

## ***Advances in Project Management Series***<sup>1</sup>

# **The power and peril of common standards: Knowledge and standards in project-work**<sup>2</sup>

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Standards have played a key part in enabling progress via two main avenues: contributions to knowledge, through the sharing of documentation and insights; and, contributions to practice, through the development of new approaches, structures and ways of working. However, standards can also introduce limitations and constraints on creativity, potential solutions and ways of thinking. This article explores the role and impact of standards generally, and in relation to project thinking and practice, offering a potential new lens for project discourse.

### **Nuts and bolts precision**

We all strive for perfection, often seeking to employ high standards of performance and behaviour. The term *standard* came into use in English, following the Battle of the Standard in 1138, and is largely associated with taking or building a stand, or a position (Busch, 2011: 18). Since then it has reflected a range of concept, with dictionary definitions encompassing concepts such as level of quality, rule, measure, model or norm. Standards can be viewed as repeatable, harmonised, agreed and documented ways of doing something (IRENA, 2021), implying that they act as a record of the consensus reached and a repository of the best knowledge accumulated around making a product, managing a process, delivering a service or supplying materials (ISO, 2021). The British Standards Institute (BSI, 2021) posits that standards represent the '*distilled wisdom of people with expertise in their subject matter*, duly concluding that 'standards are knowledge'.

The International Organization for Standardization (ISO, 2021) defines standards as '*documents that have been developed through a consensus of experts from many countries and are published by globally recognised bodies.*' ISO therefore suggest thinking

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<sup>1</sup>The PMWJ *Advances in Project Management series* includes articles by authors of program and project management books published by Routledge publishers worldwide. Each month an introduction to the current article is provided by series editor **Prof Darren Dalcher**, who is also the editor of the Routledge *Advances in Project Management series* of books on new and emerging concepts in PM. Prof Dalcher's article is an introduction to the invited paper this month in the PMWJ. See Darren's background and qualifications at the end of this article.

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about standards as ‘*a formula that describes the best way of doing something*’ (ibid.). Standards typically comprise rules, guidelines, processes or characteristics that are meant to allow users to achieve the same outcome repeatedly. Lampland and Star (2008) intimate that their fundamental purpose is to streamline procedures, regulate behaviours and predict results. Standards became particularly important with the arrival of the industrial revolution and the overriding need for high precision machine tools with clearly defined specifications and precisely crafted interchangeable parts, reflecting a growing preoccupation and interest in measurement and perfection (Deane, 1979; Dalcher, 2017; Winchester, 2018).

British inventor and machine tool designer and innovator, Henry Maudslay, considered the founding father of machine tool technology, developed the very first industrially recognised standard, for practical screw-cutting lathe in 1800 (Benson, 1901; Cantrell & Cookson, 2002; Evans, 1994; Gilbert, 1971; Waller, 2016; Winchester, 2018). Maudslay’s work, often associated with precision engineering and perfection (Waller, 2016; Winchester, 2018) and high standards of craftsmanship (Dalcher, 2015), was thus ideally placed for setting and establishing new standards. Maudslay’s contribution allowed the standardisation of screw thread sizes for the first time, thereby enabling the concept of interchangeable parts to be widely applied to nuts and bolts (Skrabeck, 2015). The standard removed the need for manual chipping and filing, encouraging greater precision, uniformity and reduced costs, whilst speeding up production.

Joseph Whitworth, an established inventor and philanthropist, subsequently devised the British Standard Whitworth (BSW) System, an imperial-unit-based standard which was later released as a British Standard. The BSW System became the first national screw thread standard and was widely adopted internationally, enabling international collaboration, global trading, purchasing and procurement through the sharing of knowledge and expertise. Maudslay’s pioneering standard, which facilitated mass production on a global scale, has since been followed by a plethora of standards, and a host of national, sectoral and international bodies, associations, organisations and initiatives seeking to collate, formulate, formalise, document, own, disseminate and share codified knowledge and skills related to their areas of interest and advocacy.

### **Show us your knowledge**

The nature of knowledge and its forms of dissemination have provided a continuous preoccupation for philosophers and scientists alike. Knowledge plays a central part in underpinning, facilitating and enabling human development, however, it takes time for society to develop and evolve in ways that can meaningfully leverage that knowledge (Backer, 1991; Wiig, 2006; Dalcher, 2022). Lewis Dartnell (2014) poses an intriguing question: Supposing that the world as we know it had just ended due to some form of avian flu, nuclear war or asteroid strike, resulting in a handful of survivors globally, how would you reboot world knowledge?

Science fiction stories and films often portray the survivors addressing their immediate existential survival and shelter needs, before gathering critical provisions. The next step would entail beginning to ponder and plan for a new infrastructure and essential activities such as building tools, growing food, generating power, preparing medications and extracting metals and minerals. This extended process mirrors the main phases of disaster recovery as developing the essential activities is critical to sustained performance.

