production process. R&D include activities that companies undertake to innovate and introduce new products and services. It is often the first stage in the development process.
1000	**R2M**	Research to Market
		R2M Solution is an integrated and multi-disciplinary innovation and consulting company that aggressively targets filling the gap between research activities and market implementation. R2M fills the gap between research activities and market implementation. Expertise in Innovation, Engineering, Sustainability, Energy and ICT.
1001	**R2RML**	RDB to RDF Mapping Language
		R2RML is a language for expressing customized mappings from relational databases to RDF datasets. Such mappings provide the ability to view existing relational data in the RDF data model, expressed in a structure and target vocabulary of the mapping author's choice. R2RML mappings are RDF graphs and written down in Turtle syntax. R2RML enables different types of mapping implementations. Processors could, for example, offer a virtual SPARQL endpoint over the mapped relational data, or generate RDF dumps, or offer a Linked Data interface.
1002	**RACI**	Responsible, Accountable, Consulted and Informed
		A RACI matrix is the simplest, most effective means for defining and documenting project roles and responsibilities. Knowing exactly who is responsible, who is accountable, who needs to be consulted, and who must be kept informed at every step will significantly improve your chances of project success. It indicates how various activities mesh together to accomplish a given task or complete a project or a business activity.
1003	**RAD**	Rapid Application Development
		RAD is a form of agile software development methodology that prioritizes rapid prototype releases and iterations. Unlike the Waterfall method, RAD emphasizes the use of software and user feedback over strict planning and requirements recording. The RAD framework was introduced by technology consultant and author James Martin in 1991, who recognised and took advantage of software's infinite malleability to design development models.
1004	**RAG**	Red, Amber, Green
		It is very common for a project status to be reported by RAG. RAG being the acronym for Red, Amber, Green. • Green = project is on track

		• Amber = some issues, being managed, needs to be closely monitored • Red = serious issues, dates being missed, recovery plan required.
1005	**RAM**	Random Access Memory RAM is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code. A RAM device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory, in contrast with other direct-access data storage media, where the time required to read and write data items varies significantly depending on their physical locations, due to mechanical limitations such as media rotation speeds and arm movement.
1006	**RAMI**	Reference Architectural Model Industry RAMI is a three-dimensional map showing how to approach the issue of Industrie 4.0 in a structured manner. RAMI 4.0 ensures that all participants involved in Industrie 4.0 discussions understand each other. It is a SERVICE-ORIENTED ARCHITECTURE. RAMI 4.0 combines all elements and IT components in a layer and life cycle model. RAMI 4.0 breaks down complex processes into easy-to-grasp packages, including data privacy and IT security.
1007	**RBNN**	Radial Bias Neural Network A Radial Bias function Neural Network (RBNN) is a three-layer neural network similar to that of a FFNN, but it contains a larger number of interconnected neurons. These types are predominately used for classification purposes, but they have also been applied to forecasting in buildings. The RBNN differs from the FFNN in that the input layers are not weighted, and thus the hidden layer nodes receive each full input value without any alterations/modifications.
1008	**RCA**	Root Cause Analysis Root cause analysis (RCA) is the process of discovering the root causes of problems in order to identify appropriate solutions. RCA assumes that it is much more effective to systematically prevent and solve for underlying issues rather than just treating ad hoc symptoms and putting out fires. RCA can be performed with a collection of principles, techniques, and methodologies that can all be leveraged to identify the root causes of an event or trend. Looking beyond superficial cause and effect, RCA can show where processes or systems failed.
1009	**RCM**	Reliability Centred Maintenance Reliability-centred maintenance (RCM) is a concept of maintenance planning to ensure that systems continue to do what their user require in their present operating context. Successful implementation of RCM will lead to increase in cost effectiveness, reliability, machine uptime, and a greater understanding of the level of risk that the organization is managing. Successful implementation of RCM will lead to increase in cost effectiveness, machine uptime, and a greater understanding of the level of risk that the organization is managing.

1010	**RDF**	Resource Description Framework The Resource Description Framework, more commonly known as RDF, is a graph data model that formally describes the semantics, or meaning of information. It also represents metadata, that is, data about data. RDF consists of triples. The parts of a triple, the subject, predicate, and object, represent links in a graph.
1011	**RDFa**	Resource Description Framework in Attributes RDFa (or Resource Description Framework in Attributes) is a W3C Recommendation that adds a set of attribute-level extensions to HTML, XHTML and various XML-based document types for embedding rich metadata within Web documents.
1012	**RDFS**	RDF Schema RDFS is a general-purpose language for representing simple RDF vocabularies on the Web. Other vocabulary definition technologies, like OWL or SKOS, build on RDFS and provide language for defining structured, Web-based ontologies which enable richer integration and interoperability of data among descriptive communities.
1013	**RDS**	Room Data Sheet Room Data Sheets (RDS) give a detailed description of the finishes, fixtures and fittings, mechanical and electrical specifications that will be required for each room or space in a project, building, complex and so on. They can be prepared by room types or may define the requirements for each individual room. The Room Data Sheet is the document which records what has been agreed with the client.
1014	**RDS**	Room Data Schedule See RDS (Room Data Sheet)
1015	**REST**	Representational State Transfer REST is a software architectural style which uses a subset of HTTP. It is commonly used to create interactive applications that use Web services. A Web service that follows these guidelines is called RESTful. Such a Web service must provide its Web resources in a textual representation and allow them to be read and modified with a stateless protocol and a predefined set of operations. REST is an alternative to, for example, SOAP as way to access a Web service.
1016	**RFI**	Request for Information A request for information (RFI) is a common business process whose purpose is to collect written information about the capabilities of various suppliers. Normally it follows a format that can be used for comparative purposes. An RFI is primarily used to gather information to help make a decision on what steps to take next. RFIs are therefore seldom the final stage and are instead often used in combination with request

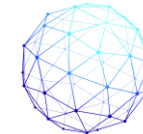|		
		for proposal (RFP), request for tender (RFT), and request for quotation (RFQ).
1017	**RFID**	Radio-Frequency Identification
		RFID is a form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency portion of the electromagnetic spectrum to uniquely identify an object, animal or person. RFID uses electromagnetic fields to automatically identify and track tags attached to objects. An RFID system consists of a tiny radio transponder, a radio receiver and transmitter. When triggered by an electromagnetic interrogation pulse from a nearby RFID reader device, the tag transmits digital data.
1018	**RFP**	Request for Proposal
		A Request for Proposal (RFP) is a business document, usually made through a bidding process, often from a government agency or large enterprise, that announces a project, a product or a service, describes it, and solicits bids from qualified contractors to complete it. An RFP is used where the request requires technical expertise, specialized capability, or where the product or service being requested does not yet exist, and the proposal may require research and development to create whatever is being requested.
1019	**RFQ**	Request for Quotation
		A RfQ is a business process in which a company or public entity requests a quote from a supplier for the purchase of specific products or services. RfQ generally means the same thing as Call for bids (CfB) and Invitation for bid (IfB). An RfQ typically involves more than the price per item. Information like payment terms, quality level per item or contract length may be requested during the bidding process. To receive correct quotes, RfQs often include the specifications of the items/services to make sure all the suppliers are bidding on the same item/service.
1020	**RFT**	Request for Tender
		An RFT, or Request for Tender, is an open invitation to suppliers, asking them to send offers - usually as sealed bids - in a structured format. there are usually various rules dictating how they should be formatted and how responses should be evaluated. These rules usually demand impartiality, openness, and strict adherence to evaluation criteria, among others. It's common for organizations, both government and private, to post RFTs publicly, either on their own websites or third-party platforms.
1021	**RGB**	Red, Green, Blue
		The RGB colour model is an additive colour model in which the red, green, and blue primary colours of light are added together in various ways to reproduce a broad array of colours. The name of the model comes from the initials of the three additive primary colours, red, green, and blue. The main purpose of the RGB colour model is for the sensing, representation, and display of images in electronic systems, such as televisions and computers, though it has also been used in conventional photography.
1022	**RIA**	Regulatory Impact Analysis

		Regulatory Impact Analysis (RIA) is a systemic approach to critically assessing the positive and negative effects of proposed and existing regulations and non-regulatory alternatives. As employed in OECD countries it encompasses a range of methods. It is an important element of an evidence-based approach to policy making. OECD analysis shows that conducting RIA within an appropriate systematic framework can underpin the capacity of governments to ensure that regulations are efficient and effective in a changing and complex world.
1023	**RIA**	Regulatory Impact Assessment Regulatory Impact Assessment (RIA) is both a document and process for supporting decision makers on whether and how to regulate to achieve public policy goals. RIA helps to improve the design of regulations by assisting policy makers in identifying the best solution to address a policy problem. RIA examines the costs and benefits of regulation and non-regulatory alternatives of achieving policy goals, in order to identify the approach that is likely to deliver the greatest net benefit to society.
1024	**RIA**	Research and Innovation Actions Research and Innovation Actions (RIA) are a type of action embedded in the Funding and Tender opportunities provided by the European Commission. The RIA Must be supported by a Consortia of partners from different countries, industry and academia. The funding rate is 100% of eligible costs.
1025	**RIAS**	Royal Incorporation of Architects in Scotland The Royal Incorporation of Architects in Scotland (RIAS) was founded in 1916 as the professional body for all chartered architects in Scotland and is the foremost Institute in the country dealing with architecture and the built environment. The RIAS has charitable status and offers a wide range of services and products for architects, students of architecture, construction industry professionals and all those with an interest in the built environment and the design process.
1026	**RIBA**	Royal Institute of British Architects The Royal Institute of British Architects (RIBA) is a professional body for architects primarily in the United Kingdom, but also internationally, founded for the advancement of architecture under its charter granted in 1837 and Supplemental Charter granted in 1971. The RIBA is governed by the RIBA Council, a group of 60 members, elected from among the RIBA membership, the majority of whom are chartered architects. The RIBA is a member organisation, with 44.000 members.
1027	**RICS**	Royal Institute of Chartered Surveyors RICS is a professional body promoting and enforcing the highest international standards in the valuation, management and development of land, real estate, construction and infrastructure. RICS work at a cross-governmental level, delivering a single, international standard that will support a safe and vibrant marketplace in land, real estate, construction and infrastructure, for the benefit of all. RICS was founded in London