The essential survival tasks seem relatively straightforward in terms of initial priorities and needs. Yet, more fundamental knowledge is needed to sustain human progress beyond the immediate aftermath of the disaster. The question that preoccupies Dartnell revolves around how to orchestrate the rebuilding and re-establishment of a technologically advanced civilisation, where no surviving artefacts related to previous achievements are available. For instance, would we be able to build a combustion engine, a clock or a microscope? At a more fundamental level, could we for example manage to cultivate crops, make clothes and transport ourselves and our goods and products?

Knowledge has become more specialised and perhaps more remote over many generations. Whilst the availability of online resources and communication technologies have enabled access to many facts and insights, as well as some alternative views and perspectives, their availability abrogates us from the need to know, understand or engage with them. If the plug to knowledge was pulled, rediscovering the basic knowledge, and re-acquiring the core skills and capabilities may prove to be both demanding and time consuming. Dartnell may be pining for a universal encyclopaedic compendium detailing the sum of all human knowledge (and skills) to inform his quest for survival, but his desire will probably chime with many who may find themselves operating in largely hostile terrains, with little knowledge of the potential methods, machines and approaches that might be deployed in such contexts, and little understanding of the rules and principles that may govern their use. Indeed, our post-apocalyptic survivors would no doubt delight in an all comprehensive body of knowledge that gave them just the right information needed to support their future survival.

BBC Radio 4, broadcasts a popular programme, *Desert Island Discs*, where world leaders, and other noted personalities are asked to name eight tracks of music, a book and one luxury that they would like to have with them if they ever found themselves marooned on a desert island. The programme interviews the person about their lives and plays the eight tracks of music, but I am often fascinated by the choice of book that is selected. Given this scenario, if you found yourself stuck on a metaphorical island away from the rest of civilisation, what book or body of knowledge would you be praying for? To date, it seems that none of the celebrities on the original show has opted for one of our bodies of knowledge. Nonetheless, if you were being interviewed, and if there were competing candidate standards, all vying for primacy, how would you choose between them to select the one you would turn to when your life really depended on it?

## **In standards we trust?**

Standards provide an attractive way of obtaining packaged insights accompanied by guidance regarding their implementation, adoption and use. Standards proffer multiple benefits, potentially including:

- a common language and vocabulary
- a safe starting point
- a toolset or collection of techniques
- a trusted summary or distillation of knowledge
- a way of facilitating integration, interoperability or compatibility
- a method for investing in good practice
- an approach for determining compliance
- a basis for certification of professionals or accreditation of organisations
- an endorsed position advocated by a learned society, national body or trade association
- a proven means of demonstrating distinguished qualities or capabilities
- a reason and rationale for trusting things not produced by us

Merits notwithstanding, it may also be useful to note that most standards are derived from some form of practice, but often with very limited independent validation. Moreover, standards, like other forms of knowledge, decay over time, but may resist proposals for fundamental or structural change. Once organisations have invested in embedding an approach and accrediting their achievements, and once individuals attain professional certification, it becomes difficult to make any fundamental or structural changes. Knowledge resources can thus defy attempts to validate, and disregard challenges to their currency, integrity or relevance. The larger and more significant the accumulated investment, the greater the resistance.

Yet, it is often said that the best thing about standards is that there are so many to choose from.

A plethora of viable alternatives should imply additional options and opportunities for tailoring to specific circumstances and contexts; however, choice overload has long been recognised as a cognitive impairment that complicates the decision-making process (see for example, Toffler, 1970; Schwartz et al., 2002; Schwartz, 2004; Gourville & Soman, 2005; Scheibehenne et al., 2010; Chernev et al. 2015). Overchoice, or choice overload, leads to a sense of being overwhelmed by the range of options, resulting in feelings of dissatisfaction, regret and cognitive dissonance. At the most basic level it can lead to bafflement with the diversity on offer and an inability to distinguish between the alternatives.

Comparison between competing standards can be further complicated by competing terms, alternative representations, mismatches, contradictory claims and inconsistent or incongruous definitions. The proliferation of contending standards, often positioned as

alternative representations, conceptualisations or thought systems can therefore also be characterised as competing knowledge claims. Dalcher (2016) contends that definitions and assumptions play a key part in delimiting both knowledge and practice. Words and constructions can be used to shape what is seen and understood, consequently defining what is acceptable, and even possible.

### What's in a word?

*'When I use a word," Humpty Dumpty said, in rather a scornful tone, "it means just what I choose it to mean—neither more nor less.'*

— Lewis Carroll, *Through the Looking Glass* (1871)

The Humpty Dumpty theory of semantics seems to hold sway in most societies and many organisations and cultures. Words, symbols and concepts are endowed with additional meaning or associations, often derived from highly contextual, regional or vernacular sources, which can make a word mean precisely what the user wants it to mean. Definitions reside in the mindsets and cultures that feature a particular perspective and point of view. In many situations, at least as many alternative definitions might be competing for attention, as there are users and perceivers of a given word.

Words do matter. Archbishop, Desmond Tutu observed that '*words, language and rhetoric do things*'. Indeed, words can be powerful, and seem capable of prompting action, engendering strong feelings, sparking controversies and even initiating revolutions and wars. The power of words to destroy or create and make a major difference has generated many philosophical discussions and thus merits careful consideration and scrutiny (see for example, Cassin, 2014; Lockwood et al., 2019). Words are often employed for sophisticated political framing, agenda setting, polarisation and impact (Scheufele, 2000; Brewer, 2002; Monroe et al, 2008; Schaffner & Sellers, 2009), justifying Friedrich Nietzsche's contention that '*all I need is a sheet of paper and something to write with, and then I can turn the world upside down.*'

But words are not always used for political purposes. When you hear the word *project*, what are you thinking about? Cognitive psychologist Steve Pinker (2007) explains that semantics is about the relation of words to thoughts. Yet, he also concedes that semantics also entails the relation of words to other human concerns; to reality; to a community; to emotions; and, to social relations. Semantics thus defines how thoughts are anchored to things and situations in the world, what shared understanding may be possible, how a word comes to evoke (and even define) an idea, how these ideas are transferred, and ultimately hint at what is allowed and what is considered possible. Above all, semantics can open a window into Humpty Dumpty's wider world and its impact on ours...

It is clear that terms such as love, beauty, loyalty, morality, friendship and commitment would be difficult to define and measure, as they are constantly informed by a diversity of personal, conceptual, contextual, human, communal, emotional, social, ethical and political parameters, considerations and aspects. But what about more concrete terms

that we regularly invoke, such as a project? Or perhaps, the ever more nebulous concepts of programme and portfolio? After all, one person's programme can be easily interpreted as the next person's portfolio, megaproject, gigaproject, major project, complex project, change initiative, or simply, project. Moreover, the addition of the word *management* to any of the above terms can initiate an even more wide ranging, extended and divisive debate about the fundamental differences and similarities between the concepts and the different expectations needed to manage them.

The guest article this month attempts to take issue with the loose definitions that are bandied about, seeking instead to instil some form of order and discipline in our rather fuzzy definitions. Robert Buttrick draws on his recent books, *the Project Workout*, 5<sup>th</sup> edition (Buttrick, 2019), and *the Programme and Portfolio Workout* (Buttrick, 2020), published by Routledge, as well as his recent work on a number of standards initiatives. His mission is to examine the three terms, portfolios, programmes, and projects and investigate the differences and similarities between them. Buttrick sets off by exploring the need to manage horizontally and the overarching emphasis on the delivery of value and benefit to the organisation.

Buttrick endeavours to come up with more flexible or supple definitions, acknowledging that the use of the terms varies between and even inside organisations, as well as across sectors and different geographical locations. Yet, the role played by the rival standards and the competing awarding bodies in creating distinctions and simplifications is never far from the surface, with different formulations emphasising alternative aspects and distinctive features. The contemporary take on project thinking pays greater attention to business, benefits and value, thereby emphasising the outcomes of projects and initiatives, and the corresponding need to focus on purpose and its fulfilment. Indeed, Buttrick underscores the recognition that outputs, while necessary for delivery, do not, on their own, add any tangible value to the organisation.

Context extends beyond definitions. The key therefore is not to develop a field guide for determining and labelling an existing structure according to the terms, but to gain a deeper understanding of the possibilities that exist (i.e. management through portfolio, programme or project). Portfolios, programmes and projects were all conceived as management structures, with each providing an alternative approach to dealing with different management concerns, priorities, expectations and timeframes. Indeed, the 7<sup>th</sup> edition of the APM Body of Knowledge (APM, 2019) assumes that in most situations there is an informed choice to be made about how best to structure proposed work in order to successfully achieve unique and specific objectives for change. The early part of the APM Bok explores the structural choices made by senior management: Executives can shape change initiatives and structure investments according to the scale, significance, complexity and the objectives for the proposed undertaking through the judicious use of projects, programmes and portfolios (p. 12). Mindful acknowledgment of the distinctions could lead to informed decisions about the relative merits of managing work according to the context and circumstances encountered.

## Standards shape what we see and do

A multiplicity of competing standards can lead towards a growing gap resulting in a standardised differentiation. Standards endow their users with corresponding powers to only perceive and share a particular meaning, position or definition and uphold it above all alternative representations. The pursuit of distinction and the search for unique positioning enacted by each standardisation body can thus become the basis for a growing gulf between communities that have adopted competing formats or notions, leading to different mindsets, assumptions, and outcomes. Over time practice can evolve and diverge across such differentiated communities, especially as the standards help to determine how we organise and structure our world, our work and our projects.