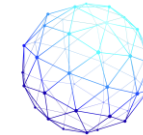|		as the Institution of Surveyors after a meeting of 49 surveyors at the Westminster Palace Hotel on 15 June 1868.
1028	**RIF**	Rule Interchange Format The Rule Interchange Format (RIF) is a W3C Recommendation. RIF is part of the infrastructure for the semantic web, along with (principally) SPARQL, RDF and OWL. Although originally envisioned by many as a "rules layer" for the semantic web, in reality the design of RIF is based on the observation that there are many "rules languages" in existence, and what is needed is to exchange rules between them. RIF includes three dialects.
1029	**RIT**	Room Integrity Testing Essentially, a Room Integrity Test establishes how effectively gas fire suppression systems work. The test measures whether or not the space can hold an effective concentration of fire-retardant gases so the system can operate. The testing predicts how long a fire suppressant agent takes to descend to a given height within a room, without having to discharge the actual fire suppression system. A retention rate of at least 10 minutes is required for a pass. This time period is considered enough to allow deep-seated fires to be cooled beyond re-ignition levels.
1030	**RMIT**	Royal Melbourne Institute of Technology Founded in 1887 by Francis Ormond, RMIT began as a night school offering classes in art, science, and technology, in response to the industrial revolution in Australia. It was a private college for more than a hundred years before merging with the Phillip Institute of Technology to become a public university in 1992. It has an enrolment of around 95,000 higher and vocational education students, making it the largest dual-sector education institution in Australia.
1031	**RMSE**	Root Mean Square Error RMSE is the standard deviation of the residuals (prediction errors). Residuals are a measure of how far from the regression line data points are; RMSE is a measure of how spread out these residuals are. In other words, it tells you how concentrated the data is around the line of best fit. Root mean square error is commonly used in climatology, forecasting, and regression analysis to verify experimental results.
1032	**RobMos**	Reduced Order Building Model Simulation RobMos is a tool developed by TNO in the context of the SPHERE project. It is a two-part tool: For energy calculations in buildings, and for indoor environmental quality calculations. This means to predict energy usage and energy supply of a building in relation to heating and cooling services both during the design and operational phases. And to predict indoor environmental quality, also during the two above-mentioned phases
1033	**ROI**	Return on Investment Return on Investment (ROI) is a performance measure used to evaluate the efficiency or profitability of an investment or compare the effi-

		ciency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost. To calculate ROI, the benefit (or return) of an investment is divided by the cost of the investment. The result is expressed as a percentage or a ratio.
1034	**ROM**	Read-only Memory ROM is a type of storage medium that permanently stores data on personal computers (PCs) and other electronic devices. It contains the programming needed to start a PC, which is essential for boot-up; it performs major input/output tasks and holds programs or software instructions. This type of memory is often referred to as "firmware"—how it is altered has been a source of design consideration throughout the evolution of the modern computer.
1035	**ROM**	Reduced Order Model Reduced order models (ROMs) are simplifications of high-fidelity, complex models. They capture the behaviour of these source models so that engineers can quickly study a system's dominant effects using minimal computational resources. ROMs have become popular in the product development industry because engineers are facing market demands for shorter design cycles that produce higher quality products.
1036	**ROM**	Rough Order Model Is the first Estimate in the project life cycle. For the sake of simplicity, we can say that it is an estimation of the level of effort and cost to complete a project. The primary purpose of a ROM estimate is to assist decision-makers in making the right decisions by providing them with relevant information.
1037	**RPI**	Retail Price Index The Retail Price Index (RPI) is one of the two main measures of consumer inflation produced by the United Kingdom's Office for National Statistics (ONS). It is not considered an official statistic by the U.K., but it is used for certain types of cost escalation. The RPI was introduced in the U.K. in 1947, and it was made official in 1956. It is an older measurement of inflation that is still published because it is used to calculate cost of living and wage escalation.
1038	**RSF**	Renewable Secondary Fuels Secondary fuels are fuels that are derived from some primary fuel or fuels through chemical or physical processes. These are fuels that are not found as a natural resource. The energy for these secondary fuels comes initially from primary energy sources. Gasoline is the best example of a secondary fuel, as it must be made from oil through distillation processes. This means that secondary fuels are often an intermediate form of energy between the primary energy and the energy services.
1039	**RSL**	Reference Service Life

		Reference Service Life is defined as the expected service life of a component or assembly situated in a well-defined set of conditions. The factor method and the Reference Service Life concept provide a very valuable structure, but do not resolve the central dilemma of the need to derive an extensive database of service life.
1040	**RSR**	Radioactive Substances Regulation The main objectives of Radioactive Substances Regulation are to establish and maintain control over the keeping, use and security of radioactive materials including sealed radioactive sources and mobile radioactive apparatus; ensure that the accumulation and disposal of radioactive wastes are managed effectively to limit radiological impact on the general public and the environment; and ensure operators make appropriate financial provisions for re-use, recycle or disposal of high activity sealed radioactive sources.
1041	**RST**	Rhetorical Structure Theory Rhetorical Structure Theory (RST) is a theory of text organization that describes relations that hold between parts of text. It was originally developed by William Mann and Sandra Thompson of the University of Southern California's Information Sciences Institute (ISI) and defined in a 1988 paper. The theory was developed as part of studies of computer-based text generation. Natural language researchers later began using RST in text summarization and other applications. It explains coherence by postulating a hierarchical, connected structure of texts.
1042	**RSVP**	Répondez, s'il Vous Plaît RSVP is an initialism derived from the French phrase Répondez s'il vous plaît, meaning "Please respond" to require confirmation of an invitation. The initialism "RSVP" is no longer used much in France, where it is considered formal and old-fashioned.
1043	**RT**	Real Time Real-time or Real Time describes various operations in computing or other processes that must guarantee response times within a specified time (deadline), usually a relatively short time. A real-time process is generally one that happens in defined time steps of maximum duration and fast enough to affect the environment in which it occurs, such as inputs to a computing system. The actual time during which something takes place.
1044	**RTC**	Real Time Clock A real-time clock (RTC) is an electronic device (most often in the form of an integrated circuit) that measures the passage of time. Although the term often refers to the devices in personal computers, servers and embedded systems, RTCs are present in almost any electronic device which needs to keep accurate time of day. It is an electronic device (most often in the form of an integrated circuit) that measures the passage of time.
1045	**RTD**	Research and Technological Development

		Research and development (R&D, R+D, or R'n'D), known in Europe as Research and Technological Development (RTD), refers to innovative activities undertaken by corporations or governments in developing new services or products, or improving existing services or products. Research and development constitute the first stage of development of a potential new service or the production process.
1046	**RTF**	Rich Text Format The Rich Text Format is a proprietary document file format with published specification developed by Microsoft Corporation from 1987 until 2008 for cross-platform document interchange with Microsoft products.
1047	**RTL**	Register Transfer Level In digital circuit design, register-transfer level (RTL) is a design abstraction which models a synchronous digital circuit in terms of the flow of digital signals (data) between hardware registers, and the logical operations performed on those signals. Unlike in software compiler design, where the register-transfer level is an intermediate representation and at the lowest level, the RTL level is the usual input that circuit design-ers operate on.
1048	**RTO**	Research Technology Organization Research and Technology Organisations (RTOs) is the term given to "specialised knowledge organisations dedicated to the development and transfer of science and technology to the benefit of the economy and society". RTOs' technologies cover all scientific fields. Their work ranges from basic research to new products and services development. RTOs are non-profit organisations with public missions to support society. To do so, they closely cooperate with industries, large and small, as well as a wide array of public actors.
1049	**RTU**	Remote Terminal Unit A remote terminal unit (RTU) is a microprocessor-controlled electronic device that interfaces objects in the physical world to a distributed control system or SCADA (supervisory control and data acquisition) system by transmitting telemetry data to a master system, and by using messages from the master supervisory system to control connected objects. Other terms that may be used for RTU are remote telemetry unit and remote telecontrol unit.
1050	**RUL**	Remaining Useful Life See ARL (Asset Remaining Life)
1051	**RV**	Reference View buildingSMART defines the Reference View as a view that represents simplified geometries and relationships of a model. This view was creat-ed to allow coordination between various disciplines of a project, such as architectural, structural and installations. The Design Transfer View is a view that has the function of representing geometries and relationships of building elements and environments in more detail than the

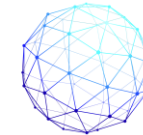|		Reference View.
1052	**RVA**	Risk and Vulnerability Assessment
		A Risk and Vulnerability Assessment is a fundamental building block in your integrated risk management program. Without visibility into potential exposures, it is difficult to know where to focus your security investments and resources. A vulnerability assessment identifies, quantifies, and prioritizes the risks and vulnerabilities in a system. A risk assessment identifies recognized threats and threat actors and the probability that these factors will result in an exposure or loss.
1053	**RWD**	Radioactive Waste Disposed
		If the competent national authority is satisfied that radioactive waste disposed of at the nuclear installation in the past would have met the generic criteria, and future disposals of radioactive waste will also meet the criteria, then the second step is that a comprehensive, installation-specific assessment would have to be performed. Radioactive waste disposed of on-site for a purpose remains radioactive waste until the site is released from RSR.
1054	**SA**	Site Area
		Site area means the area of any land on which development is or is to be carried out. The land may include the whole or part of one lot, or more than one lot if they are contiguous to each other, but does not include the area of any land on which development is not permitted to be carried out under this Plan.
1055	**SAL**	Security Aspect Letter
		Security Aspects Letter (SAL) means a document issued by a contracting authority which forms an integral part of a Classified Contract identifying the security requirements, or each element of that Classified Contract requiring security protection. A Security Aspect Letter means such notification that the Tasking Authority gives to the Contractor where the Tasking Order involves disclosure or generation of information marked Restricted or above.
1056	**SaaS**	Software as a Service
		Software as a service is a software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted. It is sometimes referred to as "on-demand software", and was formerly referred to as "software plus services" by Microsoft. SaaS applications are also known as on-demand software and Web-based/Web-hosted software. SaaS apps are typically accessed by users using a thin client, e.g. via a web browser. SaaS became a common delivery model for many business applications.
1057	**SAM**	Serviceable Available Market
		The Service Available Market is the target addressable market that is served. SAM or Serviceable Available Market is the segment of the TAM

		targeted by your products and services which is within your geographical reach. The serviceable available market or served addressable market is more clearly defined as that market opportunity that exists within a firm's existing core competencies and/or past performance.
1058	**SAP**	Standard Assessment Procedure The Standard Assessment Procedure (SAP) is the UK government's recommended method system for measuring the energy rating of residential dwellings. The first version was published in 1995, and was replaced by newer versions in 1998, 2001, 2005, 2009 and 2012. It calculates the typical annual energy costs for space and water heating, and, from 2005, lighting. The CO_2 emissions are also calculated. The SAP runs from 1 to 100+, with dwellings that have SAP>100 being net exporters of energy.
1059	**SAP**	Systems, Applications, Products in Data Processing SAP is the leading global provider of Enterprise Resource Planning (ERP) software. Companies rely on SAP software solutions to better manage their business intelligence, operations planning, and purchasing and materials. SAP software integrates all areas of business operations. It is an integrated package of business applications. From a business perspective SAP allows sales to enter orders for customers, purchasing to buy products from vendors, production personnel to produce goods, warehouse to manage inventory, and finance to keep the books.
1060	**SAREF**	Smart Appliance Reference The Smart Applications REFerence ontology (SAREF) is intended to enable interoperability between solutions from different providers and among various activity sectors in the Internet of Things (IoT), thus contributing to the development of the global digital market. is a shared model of consensus that facilitates the matching of existing assets in the smart applications domain. SAREF provides building blocks that allow separation and recombination of different parts of the ontology depending on specific needs.
1061	**SBC**	Standard Building Tribunal Used in the UK, the SBC is designed for large or complex construction projects where detailed contract provisions are needed. Standard Building Contracts are suitable for projects procured via the traditional or conventional method. Standard Building Contracts are normally administered either by the architect, quantity surveyor, or a contract administrator. Depending on the type of SBC used, the employer will need to provide drawings and specifications, works schedules or bills of quantities to specify the quantity and quality of work at tender stage.
1062	**SBD**	Set-Based Design Set-Based Design (SBD) is a practice that keeps requirements and design options flexible for as long as possible during the development process. Instead of choosing a single point solution upfront, SBD identifies and simultaneously explores multiple options, eliminating poorer choices over time. It enhances flexibility in the design process by committing to technical solutions only after validating assumptions, which produces better economic results.

1063	**SBEM**	Simplified Building Energy Model
		Simplified Building Energy Model or as its known SBEM, is the preferred method for the government of the UK, to assess energy in non-residential buildings. SBEM is used for non-domestic buildings in support of the National Calculation Methodology (NCM), the Energy Performance of Buildings Directive (EPBD) and the Green Deal. The tool is currently used to determine CO_2 emission rates for new buildings in compliance with Part L of the Building Regulations.
1064	**SBI**	Southbound Interface
		A southbound interface (SBI) is a component's lower-level interface layer. It is directly connected to that lower layer's northbound interface. It breaks down the concepts into smaller technical details that are specifically geared toward a lower layer component within the architecture. In software-defined networking (SDN), the southbound interface serves as the OpenFlow or alternative protocol specification. It allows a network component to communicate with a lower-level component.
1065	**SBR**	Sequencing Batch Reactor
		SBR are a type of activated sludge process for the treatment of wastewater. SBR reactors treat wastewater such as sewage or output from anaerobic digesters or mechanical biological treatment facilities in batches. Is a fill-and-draw activated sludge system for wastewater treatment. In this system, wastewater is added to a single "batch" reactor, treated to remove undesirable components, and then discharged
1066	**SBS**	Small Business Service
		The Small Business Service was established in the UK in April 2000 as an agency of the Department of Trade and Industry. The role of the Small Business Service is to lead the development of a coherent enterprise policy and align our partners to secure its implementation.
1067	**SCADA**	Supervisory Control and Data Acquisition
		Supervisory control and data acquisition (SCADA) is a control system architecture comprising computers, networked data communications and Graphical User Interfaces (GUI) for high-level process supervisory management, while also comprising other peripheral devices like programmable logic controllers (PLC) and discrete proportional-integral-derivative (PID) controllers to interface with process plant or machinery. The use of SCADA has been considered also for management and operations of project-driven-process in construction.
1068	**SCAS**	Smart, Connected Asset Systems
		SCAS are defined as the assets used by a business to produce and deliver its goods and services that can sense and respond to internal and external environments as an intelligent agent. This means they are aware and able to react to stimuli such as: Design & configuration. Smart Connected Assets are being developed today through the convergence of IoT, Cloud, Big Data Analytics, and Mobile technologies.

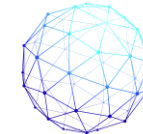| 1069	SCCS	Supply Chain Capability Summary
		The Supply Chain Capability Summary (SCCS) is part of the Project Implementation Plan (PIP) and includes multiple Supplier Resource Assessment Forms. The SCCS is part of the Project Implementation Plan (PIP) and includes multiple Supplier Resource Assessment Forms. The SCCS form is prepared based on Supplier Resource Assessment Forms completed by each relevant organisation in the sub-contract procurement process, detailing their resource capability and capacity.
1070	SCM	Smart Contracting Module
		Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met. They typically are used to automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary's involvement or time loss.
1071	SCM	Supply Chain Management
		SCM is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.
1072	SCO	Smart Connected Operations
		SMO is a future looking vision that describes what the factory or production line of the future will look like. It will involve Industrial Internet of Things (IIoT) enabled MOM applications integrated with IIoT enabled assets and IIoT enabled business systems.
1073	SCoT	Smart Connected Things
		Also known as Smart Connected Products (SCP) or Smart Connected Products Systems (SCPS), they are products, assets and other things embedded with processors, sensors, software and connectivity that allow data to be exchanged between the product and its environment, manufacturer, operator/user, and other products and systems.
1074	SCP	Smart, Connected Products
		Also known as Smart Connected Products Systems (SCPS) or Smart Connected Things (SCoT), they are products, assets and other things embedded with processors, sensors, software and connectivity that allow data to be exchanged between the product and its environment, manufacturer, operator/user, and other products and systems.
1075	SCPS	Smart, Connected Products Systems
		Also known as Smart Connected Products (SCP) or Smart Connected Things (SCoT), they are products, assets and other things embedded with

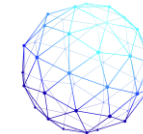|		
		processors, sensors, software and connectivity that allow data to be exchanged between the product and its environment, manufacturer, operator/user, and other products and systems.
1076	**SDD**	System Design Description
		An SDD identifies the requirements associated with structures, systems, and components; explains why those requirements exist (that is, provides the bases for the requirements); and describes the features of the system design provided to meet those requirements. The SDD helps ensure consistency among the engineering requirements for systems, the actual installed physical configuration, and the associated documentation.
1077	**SDGs**	Sustainable Development Goals
		SDGs are a collection of 17 interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all". The SDGs were set up in 2015 by the United Nations General Assembly (UNGA) and are intended to be achieved by the year 2030. They are included in a UNGA Resolution called the 2030 Agenda, colloquially known as Agenda 2030. The SDGs were developed in the Post-2015 Development Agenda as the future global development framework to succeed the Millennium Development Goals which ended in 2015.
1078	**SDN**	Software-Defined Networking
		Software-defined networking (SDN) technology is an approach to network management that enables dynamic, programmatically efficient network configuration in order to improve network performance and monitoring, making it more like cloud computing than traditional network management. SDN is meant to address the fact that the static architecture of traditional networks is decentralized and complex while current networks require more flexibility and easy troubleshooting.
1079	**SDNF**	Steel Detailing Neutral Format
		Steel Detailing Neutral Format (SDNF) is a standard format for data exchange of steel elements (sections, plates etc.). SDNF offers a system neutral method for the import and export of structural model data. This bidirectional process allows the import and export of SDNF files from structural models.
1080	**SDO**	Standards Developing Organization
		Standards Developing Organization (SDO) is an organization whose primary function is developing, coordinating, promulgating, revising, amending, reissuing, interpreting, or otherwise producing technical standards to address the needs of a group of affected adopters. Put another way, such an organization works to create uniformity across producers, consumers, government agencies, and other relevant parties regarding terminology, product specifications (e.g. size, including units of measure), protocols, and more.
1081	**SDS**	Space Data Sheet

		See SDS (Space Data Schedule)
1082	**SDS**	Space Data Schedule The Space Data Schedule is a spreadsheet developed to identify each space of the building and provide the associated asset information required for Curtin University. This information is used to facilitate the timetabling and scheduling of our facility together with data required for TEFMA reporting. The Space Data Schedule shall be prepared by the Lead Design Consultant and approved by the Nominated External Project Manager.
1083	**SECAP**	Sustainable Energy and Climate Action Plan The Sustainable Energy and Climate Action Plan (SECAP) is the key document that shows how a Covenant signatory will reach its commitments by 2030. The development of the SECAP primarily draws on the findings from the Baseline Emission Inventory (BEI) and the Climate Change Risk and Vulnerability Assessment (RVA). To ensure that adequate action is taken to mitigate and adapt to Climate Change, the SECAP should not be regarded as a fixed and rigid document.
1084	**SEER**	Seasonal Energy Efficiency Ratio The efficiency of air conditioners is often rated by the seasonal energy efficiency ratio (SEER) which is defined by the Air Conditioning, Heating, and Refrigeration Institute in its 2008 standard AHRI 210/240, Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment. A similar standard is the European seasonal energy efficiency ratio (ESEER). The SEER rating of a unit is the cooling output during a typical cooling-season divided by the total electric energy input during the same period. The higher the unit's SEER rating the more energy efficient it is. In the U.S., the SEER is the ratio of cooling in British thermal unit (BTU) to the energy consumed in watt-hours.
1085	**SEP**	Superior Energy Performance® SEP® is a certification program that verifies improvements in energy management and performance in industrial facilities. Certification requires the use of the ISO 50001 energy management standard, and achieves and measure sustained savings to earn certification at the Silver, Gold, or Platinum level.
1086	**SETAC**	Society of Environmental Toxicology and Chemistry The SETAC is an international environmental toxicology and environmental chemistry organization. It was set up to allow interdisciplinary communication between environmental scientists around the world. It was founded in 1979 in North America. SETAC promotes environmental sciences through conducting meetings, workshops, and symposia; bestowing awards recognizing for excellence; promoting education in the field by organizing training courses and supporting students; and through its publication program.
1087	**SEUs**	Significant Energy Uses

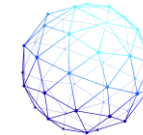|		A SEU is an energy use that involves substantial energy consumption and/or offers considerable potential for energy performance improvement. In order to identify your SEUs, you need to know how much energy each process or system consumes. In an ideal world you will have energy sub-meters fitted to all large energy uses and can then simply use these meters to quantify the consumption of each use. In reality, in many cases there are not enough meters to do this perfectly. In that case you need a way of estimating their consumption.
1088	**SFA**	Substance Flow Analysis See MFA (Material Flow Analysis)
1089	**SFP**	Specific Fan Power Specific Fan Power (SFP) is a parameter that quantifies the energy-efficiency of fan air movement systems. It is a measure of the electric power that is needed to drive a fan (or collection of fans), relative to the amount of air that is circulated through the fan(s). It is not constant for a given fan, but changes with both air flow rate and fan pressure rise.
1090	**SGML**	Standard Generalized Markup Language (SGML; ISO 8879:1986) is a standard for defining generalized mark-up languages for documents. ISO 8879 Annex A.1 states that generalized mark-up is "based on two postulates": Declarative: Markup should describe a document's structure and other attributes rather than specify the processing that needs to be performed, because it is less likely to conflict with future developments. Rigorous: In order to allow markup to take advantage of the techniques available for processing rigorously defined objects like programs and databases.
1091	**SGNI**	Schweizer Gesellschaft für Nachhaltige Immobilienwirtschaft The SGNI is a non-profit organisation that promotes sustainability in the real estate industry and supports companies in optimising the sustainability of their real estate over the entire life cycle using intelligent instruments. The SGNI certifies buildings according to the DGNB System Switzerland and train consultants and auditors through our training programme.
1092	**SHACL**	Shapes Constraint Language SHACL is a World Wide Web Consortium (W3C) specification for validating graph-based data against a set of conditions. Among others, SHACL includes features to express conditions that constrain the number of values that a property may have, the type of such values, numeric ranges, string matching patterns, and logical combinations of such constraints. SHACL also includes an extension mechanism to express more complex conditions in languages such as SPARQL.
1093	**SIA**	Security Industry Authority The Security Industry Authority (SIA) is the statutory organisation responsible for regulating the private security industry in the UK. Established as a non-departmental public body in 2003, the SIA reports to the Home Secretary under the terms of the Private Security Industry Act

		2001. The two duties of the SIA are to regulate the compulsory licensing of individuals who undertake designated activities within the private security industry and to manage a voluntary Approved Contractor Scheme, which measures private security service suppliers.
1094	**SIL**	Safety Integrity Level Safety integrity level (SIL) is defined as a relative level of risk-reduction provided by a safety function, or to specify a target level of risk reduction. In simple terms, SIL is a measurement of performance required for a safety instrumented function (SIF). The requirements for a given SIL are not consistent among all of the functional safety standards. In the functional safety standards based on the IEC 61508 standard, four SILs are defined, with SIL 4 the most dependable and SIL 1 the least.
1095	**SIL**	Smithsonian Institution Libraries Smithsonian Libraries (SIL), formerly known as Smithsonian Institution Libraries, is a library system comprising 20 branch libraries serving the various Smithsonian Institution museums and research centres, as well as central support services which include a Book Conservation Laboratory and an Imaging Center. The Libraries serve Smithsonian Institution staff as well as the scholarly community and general public with information and reference support. Its collections number over 1,5 million volumes including 40.000 rare books and 2.000 manuscripts.
1096	**SIL**	Software in the Loop Software-in-the-Loop (SIL) simulation represents the integration of compiled production source code into a mathematical model simulation, providing engineers with a practical, virtual simulation environment for the development and testing of detailed control strategies for large and complex systems. SIL enables the earliest detection of system-level defects or bugs, significantly reducing the costs of later stage troubleshooting, when the number and complexity of component interactions is greater.
1097	**SIM**	Structural Information Model In the scope of BIM, Structural Information Model provides a universal data source of data which share all relevant information with connected applications.
1098	**SIR**	Savings to Investment Ratio The savings-to-investment ratio is the ratio of the present value savings to the present value costs of an energy or water conservation measure. It is calculated by dividing the projected energy cost savings over the finance term by the total installed cost of the project, including the cost of equipment, installation, and financing.
1099	**SKOS**	Simple Knowledge Organization System Simple Knowledge Organization System (SKOS) is a W3C recommendation designed for representation of thesauri, classification schemes, taxonomies, subject-heading systems, or any other type of structured controlled vocabulary. SKOS is a standard for representing concept

		schemes for different types of KOS (Knowledge Organizations Systems).
1100	**SLA**	Service Level Agreement A SLA is a commitment between a service provider and a client. Particular aspects of the service – quality, availability, responsibilities – are agreed between the service provider and the service user. The most common component of an SLA is that the services should be provided to the customer as agreed upon in the contract. As an example, Internet service providers and telcos will commonly include service level agreements within the terms of their contracts with customers to define the level(s) of service being sold in plain language terms. In this case the SLA will typically have a technical definition in mean time between failures (MTBF), mean time to repair or mean time to recovery (MTTR).
1101	**SLCA**	Social Life Cycle Assessment A social life cycle assessment (S-LCA) is a method that can be used to assess the social and sociological aspects of products, their actual and potential positive as well as negative impacts along the life cycle. S-LCA aims at assessing the social impacts of a product throughout its life cycle. S-LCA does not provide information on the question of whether a product should be produced or not – although information obtained from an S-LCA may offer "food for thought" and can be helpful for taking a decision.
1102	**SM**	Secondary Materials Secondary Materials are materials that have been used, recycled and sold for use in manufacturing. These products allow for less reliance on the search for new raw resources for items such as paper, aluminium and plastic. It is advantageous in the sustainable use of resources so that these materials can be maintained for longer periods.
1103	**SME**	Small and Medium Enterprises Small and Mid-size Enterprises (SMEs) are businesses that maintain revenues, assets or a number of employees below a certain threshold. Each country has its own definition of what constitutes a small and medium-sized enterprise (SME). Certain size criteria must be met and occasionally the industry in which the company operates in is taken into account as well. Though small in size, small and mid-size enterprises (SMEs) play an important role in the economy.
1104	**SMP**	Standard Method and Procedure The term Standard Method and Procedure for BIM refers to a: …set of standard methods and procedures covering the way information is named, expressed and referenced. Typically refers to all necessary conventions to be followed by the project team, including file naming, layer naming, construction tolerances, annotations, abbreviations and symbols.
1105	**SMS**	Short Message Service SMS is a text messaging service component of most telephone, Internet, and mobile device systems. It uses standardized communication

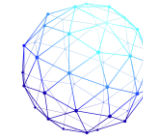|		
		protocols that let mobile devices exchange short text messages. An intermediary service can facilitate a text-to-voice conversion to be sent to landlines. SMS, as used on modern devices, originated from radio telegraphy in radio memo pagers that used standardized phone protocols. The first test SMS message was sent on December 3, 1992,
1106	**SMT**	Site Management Team The Site Management Team is the groups of Site managers, also known as construction managers, are responsible for supervising construction sites and running construction projects. Site managers are also known as site agents, contracts managers, construction managers and building managers.
1107	**SMTP**	Simple Mail Transfer Protocol SMTP is an internet standard communication protocol for electronic mail transmission. Mail servers and other message transfer agents use SMTP to send and receive mail messages. Since SMTP's introduction in 1981, it has been updated, modified and extended multiple times. The protocol version in common use today has extensible structure with various extensions for authentication, encryption, binary data transfer, and internationalized email addresses.
1108	**SoA**	State of Art State of the art, or State-of-the-art (sometimes cutting edge or leading edge) refers to the highest level of general development, as of a device, technique, or scientific field achieved at a particular time.
1109	**SOA**	Service Oriented Architecture Service-Oriented Architecture, defines a way to make software components reusable and interoperable via service interfaces. Services use common interface standards and an architectural pattern so they can be rapidly incorporated into new applications. This removes tasks from the application developer who previously redeveloped or duplicated existing functionality or had to know how to connect or provide interoperability with existing functions.
1110	**SOAP**	Simple Object Access Protocol SOAP (formerly an acronym for Simple Object Access Protocol) is a messaging protocol specification for exchanging structured information in the implementation of web services in computer networks. It uses XML Information Set for its message format, and relies on application layer protocols, most often Hypertext Transfer Protocol (HTTP), although some legacy systems communicate over Simple Mail Transfer Protocol (SMTP), for message negotiation and transmission.
1111	**SOM**	Serviceable Obtainable Market Serviceable Obtainable Market is the portion of SAM that you can capture. Another way of looking at it is as an estimate of the market share

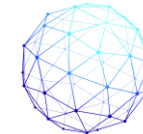|		for a particular product that a company can garner. That is, the percentage of SAM that can be realistically achieved
1112	**SOSA**	Sensor, Observation, Sample, and Actuator
		SOSA ontology provides a formal but lightweight general-purpose specification for modelling the interaction between the entities involved in the acts of observation, actuation, and sampling. SOSA is the result of rethinking the W3C-XG Semantic Sensor Network (SSN) ontology based on changes in scope and target audience, technical developments, and lessons learned over the past years.
1113	**SP**	Setpoint
		The command signal or value which is fed into a controller to establish the target or desired position or state of the controlled device or process. The SP is the desired value in a closed-loop feedback system, as for instance, in regulation of temperature or pressure
1114	**Sp**	Spaces Table (CPIC Uniclass 2)
		Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
1115	**SPARQL**	Simple Protocol and RDF Query Language
		SPARQL, short for Simple Protocol and RDF Query Language, enables users to query information from databases or any data source that can be mapped to RDF. The SPARQL standard is designed and endorsed by the W3C and helps users and developers focus on what they would like to know instead of how a database is organized.
1116	**SPE**	Single Purpose Entity
		In the context of a commercial real estate transaction, a SPE is a limited liability company or corporation that holds title to particular real estate in which the financing lender holds a mortgage but which has no other assets or liabilities. Often the SPE will contract with a second company with the same owners that will manage the property, handle the tenant leases, take care of business operations, and incur all liabilities associated with managing the commercial real estate, or it will hire a third-party management company to fulfil this role.
1117	**SPF**	STEP Physical File
		Currently the most common method of data exchange between IFC compliant software applications is by using the STEP physical file (SPF). SPF is defined in ISO 10303-21:2002 Clear Text Encoding of the Exchange Structure in a text format containing human readable ASCII characters. The size of a SPF is usually quite large. For example, a simple two room test model would contain as many as 10.000 lines of data. Several stand-alone software utilities are available to read and navigate SPF as well as for visualising the model.

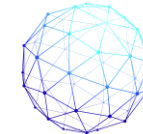| 1118	SPFF	STEP Physical File Format (IFC)
		STEP Physical Format (SPF or IFC-SPF) is the most widely used format for IFC in practice, which is the most compact of the formats listed that can be read as text. IFC-SPF is based on the ISO standard for clear text representation of EXPRESS data models ISO 10303-21.
1119	SPHERE	Service Platform to Host and SharE REsidential data
		SPHERE is a 4-year, Horizon 2020 project that aims to provide a BIM-based Digital Twin Platform to optimise the building lifecycle, reduce costs, and improve energy efficiency in residential buildings. SPHERE's ultimate goal is the Improvement and optimisation of buildings' energy design, construction, performance, and management, reducing construction costs and their environmental impact while increasing overall energy performance.
1120	SPie	Specifiers' Properties information exchange
		The objective of SPie is to coordinate the development of a United States open standard for product data utilized by architects, engineers, specifiers, contractors, subcontractors, procurement personnel, operators, and maintenance personnel to better select, install, and operate their facilities. SPie data allows manufacturers to deliver product information to specifiers and designers in a form that is useful for modern design practice such as Building Information Modelling (BIM).
1121	SPP	Simple Payback Period
		SPP represents, as a first approximation; the time (number of years) required recovering the initial investment (first cost), considering only the net annual savings.
1122	SRI	Smart Readiness Indicator
		The 2018 revision of the European Energy Performance of Buildings Directive (EPBD) aims to further promote smart building technologies, in particular through the establishment of a Smart Readiness Indicator (SRI) for buildings. This indicator will allow for rating the smart readiness of buildings, i.e. the capability of buildings (or building units) to adapt their operation to the needs of the occupant, also optimizing energy efficiency and overall performance, and to adapt their operation in reaction to signals from the grid (energy flexibility).
1123	SRT	Smart Ready Technologies
		The Smart Ready Technologies are the foundation for the services to be implemented on. Services and sub-services use those technologies like e.g. bus systems, communication protocols or building automation systems. Regarding the term smart, we consider certain capabilities as smart – focusing on optimization, interaction with occupants and being interoperable and adaptive. The term "ready" indicates that the option to take action exists, but is not necessarily realized, e.g. due to cost constraints, legal or market restrictions.

1124	SQL	Structured Query Language
		SQL (Structured Query Language) is a standardized programming language that's used to manage relational databases and perform various operations on the data in them. Also known as SQL databases, relational systems comprise a set of tables containing data in rows and columns. Initially created in the 1970s, SQL is regularly used not only by database administrators, but also by developers writing data integration scripts and data analysts looking to set up and run analytical queries.
1125	Ss	Systems Table (CPIC Uniclass 2)
		Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
1126	SSL	Structural Slab Level
		SSL (Structural Slab Level) is typically more used within the industrial and commercial markets and is very simply the level of which the structural concrete floor slab would finish, however the term SSL is only used if there was to be other finishes to be placed over the structural slab. SSL refers to the level at the top surface of the structural slab.
1127	SSL	Secure Sockets Layer
		Secure Sockets Layer (SSL) is a protocol for establishing a secure channel between two devices that are connected over the Internet or an internal. SSL is a security protocol that provides privacy, authentication, and integrity to Internet communications. It is a networking protocol designed for securing connections between web clients and web servers over an insecure network.
1128	SSN	Semantic Sensor Network
		The Semantic Sensor Network (SSN) ontology is an ontology for describing sensors and their observations, the involved procedures, the studied features of interest, the samples used to do so, and the observed properties, as well as actuators.
1129	SSO	Single Sign-On
		SSO is an authentication scheme that allows a user to log in with a single ID and password to any of several related, yet independent, software systems. True single sign on allows the user to login once and access services without re-entering authentication factors.
1130	STEP	STandard for Exchange of Product Model Data
		The Standard for the Exchange of Product Model Data - is the outcome of a large international effort to develop product and process model data standards, which will enable data exchange between diverse computer systems and industrial applications for architecture, engineering

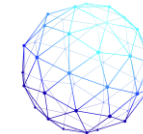|		and construction.
1131	**STL**	Standard Tessellation Language STL is a file format native to the stereolithography CAD software created by 3D Systems. STL has several backronyms such as "Standard Triangle Language" and "Standard Tessellation Language". This file format is supported by many other software packages; it is widely used for rapid prototyping, 3D printing and computer-aided manufacturing. STL files describe only the surface geometry of a three-dimensional object without any representation of colour, texture or other common CAD model attributes.
1132	**STOs**	Short-Term Objectives Short-term Objectives are the intermediate knowledge and skills that must be learned in order for the student to reach the annual goal. Short-term instructional objectives break down the skills or steps necessary to accomplish an annual goal into discrete components.
1133	**SUS**	Software Update Services SUS is a computer program and network service developed by Microsoft Corporation that enables administrators to manage the distribution of updates and hotfixes released for Microsoft products to computers in a corporate environment.
1134	**SUS**	System Usability Scale A "quick and dirty", reliable tool for measuring the usability. In systems engineering, the System Usability Scale (SUS) is a simple, ten-item attitude Likert scale giving a global view of subjective assessments of usability. It was developed by John Brooke at Digital Equipment Corporation in the UK in 1986 as a tool to be used in usability engineering of electronic office systems. SUS has generally been seen as providing this type of high-level subjective view of usability and is thus often used in carrying out comparisons of usability between systems.
1135	**SVM**	Support Vector Machine A Support Vector Machine (SVM) is a machine learning algorithm that analyses data for classification and regression analysis. SVM is a supervised learning method that looks at data and sorts it into one of two categories. An SVM outputs a map of the sorted data with the margins between the two as far apart as possible. SVMs are used in text categorization, image classification, handwriting recognition and in the sciences
1136	**SWOP**	Semantic Web-based Open engineering Platform SWOP (Semantic Web Service Oriented Platform) is an ongoing industrial research project which aims at developing a semantic-based platform of Web services for .NET developers. This framework exploits NLP algorithms and Semantic Web technologies in order to provide semantic web service annotation and discovery.

1137	**SWOT**	Strength, Weakness, Opportunity, and Threat
		SWOT analysis (or SWOT matrix) is a strategic planning technique used to help a person or organization identify strengths, weaknesses, opportunities, and threats related to business competition or project planning. Threats: elements in the environment that could cause trouble for the business or project.
1138	**SWRL**	Semantic Web Rule Language
		The Semantic Web Rule Language (SWRL) is a proposed language for the Semantic Web that can be used to express rules as well as logic, combining OWL DL or OWL Lite with a subset of the Rule Markup Language (itself a subset of Datalog). The specification was submitted in May 2004 to the W3C by the National Research Council of Canada, Network Inference (since acquired by webMethods), and Stanford University in association with the Joint US/EU ad hoc Agent Markup Language Committee.
1139	**TA**	Technical Advisor
		TA are experts in a specific field of knowledge, offering information and advice to those in the field. They develop applications, coordinate the activities of technicians, and provide technical expertise. They offer advice and suggestions to specialists. They provide expert knowledge and guidance in their particular field of expertise. This often involves reviewing reports, research materials, or other documents for technical accuracy. They may be asked to consult in general business operations that involve material of a highly technical or scientific nature.
1140	**TAI**	Teaching as Inquiring
		Teaching as inquiry (TAI) is a process that encourages teachers to change their practice in order to enhance success for students. It involves inquiry into the impact of teaching and the teaching–learning relationship. Inquiring into teaching practice enables the identification of successful approaches to improving learning outcomes for all students. It provides an opportunity to focus on identifying successful approaches for improving learning outcomes for all learners, in particular those that may be target students.
1141	**TAM**	Technology Acceptance Model
		TAM is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: • Perceived usefulness (PU) • Perceived ease-of-use (PEOU)
1142	**TAM**	Total Addressable Market
		TAM is total demand for a product or service that is calculated in annual revenue. TAM, also called total available market, is a term that is typically used to reference the revenue opportunity available for a product or service. TAM helps to prioritize business opportunities by serv-

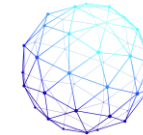|		
		ing as a quick metric of the underlying potential of a given opportunity.
1143	**TBC**	To Be Confirmed
		To be confirmed suggests that a decision has been made, but confirmation is awaited, although it is also used to indicate that the aspect to be scheduled remains open. Other similar phrases sometimes used to convey the same meaning, and with the use of the same abbreviations, include to be ascertained, to be arranged, to be advised, and to be decided. See also TBD
1144	**TBD**	To Be Determined, Decided or Defined
		Terms used when something has not yet been determined, decided or defined, or is still unknown.
1145	**TBM**	Technical Building Management
		Technical Building Management (TBM) provide effective control and monitoring functions of heating, ventilating, cooling, hot water and lighting appliances etc., improving comfort as well as energy efficiency. The focus is the evaluation of the impact of the TBM on the energy efficiency.
1146	**TBM**	Temporary Benchmark
		A temporary benchmark (TBM) is a fixed point with a known elevation used for level control during construction works and surveys. Nails in road seals, or marks on kerb & channel are commonly used as temporary benchmarks. They are created by the surveyors in the field to mark the point in the field up to which the survey is completed.
1147	**TBM**	Tunnel Boring Machine
		A Tunnel Boring Machine (TBM), also known as a "mole", is a machine used to excavate tunnels with a circular cross section through a variety of soil and rock strata. They may also be used for microtunneling. They can be designed to bore through anything from hard rock to sand. Tunnel diameters can range from one metre (done with micro-TBMs) to 17,6 metres to date.
1148	**TCP**	Transmission Control Protocol
		TCP is one of the main protocols of the Internet protocol suite. It originated in the initial network implementation in which it complemented the Internet Protocol (IP). Therefore, the entire suite is commonly referred to as TCP/IP. TCP provides reliable, ordered, and error-checked delivery of a stream of octets (bytes) between applications running on hosts communicating via an IP network. Major internet applications such as the World Wide Web, email, remote administration, and file transfer rely on TCP.
1149	**TCQ**	Temps, Cost, Qualitat – Time, Cost Quality
		TCQ is a software developed by ITEC, for construction consisting of a set of computer applications to support the activities of drafting, con-

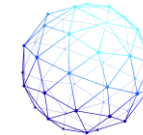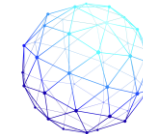|		
		tracting, planning and control of projects and works. It is a methodology for the definition and monitoring of the values of the parameters of time, cost, quality, and the formulation of safety, waste generation and energy cost of materials.
1150	**TEAC**	Thermal Energy Anomalous Consumption This is when an HVAC installation consumes thermal energy that does not correspond to the reference parameters that motivate it. Basically, when it does not correspond to the HDD or CDD (Heating or Cooling Degree-Days) of the period considered.
1151	**TED**	Tenders Electronic Daily TED is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement. TED publishes 520 thousand procurement notices a year, including 210 thousand calls for tenders which are worth approximately €420 billion
1152	**TEFMA**	Tertiary Education Facilities Management Association The Tertiary Education Facilities Management Association is an independent association of facilities managers operating in the tertiary education sector of Australia, New Zealand, Hong Kong and Singapore. TEFMA assists facilities managers in universities, colleges and other educational institutions in the Asia-Pacific region by promoting excellence in the planning, construction, maintenance, operations and administration of educational facilities.
1153	**TER**	Target Emission Rate The target CO_2 emission rate (TER) sets a minimum allowable standard for the energy performance of a building and is defined by the annual CO_2 emissions of a notional building of same type, size and shape to the proposed building. TER is expressed in annual kg of CO_2 per sq. m. The CO_2 emission rate of the proposed building is calculated based on its actual specification.
1154	**TFEE**	Target Fabric Energy Efficiency The Target Fabric Energy Efficiency rate is the minimum energy performance requirement for a new dwelling approved by the Secretary of State in accordance with regulation 25 of the building regulations. It is expresses as the amount of energy demand in units of kilowatt-hours per square metre of floor area per year (kWh/(m^2·year). The TFEE is derived from a notional dwelling of the same size and shape as the actual dwelling being constructed.
1155	**TIC**	Tecnologías de la Información y de la Comunicación (Spanish). See ITC TIC are the set of technologies developed to manage information and send it from one place to another. They cover a very wide range of solutions. They include technologies for storing information and retrieving it later, sending and receiving information from one place to another, etc. They are all the resources, tools and programmes that are used to process, manage and share information through various technological supports, such as: computers, mobile phones, televisions, portable audio and video players or game consoles.

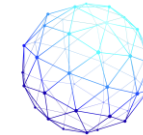| 1156	**TIDP**	Task Information Delivery Plan
1157	**TILT**	Transfer Implementation Leadership Team
1158	**TL**	Tube Lines Tube Lines Limited, initially known as 'Infraco JNP' (an amalgamation of Infrastructure + Company), is an asset-management company responsible for the maintenance, renewal and upgrade of the infrastructure, including track, trains, signals, civils work and stations, of three London Underground lines. Originally a consortium of private companies, Tube Lines was one of two infrastructure companies (the other being Metronet) who entered into a Public-Private Partnership (PPP) with London Underground in 2003.
1159	**TLS**	Terrestrial Laser Scanner Terrestrial laser scanning (TLS), also referred to as terrestrial LiDAR (light detection and ranging) or topographic LiDAR, acquires XYZ coordinates of numerous points on land by emitting laser pulses toward these points and measuring the distance from the device to the target (Vosselman and Maas, 2010. TLS is a ground-based, active imaging method that rapidly acquires accurate, dense 3D point clouds of object surfaces by laser rangefinding.
1160	**TLS**	Transport Layer Security Transport Layer Security (TLS), and its now-deprecated predecessor, Secure Sockets Layer (SSL), are cryptographic protocols designed to provide communications security over a computer network. Several versions of the protocols are widely used in applications such as web browsing, email, instant messaging, and voice over IP (VoIP). Websites can use TLS to secure all communications between their servers and web browsers. The TLS protocol aims primarily to provide privacy and data integrity between two or more communicating computer applications.
1161	**TMY**	Typical Meteorological Year Typical meteorological year (TMY) is a collation of selected weather data for a specific location, listing hourly values of solar radiation and meteorological elements for a one-year period. The values are generated from a data bank much longer than a year in duration, at least 12 years.
1162	**TNO**	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek TNO (Netherlands Organisation for Applied Scientific Research) is an independent research organisation in the Netherlands that focuses on applied science. The organisation also conducts contract research, offers specialist consulting services, and grants licences for patents and specialist software. TNO tests and certifies products and services, and issues an independent evaluation of quality. Moreover, TNO sets up new companies to market innovations. Partner of SPHERE Project.

1163	**TOC**	Table of Contents
		A table of contents, usually headed simply Contents and abbreviated informally as TOC, is a list, usually found on a page before the start of a written work, of its chapter or section titles or brief descriptions with their commencing page numbers. A table of contents usually includes the titles or descriptions of first-level headings (chapters in longer works), and often includes second-level headings (sections or A-heads) within the chapters as well, and occasionally even includes third-level headings (subsections or B-heads) within the sections as well.
1164	**TOE**	Technology-Organisation-Environment
		The Technology-Organization-Environment framework, also known as the TOE framework, is a theoretical framework that explains technology adoption in organizations and describes how the process of adopting and implementing technological innovations are influenced by the technological context, organizational context, and environmental context. Louis G. Tornatzky and Mitchell Fleischer published the model in 1990. Numerous application examples of the TOE framework have been summarized by Olivera and Martins (2011).
1165	**TOE**	Tonne of Oil Equivalent
		The TOE is a unit of energy defined as the amount of energy released by burning one tonne of crude oil. ... The toe is sometimes used for large amounts of energy. Multiples of the toe are used, in particular the megatoe (Mtoe, one million toe) and the gigatoe (Gtoe, one billion toe).
1166	**TOID**	Topographic Identifier
		A TOID is a unique and persistent identifier for each and every feature found in OS MasterMap products. TOIDs are the authoritative identifier assigned to and uniquely identifying real world objects, being essential for customers to link their own data to and track change over time. It is a unique reference identifier assigned by the Ordnance Survey to identify every feature in Great Britain. The identifier consists of two parts, a prefix 'osgb' and a unique identifier that is 13-16 digits long.
1167	**TPI**	Tender Price Index
		Tender Price Indices represent the price for which the contractor offers to carry out the project, i.e. cost to client. Building Costs Indices are the costs incurred by the contractor in the course of his business, the principal ones being those for labour and materials.
1168	**TPS**	Toyota Production System
		The TPS is an integrated socio-technical system, developed by Toyota, that comprises its management philosophy and practices. The TPS is a management system that organizes manufacturing and logistics for the automobile manufacturer, including interaction with suppliers and customers. The system is a major precursor of the more generic "lean manufacturing". Taiichi Ohno and Eiji Toyoda, Japanese industrial engineers, developed the system between 1948 and 1975.

1169	**TPS**	Transient Protection System
		(TPS) Need for Circuit Protection. Transients' voltage spikes appear on an electrical system as a result of lightning and switching transients. These transients are capable of destroying sensitive electronic equipment in commercial and industrial applications. Computers and other office equipment are susceptible to the high energy levels caused by an electrical surge, whether it is caused by electrical equipment or lightning.
1170	**TRL**	Technological Readiness Level
		Technology Readiness Levels (TRL) are a type of measurement system used to assess the maturity level of a particular technology. Each technology project is evaluated against the parameters for each technology level and is then assigned a TRL rating based on the projects progress. There are nine technology readiness levels. TRL 1 is the lowest and TRL 9 is the highest.
1171	**TS**	Thermal Sensation
		The physical environment leads to a thermal sensation that is perceived and appraised by occupants. Although predicting the thermal sensation of a population is an important step in determining what conditions are comfortable, it is more useful to consider whether or not people will be satisfied.
1172	**TSA**	Time Stamp Authority (Secure Time Stamp Authority)
		It can be used to create legal weight evidence that business transactions occurred at a defined moment in time, that e-documents existed at a particular time and that they have not been subsequently altered. It can also independently prove when a digital signature was applied by the signer so that its validity can be verified in the long-term, even after expiry or revocation of signer's digital credentials.
1173	**TSI**	Thermal Sensation Index
		Thermal Sensation Index (TSI) describes how satisfied individual person is with the surrounding indoor thermal environment: Air temperature, Air relative humidity, Thermal radiation from surrounding surfaces like cold windows and hot radiators, Clothing, Activity, Body tissue composition, which in turn varies by age, gender, body mass index. Fitness has also a big impact in the personal thermal sensation.
1174	**TTF**	Task Technology Fit
		Task-technology fit (TTF) is an established theoretical framework in information systems research that enables the investigation of issues of fit of technology to tasks as well as performance. TTF can offer guidance for the design of a technology or task.
1175	**TUI**	Tangible User Interface
		A tangible user interface (TUI) is a user interface in which a person interacts with digital information through the physical environment. The

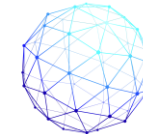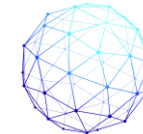|		
		initial name was Graspable User Interface, which is no longer used.
1176	**TVD**	Target Value Delivery Target Value Delivery (TVD) is "a management practice that drives the design (and construction) to deliver customer values within project constraints". A collaborative team managed design process that is used throughout all stages of design and construction to ensure that projects are delivered within the allowable budget, that projects meet the operational needs and values of the users and that projects promote innovation to increase value and eliminate waste.
1177	**TVD**	Target Value Design Target Value Design (TVD) is an approach which connects the design and target cost to the business case of the owner. The process works from the value proposition for the building to create a target value cost model, which in turn creates cost and parametric tools to inform the design and project decision process.
1178	**TVP**	Target Value Production Target Value Production: Encompasses the Target Value Delivery approaches implemented during the construction delivery phases of the project.
1179	**UC**	Use Case A Use Case is a description of haw a person who actually uses a process or system will accomplish a goal. A Use Case helps you understand where errors could occur in the process and design features to resolve those errors. The three elements that a Use case must contain, are: The Actor (the user), the System (process required to reach the final objective), and the Goal (the successful user outcome). Additional elements to be considered should be: Stakeholders, Preconditions and Triggers.
1180	**UCD**	User Centred Design UCD is a project approach that puts the intended users of a site at the centre of its design and development. It's achieved by talking directly to the user at key points in the project to make sure the site will deliver upon their requirements. UCD is an iterative design process in which designers focus on the **users** and their needs in each phase of the design process
1181	**UCL**	University College London University College London, officially known as UCL since 2005, is a public research university located in London, United Kingdom. It is a member institution of the federal University of London, and is the largest university in the United Kingdom by total enrolment apart from the Open University, and the largest by postgraduate enrolment. Established in 1826 as London University by founders inspired by the radical ideas of Jeremy Bentham, UCL was the first university institution to be established in London.

1182	**UD**	Unpredicted Desirable
		In the context of Digital Twin, Predicted Undesirable is one of the four categories in which is divided the static emergent behaviour in complex systems. The other three categories are Predicted Desirable (PD), Predicted Undesirable (PU), and Unpredicted Undesirable (UU).
1183	**UFA**	Usable Floor Area
		It is the same than GIA. See GIA (Gross Internal Area)
1184	**UI**	User Interface
		The user interface (UI) is the point of human-computer interaction and communication in a device. This can include display screens, keyboards, a mouse and the appearance of a desktop. It is also the way through which a user interacts with an application or a website
1185	**UID**	Unique Identifier
		A unique identifier (UID) is a numeric or alphanumeric string that is associated with a single entity within a given system. UIDs make it possible to address that entity, so that it can be accessed and interacted with.
1186	**UK**	United Kingdom
		The United Kingdom of Great Britain and Northern Ireland, commonly known as the United Kingdom (UK) or Britain, is a sovereign country in north-western Europe, off the north-western coast of the European mainland. The United Kingdom includes the island of Great Britain, the north-eastern part of the island of Ireland, and many smaller islands within the British Isles. Northern Ireland shares a land border with the Republic of Ireland. Otherwise, the United Kingdom is surrounded by the Atlantic Ocean, and the North Sea to the east.
1187	**Umbel**	Upper Mapping and Binding Exchange Layer
		UMBEL (Upper Mapping and Binding Exchange Layer) is a logically organized knowledge graph of 34,000 concepts and entity types that can be used in information science for relating information from disparate sources to one another. It was retired at the end of 2019. UMBEL was first released in July 2008. Version 1.00 was released in February 2011. Its current release is version 1.50.
1188	**UML**	Unified Model/ling Language
		Unified Modelling language (UML) is a standardized modelling language enabling developers to specify, visualize, construct and document artifacts of a software system. Thus, UML makes these artifacts scalable, secure and robust in execution. UML is an important aspect involved in object-oriented software development. It uses graphic notation to create visual models of software systems. The UML architecture is based on the meta object facility, which defines the foundation for creating modelling language.
1189	**UMUX**	Usability Metric for UX (User Experience)

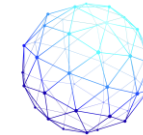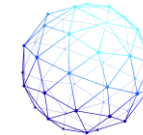|		
		UMUX is a four-item Likert scale used for the subjective assessment of an application's perceived usability. It is designed to provide results similar to those obtained with the 10-item System Usability Scale, and is organized around the ISO 9241–11 definition of usability. UMUX has been criticized regarding its reliability, validity, and sensitivity, but these criticisms are mostly based on reported findings associated with the data collected by the developer of the questionnaire.
1190	**UN**	United Nations The UN is an intergovernmental organization that aims to maintain international peace and security, develop friendly relations among nations, achieve international cooperation, and be a centre for harmonizing the actions of nations. It is the largest, most familiar, most internationally represented and most powerful intergovernmental organization in the world. The UN is headquartered on international territory in New York City, with its other main offices in Geneva, Nairobi, Vienna, and The Hague. The UN was established after World War II.
1191	**UNDP**	United Nations Development Programme The UNDP is a United Nations organization tasked with helping countries eliminate poverty and achieve sustainable economic growth and human development. Headquartered in New York City, it is the largest UN development aid agency, with offices in 170 countries. The UNDP emphasizes developing local capacity towards long-term self-sufficiency and prosperity. It administers projects to attract investment, technical training, and technological development, provides experts to help build legal and political institutions, and expand the private sector.
1192	**UNE**	Una Norma Española The normative documents UNE are a set of norms, experimental norms and reports (standards) created in the Technical Committees for Standardisation of the Spanish Association for Standardisation.
1193	**UNEP**	United Nations Environment Programme The United Nations Environment Programme (UNEP) is responsible for coordinating the UN's environmental activities and assisting developing countries in having environmentally sound policies and practices. UNEP was founded in 1972 by Canadian businessman and philanthropist Maurice Strong, its first director, following the United Nations Conference on the Human Environment (Stockholm Conference).
1194	**UNGA**	United Nations General Assembly UNGA or GA is one of the six principal organs of the United Nations (UN), serving as the main deliberative, policymaking, and representative organ of the UN. Its powers, composition, functions, and procedures are set out in Chapter IV of the United Nations Charter. The UNGA is responsible for the UN budget, appointing the non-permanent members to the Security Council, appointing the Secretary-General of the United Nations, receiving reports from other parts of the UN system, and making recommendations through resolutions.
1195	**Uniclass**	Unified Classification System

		The Unified Classification for the Construction Industry, developed in the United Kingdom It is the equivalent of the Omniclass. Published in 1997, it promotes the classification of project information in a structured way, based on the parameters of ISO 12006-2 and ISO/PAS 12006-3. The Omniclass development committee has always been in contact with the Uniclass development committee, which has allowed certain points of the Omniclass base to be adapted for Uniclass, making it possible to reference this document of US origin in the future.
1196	**UoM**	Unit of Measure UOM is the unit that any given item can be packaged into, or built into a product assembly. For example, you can package drinks in a single can, two-litter bottle, or other six-pack. In manufacturing assemblies or BOMs, each child component is stipulated with a specific UOM type (e.g., each, inch).
1197	**UPRN**	Unique Property Reference Number The Unique Property Reference Number (UPRN) is a unique alphanumeric identifier (a geocode) for every spatial address in Great Britain and can be found in Ordnance Survey's AddressBase products. was created by the Ordnance Survey (OS). It consists of numbers of up to 12 digits in length. Local governments in the UK have allocated a unique number for each land or property.
1198	**UPS**	Uninterruptible Power Supplies/Source An UPS is an electrical apparatus that provides emergency power to a load when the input power source or mains power fails. A UPS differs from an auxiliary or emergency power system or standby generator in that it will provide near-instantaneous protection from input power interruptions, by supplying energy stored in batteries, supercapacitors, or flywheels. The on-battery run-time of most uninterruptible power sources is relatively short but sufficient to start a standby power source or properly shut down the protected equipment.
1199	**URI**	Unique Resource Identifier Value uniquely identifying the resource. This element serves to uniquely identify a data resource in the specified code space. It is a mandatory element consisting of an identification code, code space and code space version that uniquely identify the spatial data resource. Unique Resource Identifier (URI) can use Uniform Resource Locator (URL) or Uniform Resource Name (URN). URN is more desirable because it does not change if data location does.
1200	**URI**	Uniform Resource Identifier A Uniform Resource Identifier (URI) is a unique sequence of characters that identifies a logical or physical resource used by web technologies. URIs may be used to identify anything, including real-world objects, such as people and places, concepts, or information resources such as web pages and books. Some URIs provide a means of locating and retrieving information resources on a network (either on the Internet or on another private network, such as a computer filesystem or an Intranet); these are Uniform Resource Locators (URLs).

1201	**URL**	Uniform Resource Locator
		Also known as an internet address or web address, a URL (Uniform Resource Locator) is a URI and standardized naming convention for addressing documents accessible over the Internet and Intranet. The URL makes it possible for a computer to locate and open a web page on a different computer on the Internet. A URL is usually located at the top of the browser window in the address bar or omnibox. On desktop computers and laptops, the URL is always visible unless your browser is being displayed in full screen.
1202	**URN**	Uniform Resource Name
		A Uniform Resource Name (URN) is an Internet resource with a static name that remains valid even if its data is moved to another location. Unlike a uniform resource locator (URL), which cannot work if the content is moved, a URN is always able to track the resource of certain data on the Web, hence resolving a frequent issue of moving of data.
1203	**US (USA)**	United States (of America)
		United States of America (US or USA) is a country located in North America. It consists of 50 states, a federal district, 326 Indian reservations, and some minor possessions. At nearly 9,8 million square kilometres, it is the world's third- or fourth-largest country. US shares significant land borders with Canada to the north and Mexico to the south. With a population of more than 331 million people, it is the third most populous country in the world. The national capital is Washington, D.C., and the most populous city and financial centre is New York City.
1204	**USACE**	United States Army Corps of Engineers
		The United States Army Corps of Engineers (USACE) is an engineer formation of the United States Army that has three primary mission areas: Engineer Regiment, military construction, and civil works. The day-to-day activities of the three mission areas are administered by a lieutenant general known as the commanding general/chief of engineers. The chief of engineers commands the Engineer Regiment, comprising combat engineer, rescue, construction, dive units, and other specialty units, and answers directly to the Chief of Staff of the Army.
1205	**USC**	University of Southern California
		The University of Southern California (USC) is a private research university in Los Angeles, California. Founded in 1880 by Robert M. Widney, it is the oldest private research university in California. The university is composed of one liberal arts school, the Dornsife College of Letters, Arts and Sciences and twenty-two undergraduate, graduate and professional schools, enrolling an average of 19.500 undergraduate and 26.500 post-graduate students from all fifty U.S. states and more than 115 countries.
1206	**USGBC**	United States Green Building Council
		The U.S. Green Building Council (USGBC), founded in 1993, is a private, membership-based non-profit organization that promotes sustainability in building design, construction, and operation. USGBC is best known for its development of the Leadership in Energy and Environmental

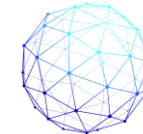|		
		Design (LEED) green building rating systems and its annual Greenbuild International Conference and Expo, the world's largest conference and expo dedicated to green building. USGBC was one of eight national councils that helped found the World Green Building Council (WorldGBC).
1207	**UTC**	Coordinated Universal Time
		Coordinated Universal Time (or UTC) is the primary time standard by which the world regulates clocks and time. It is within about 1 second of mean solar time at 0° longitude, and is not adjusted for daylight saving time. It is effectively a successor to Greenwich Mean Time (GMT). The coordination of time and frequency transmissions around the world began on 1 January 1960. UTC was first officially adopted as CCIR Recommendation 374, Standard-Frequency and Time-Signal Emissions, in 1963, but the official abbreviation of UTC and the official English name of Coordinated Universal Time (along with the French equivalent) were not adopted until 1967.
1208	**UX**	User Experience
		User experience (UX) design is the process design teams use to create products that provide meaningful and relevant experiences to users. This involves the design of the entire process of acquiring and integrating the product, including aspects of branding, design, usability and function.
1209	**UXB**	Unexploded Bomb
		Un Unexploded Bomb is a bomb that remained intact after being dropped, bomb that did not detonate as planned. It refers to explosive weapons, specifically explosives, that were not detonated during the conflict in which they were used and remain on the ground for years and decades, thus posing a latent danger to the civilian population.
1210	**UU**	Unpredicted Undesirable
		In the context of Digital Twin, Predicted Undesirable is one of the four categories in which is divided the static emergent behaviour in complex systems. The other three categories are Predicted Desirable (PD), Predicted Undesirable (OU), and Unpredicted Desirable (UD).
1211	**UUID**	Universally Unique Identifier
		A UUID is a 128-bit number used to identify information in computer systems. When generated according to the standard methods, UUIDs are for practical purposes unique. Their uniqueness does not depend on a central registration authority or coordination between the parties generating them, unlike most other numbering schemes. While the probability that a UUID will be duplicated is not zero, it is close enough to zero to be negligible
1212	**V2B**	Vehicle to Building
		V2B describes a system in which electric vehicles can communicate with a building to sell demand response services by either delivering electricity into the building or by throttling their charging rate. Vehicle-to-Building charging is a fruit, of large battery capacities developed for the

		electrical vehicles (EVs). Instead of buying and adding new batteries for storage, the already existing batteries in the owner's electric vehicle can be utilized as storage. This way, a large additional investment will be avoided and existing investment better utilized.
1213	**V2G**	Vehicle to Grid Similarly to the V2B, V2G is a technology that enables energy to be pushed back to the power grid from the battery of an electric car. With electric vehicle-to-grid technology—also known as car-to-grid—a car battery can be charged and discharged based on different signals — such as energy production or consumption nearby. The vehicle-to-grid (V2G) concept aims to optimise the way we transport, use and produce electricity by turning electric cars into 'virtual power plants'.
1214	**VB (VBM)**	Virtual Building (Model) A Virtual Building is a BIM deployed in software. It simulates the behaviour or performance of a building or building component(s) entirely within a computer system, without any physical construction of the building or any of its components. A virtual building constitutes the use of data that are contained in a BIM to reproduce the behaviour or performance of a building or building component(s) with accuracy appropriate to the reason for reproduction.
1215	**vBDTA**	Vertical Building Digital Twin Aggregate vBDTA will put the focus on the AECOO stakeholders needs of relevant information and optimized queries.
1216	**VC**	Video Conference VC (Video Conference) is a powerful communications tool in the modern business world. The ability to share important business discussions with body language and facial expressions delivers enormous benefits compared to any other conferencing medium. In many ways, video conferencing has truly become "the next-best thing to being there."
1217	**VC**	Virtual Call A virtual phone call is any call made using a virtual phone number (sometimes called direct inward dialling or DID for short). Virtual telephone lines combine voice over internet protocol (VoIP) technology and cloud PBX (private branch exchange) to provide flexible business calling solutions for you and your business.
1218	**VC**	Virtual Construction See VDC: Virtual Design and Construction
1219	**VCMP**	Virtual Construction Management Platform VCMP is the software result, presented as an online platform, which integrates the whole automated quality assurance and compliance

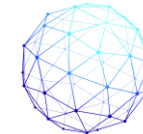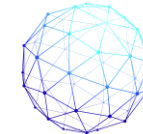|		
		checks method and procedures. Beyond this general scope of applications, it has been developed in order to be interoperable with most of the specific technological developments of the project. Built2Spec expands upon a cloud-based construction support platform (VCMP), conceived following the most advanced Integrated Design and Delivery framework (IDDS) relating to the building sector.
1220	**VDC**	<u>Virtual Design and Construction</u> Virtual design and construction (VDC), is the management of integrated multi-disciplinary performance models of design-construction projects, including the product (i.e., facilities), work processes and organization of the design - construction - operation team in order to support explicit and public business objectives. VDC is an approach in which not only the Product (such as buildings, roads or bridges), but also the Process (management of the design) and the Organisation (parties involved) are modelled in order to come to an optimal design.
1221	**VDR**	<u>Virtual Data Room</u> Virtual data rooms (VDRs), also known as a deal room or electronic data room, have emerged as a common solution for storing and sharing sensitive corporate information. Virtual data rooms are secure online repositories that give users the ability to precisely control who can access certain information in the repository, which makes VDRs especially valuable for facilitating important financial transactions. It is typically utilized during the due diligence process preceding a merger or acquisition to review, share, and disclose company documentation.
1222	**VE**	<u>Virtual Environmental</u> The VE software is widely acknowledged as the leading building analytics platform for top architects, engineers and contractors. The VE translates complex buildings physics and detailed dynamic thermal calculations. All ICL tools utilise this proven simulation engine
1223	**V-ECU**	<u>Virtual Electronic Control Units</u> A V-ECU is any software functionality that can be executed without hardware. Of course, this is not quite true, as everyone involved in model-in-the-loop (MIL) testing knows. There is one key quality of V-ECUs that distinguishes them from regular MIL testing: They contain the unmodified production code, pretty much as the final ECU does. There are several ways to make your production code run in a SIL simulation environment.
1224	**VEL**	<u>Virtual Energy Lab</u> Virtual Energy Lab is a prototype tool for performing thermal energy analyses based on a building information model in IFC 2x3. It is a teaching tool for thermal system design and has been developed for use in standard personal computers. This tool is designed to facilitate the integration of energy conversion and transfer devices into systems that meet specified heating, cooling and power loads. The VEL has a modular configuration, allowing the designer to choose from a number of components to meet given design objectives.
1225	**VEM**	<u>Virtual Energy Manager</u>

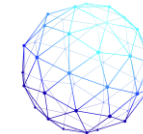|		
		The Virtual Energy Manager (VEM) App enables businesses to instantly and easily see, understand and manage when, where and how their businesses use energy. Real-time energy data from smart meters provides instant and historical information on energy use across a business' individual locations or entire estate. The App provides insights and notifications to alert business owners to anomalies and unusual trends in energy usage in real time.
1226	**VERDE**	Valoración de Eficiencia de Referencia de Edificios VERDE is an assessment methodology for environmental certification. VERDE is based on the calculation of impact reduction from the evaluation of criteria in the Life Cycle Assessment (LCA), comparing the study building with a reference building. VERDE has been developed by GBC Spain which is an autonomous organisation affiliated to the non-profit international association World Green Building Council (WGBC), of which it constitutes the "Green Building Council Spain", GBCe.
1227	**VFM**	Value for Money Value for Money is a measure of quality that assesses the monetary cost of the product or service against the quality and/or benefits of that product or service, taking into account subjective factors such as fitness for purpose, along with whole-of-life costs such as installation, training, maintenance and disposal, and wastage.
1228	**VOC**	Volatile Organic Compounds VOCs are organic chemicals that have a high vapor pressure at ordinary room temperature. Their high vapor pressure results from a low boiling point, which causes large numbers of molecules to evaporate or sublimate from the liquid or solid form of the compound and enter the surrounding air, a trait known as volatility.
1229	**VoIP**	Voice over Internet Protocol VoIP, also called IP telephony, is a method and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet. The terms Internet telephony, broadband telephony, and broadband phone service specifically refer to the provisioning of communications services (voice, fax, SMS, voice-messaging) over the public.
1230	**VPN**	Virtual Private Network A virtual private network (VPN) extends a private network across a public network and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. The benefits of a VPN include increases in functionality, security, and management of the private network. It provides access to resources that are inaccessible on the public network and is typically used for telecommuting workers. Encryption is common, although not an inherent part of a VPN connection.
1231	**VPP**	Virtual Power Plant

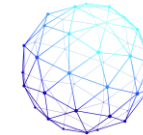|		
		A VPP is a cloud-based distributed power plant that aggregates the capacities of heterogeneous distributed energy resources (DER) for the purposes of enhancing power generation, as well as trading or selling power on the electricity market. Examples of virtual power plants exist in the United States, Europe, and Australia. Virtual power plants can also be used to provide ancillary services to grid operators in order to help maintain grid stability. Ancillary services include frequency regulation, load following, and providing operating reserve.
1232	**VR**	Virtual Reality Virtual Reality (VR) is a simulated experience that can be similar to or completely different from the real world. Applications of virtual reality include entertainment (particularly video games), education (such as medical or military training) and business (such as virtual meetings). Other distinct types of VR-style technology include augmented reality and mixed reality, sometimes referred to as Extended Reality or XR.
1233	**VRML**	Virtual Reality Modelling Language VRML (Virtual Reality Modelling Language), originally—before 1995—known as the Virtual Reality Markup Language, is a standard file format for representing 3-dimensional (3D) interactive vector graphics, designed particularly with the World Wide Web in mind. VRML is a text file format where, e.g., vertices and edges for a 3D polygon can be specified along with the surface colour, UV-mapped textures, shininess, transparency, and so on. VRML files are commonly called "worlds" and have the .wrl extension.
1234	**VSM**	Value Stream Mapping Value-stream Mapping, also known as "material- and information-flow mapping", is a lean-management method for analysing the current state and designing a future state for the series of events that take a product or service from the beginning of the specific process until it reaches the customer. A value stream map is a visual tool that displays all critical steps in a specific process and easily quantifies the time and volume taken at each stage. Value stream maps show the flow of both materials and information as they progress through the process.
1235	**VT**	Virtual Twin Digital twin was first introduced as an unnamed concept for Product Lifecycle Management (PLM) back in 2002, and was subsequently called Mirrored Spaces Model, Information Mirroring Model and even Virtual Twin until its final denomination as Digital Twin in 2011.
1236	**VTT**	VTT Technical Research Centre of Finland Ltd VTT is a state owned and controlled non-profit limited liability company. VTT provides research and innovation services and information for domestic and international customers and partners, both in private and public sectors. VTT is part of Finland's innovation system and operates under the mandate of the Ministry of Economic Affairs and Employment. VTT Group has three subsidiary companies: VTT Ventures Ltd, VTT International Ltd and VTT Memsfab Ltd. Partner of SPHERE Project.
1237	**W3C**	World Wide Web Consortium

		The World Wide Web Consortium (W3C) is an international organization committed to improving the web. It is made up of several hundred member organizations from a variety of related IT industries. W3C sets standards for the World Wide Web (WWW) to facilitate interoperability and cooperation among all web stakeholders. It was established in 1994 by the creator of the WWW, Tim Berners-Lee.
1138	**WAF**	Web Application Firewall A web application firewall (WAF) is a specific form of application firewall that filters, monitors, and blocks HTTP traffic to and from a web service. By inspecting HTTP traffic, it can prevent attacks exploiting a web application's known vulnerabilities, such as SQL injection, cross-site scripting (XSS), file inclusion, and improper system configuration.
1239	**WAN**	Wide Area Network A Wide Area Network (WAN) is a telecommunications network that extends over a large geographic area. Wide area networks are often established with leased telecommunication circuits. Businesses, as well as schools and government entities, use wide area networks to relay data to staff, students, clients, buyers and suppliers from various locations around the world. In essence, this mode of telecommunication allows a business to effectively carry out its daily function regardless of location. The Internet may be considered a WAN.
1240	**WB**	Wet Bulb See WBT – Wet Bulb Temperature
1241	**WBDG**	Whole Building Design Guide The WBDG is guidance in the US, described by the Federal Energy Management Program as "a complete internet resource to a wide range of building-related design guidance, criteria and technology", and meets the requirements in guidance documents for Executive Order 13123. The WBDG is based on the premise that to create a successful high-performance building, one must apply an integrated design and team approach in all phases of a project, including planning, design, construction, operations and maintenance. The WBDG is managed by the NIBS.
1242	**WBI**	Well Building Institute See International Well Building Institute (IWBI)
1243	**WBS**	Work Breakdown Structure A Work Breakdown Structure, in project management and systems engineering, is a deliverable oriented decomposition of a project into smaller components. It defines and groups a project's discrete work elements in a way that helps organize and define the total work scope of the project. A work breakdown structure element may be a product, data, service, or any combination. A WBS also provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control.

1244	**WBT**	Wet Bulb Temperature
		The Wet-Bulb Temperature (WBT) is the temperature read by a thermometer covered in water-soaked cloth (wet-bulb thermometer) over which air is passed. At 100% relative humidity, the WBT is equal to the Dry Bulb Temperature of the air (DBT). At lower humidity the WBT is lower than DBT, because of evaporative cooling. The wet-bulb temperature is defined as the temperature of a parcel of air cooled to saturation (100% relative humidity) by the evaporation of water into it, with the latent heat supplied by the parcel.
1245	**WGBC**	World Green Building Council
		The World Green Building Council (WorldGBC) is a non-profit organisation and global network of national Green Building Councils (GBCs). It has member councils in over 70 countries worldwide, which collectively have 49.000 members (25.000 member companies and 24.000 individual members). The organisation is committed to achieving the following goals by 2050: limiting global temperature rises to 2 degrees Celsius; reducing the building and construction sector's CO_2 emissions by 84 gigatonnes; and ensuring all buildings have net zero emissions.
1246	**WGR**	Waste Generation Rate
		Waste Generation Rates estimate the amount of waste created by residences or businesses over a certain amount of time (day, year, etc.). Waste generation includes all materials discarded, whether or not they are later recycled or disposed in a landfill. Waste generation rates for residential and commercial activities can be used to estimate the impact of new developments on the local waste stream.
1247	**WIP**	Work-in-Process
		Work in Process are a company's partially finished goods waiting for completion and eventual sale or the value of these items. These items are either just being fabricated or waiting for further processing in a queue or a buffer storage. The term is used in production and supply chain management. Work-in-process in construction accounting identifies the value of construction projects that are currently being worked on by the construction firm.
1248	**WLC**	Whole Life Costing
		Whole-life Cost is the total cost of ownership over the life of an asset. The concept is also known as Life-cycle Cost (LCC) or lifetime cost. Costs considered include the financial cost which is relatively simple to calculate and also the environmental and social costs which are more difficult to quantify. Typical areas of expenditure which are included in calculating the whole-life cost include planning, design, construction and acquisition, operations, maintenance, renewal and rehabilitation, depreciation and cost of finance and replacement or disposal.
1249	**WMO**	World Meteorological Organization
		WMO is a specialized agency of the United Nations responsible for promoting international cooperation on atmospheric science, climatology, hydrology and geophysics. The WMO originated from the International Meteorological Organization (IMO), a nongovernmental organization

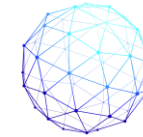|		founded in 1873 as a forum for exchanging weather data and research. Proposals to reform the status and structure of the IMO culminated in the World Meteorological Convention of 1947, which formally established the World Meteorological Organization.
1250	**WO**	Work Order A work order is usually a task or a job for a customer: That can be scheduled or assigned to someone. Such an order may be from a customer request or created internally within the organization. Work orders may also be created as follow ups to Inspections or Audits. A work order may be for products or services, and may include one or more of the following: Instructions, Cost estimates, Forms, Date and time to execute the work order, Information about the location and entities to execute the work order and the person to whom the work order is assigned
1251	**WP**	Work Package A Work Package is a building block of the work breakdown structure that allows the project management to define the steps necessary for completion of the work. As such, a work package can be thought of as a sub-project, which, when combined with other work package units, form the completed project. Breaking down the work into work packages allows multiple teams to work simultaneously or sequentially on different components of the project.
1252	**WR**	Work Results Table (CPIC Uniclass 2) Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
1253	**WRAP**	Waste & Resources Action Programme WRAP (Waste & Resources Action Programme) is a British registered charity. It works with businesses, individuals and communities to achieve a circular economy, by helping them reduce waste, develop sustainable products and use resources in an efficient way. WRAP was established in 2000 as a company limited by guarantee and receives funding from the Department for Environment, Food and Rural Affairs, the Northern Ireland Executive, Zero Waste Scotland, the Welsh Government and the European Union.
1254	**WRL**	Vrml World WRL files are an extension of the Virtual Reality Modeling Language (VRML) format . VRML file types enable browser plugins to display virtual reality environments. The term VRML is often referred to as "worlds" or vrml world file - which is also what WRL actually stands for. WRL files help browsers render 3d polygons with details such as vertices, edges, surface colors, mapped textures, light, and reflection mapping.
1255	**WS**	Work Results for Specifications (CPIC Uniclass 2) Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout

		the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.
1256	**WTO**	World Trade Organization Created in 1995, the World Trade Organization (WTO) is an international institution that oversees the global trade rules among nations. The WTO is based on agreements signed by the majority of the world's trading nations. The main function of the organization is to help producers of goods and services, as well as exporters and importers, protect and manage their businesses. As of 2021, the WTO has 164 member countries. The WTO is essentially an alternative dispute or mediation entity that upholds the international rules of trade among nations.
1257	**WWP**	Weekly Work Plan Weekly plans are the act of organizing your activities and tasks for the week. Ideally, you would do this on a Monday or a Sunday, with the help of tools such as a pen and paper, or an app that lives on your phone. It can be as simple as writing a to-do list or as detailed as prioritizing tasks according to importance and urgency. Either way, planning your week will make you a more productive and effective person. Weekly planning is simply organizing events in your calendar ahead of time.
1258	**WWW**	World Wide Web The WWW, commonly known as the Web, is an information system where documents and other web resources are identified by Uniform Resource Locators (URLs), which may be interlinked by hyperlinks, and are accessible over the Internet. The resources of the Web are transferred via the Hypertext Transfer Protocol (HTTP), may be accessed by users by a software application called a web browser, and are published by a software application called a web server. The WWW is built on top of the Internet, which pre-dated the Web by over two decades.
1259	**XML**	eXtensible Markup Language XML is a markup language and file format for storing, transmitting, and reconstructing arbitrary data. It defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. The World Wide Web Consortium's XML 1.0 Specification of 1998 and several other related specifications—all of them free open standards—define XML. The design goals of XML emphasize simplicity, generality, and usability across the Internet. It is a textual data format with strong support via Unicode for different human languages.
1260	**XR**	Extended Reality XR is a term referring to all real-and-virtual combined environments and human-machine interactions generated by computer technology and wearables, where the 'X' represents a variable for any current or future spatial computing technologies. E.g. It includes representative forms such as augmented reality (AR), mixed reality (MR) and virtual reality (VR) and the areas interpolated among them. The levels of virtuality range from partially sensory inputs to immersive virtuality, also called VR.

1261	**X-REF**	Cross Reference Xref is a cross reference tool that can be used for finding dependencies between functions, modules, applications and releases. It does so by analysing the defined functions and the function calls. In order to make Xref easy to use, there are predefined analyses that perform some common tasks. Typically, a module or a release can be checked for calls to undefined functions. For the somewhat more advanced user there is a small, but rather flexible, language that can be used for selecting parts of the analysed system and other functions.
1262	**XSD**	XML Schema Definition XSD (XML Schema Definition), a recommendation of the World Wide Web Consortium (W3C), specifies how to formally describe the elements in an Extensible Markup Language (XML) document. It can be used by programmers to verify each piece of item content in a document, to assure it adheres to the description of the element it is placed in.
1263	**XSLT**	eXtensible Stylesheet Language Transformations Extensible Stylesheet Language Transformations (XSLT) is an XML-based language used, in conjunction with specialized processing software, for the transformation of XML documents. XSLT is most often used to convert data between different XML schemas or to convert XML data into web pages or PDF documents.
1264	**XSP**	Cross Section Positions Position coordinate systems for the cross sections that form the sectioned spine. The profiles defining the cross sections are positioned within the xy plane of the corresponding position coordinate system. In the IFC scope, the local origin of each cross-section position shall lie at the beginning or end of a composite curve segment.
1265	**XSS**	Cross-Site Scripting XSS is a type of security vulnerability typically found in web applications. XSS attacks enable attackers to inject client-side scripts into web pages viewed by other users. A cross-site scripting vulnerability may be used by attackers to bypass access controls such as the same-origin policy. Cross-site scripting carried out on websites accounted for roughly 84% of all security vulnerabilities documented by Symantec up until 2007.
1266	**XWiki**	XWiki Xwiki is a free wiki software platform written in Java with a design emphasis on extensibility. XWiki is an enterprise wiki. As an application wiki, XWiki allows for the storing of structured data and the execution of server-side script within the wiki interface. Scripting languages including Velocity, Apache Groovy, Python, Ruby and PHP can be written directly into wiki pages using wiki macros.

1267	**Zz**	CAD Table (CPIC Uniclass 2)
		Uniclass 2 was developed to produce a classification system for structuring information that is freely available for all participants throughout the life cycle of a project and beyond, which is endorsed by all construction and property bodies and professional institutions. It is dynamic, available online in various formats and managed by a team of experts who will monitor requests, update and control versioning.