*'What I would like to show is ... how a particular regime of truth, and therefore not an error, makes something that does not exist something. It is not illusion since it is precisely a set of practices, real practices, which established it and this imperiously marked it out in reality.'*

- Michel Foucault (Senellart, 2008: 19)

Standards specify almost every aspect of an increasingly globalised society (Gustafsson, 2020), pervading, influencing and shaping lives in both obvious and invisible ways (Lampland & Star, 2008). For instance, the gothic cathedral in Chartres, an imposing stone structure with a radically innovative flying buttresses, a tower of 113m and an overall length of 130m was rebuilt between 1194-1230, following a devastating fire. Construction was discontinuous dictated by the weather, the availability of resources, materials and labour, and the need to ensure the continuous functioning of different parts of the church (Frankl, 1957; Van Der Meulen, 1967; Borg & Mark, 1973; Kurmann & Kurmann-Schwarz, 1995; Turnbull, 2007; Ball, 2011). The cathedral was designated a World Heritage Site by UNESCO in 1979, and is widely recognised as a masterpiece marking the high point of French Gothic art (UNESCO, 2021). Construction persisted over 36 years, without a master architect or designer, with limited design knowledge, through the use of a standard wooden template, *'which facilitated mass production across a large number of builders with variable skill levels over time in a discontinuous building process'* (Timmermans & Epstein, 2010: 82), ultimately leading to the creation of a lasting impressive edifice with significant historical and architectural merit. James (1982: 123) concludes that it was the ad hoc accumulation of the work of many men often working through major design changes, thus enabling society to use the ongoing design to express its values (Forty, 1986). The UNESCO (2021) citation notes the strong influence of Chartres Cathedral on the cathedrals of Reims, Amiens and Beauvais, and its imitation in Cologne in Germany, Westminster in England and Leon in Spain. It concludes by noting that *'Chartres Cathedral is both a symbol and a basic building type. It is the most elucidating example one could choose to define the cultural, social and aesthetic reality of the Gothic cathedral'*.

Busch (2011:2) critically asserts that standards are the means by which we construct reality, as they are used to shape the physical world, as well as the social lives and the people themselves as they adjust, obey and conform: In a sense, they can be regarded

as the recipes by which reality is created, since standards invoke the categories used to organise the world, perhaps through small measures as seen in the cathedral construction. But standards are much more powerful than the mere categories because they underpin, embody and direct the ways in which people, things, society, environment, context and even language are altered as a result of their existence. For Busch, standards thus represent the interface and meeting point between language and the world; directly implying that standards span the material and the ideal, thereby interlocking the positive and the normative (p. 3). A by-product of the use of standards is the partial and impermanent orderings that ensue in their wake (p. 6), possibly exemplified through the copying of the style and structure in subsequent religious buildings. This is particularly important in introducing a socio-materiality dimension into the discourse and examining a previously underexplored area.

Standards can be said to offer navigational advice as '*means of partially ordering people and things so as to produce outcomes desired by someone*', making them part of the technical, political, social, economic and ethical infrastructure that constitutes human societies (p. 13). Moreover, standards become the means by which people 'perform' the world; where the act of repetition, of following the recipe, '*creates a reality that is ordered, regular and stable*' (p. 74). Mismatches between the overly idealised recipes and the true nature of reality aside, individuals endeavour to *enact* the world through technical practices (Mol, 2002); constructing, creating, and performing through the prescribed recipes that guide and accomplish practice (p. 119).

### **Seeking contingency and plurality in project practice**

Looking at the world of people and project-related work and structures through the lens of standards enables a closer scrutiny from a distinct vantage point that allows the identification of legacy baggage resulting from the adoption of a particular standard or collective point of view. Standards can play a part in shaping and enacting particular practices forming and bringing forth specific circumstances and shaping reality according to shared mindsets, associations and relations. Steps taken to construct, contest, modify, enforce and abandon this infrastructure are essential to understanding how we organise in particular ways (for example around projects, and specific ways of constructing and understanding, appreciating and improving them). Employing such a perspective may further furnish us with an important lens to revisit the conversation around when and how project management had lost its way (Lenfle & Loch, 2010; Shenhar & Dvir, 2007; Dalcher, 2019). Notwithstanding, it also raises new questions about the perspectives that are employed, including issues such as the true nature of temporality/permanence or the resulting cultural artefacts as related to project work (particularly given the baggage deposited through the adoption and use of specific standards and related thought patterns and assumptions whose legacy is seldom challenged).

Blind, Petersen & Riilio (2017) investigate the impact of standards and regulation on innovation activity in different markets; their conclusions indicate that formal standards

lead to lower innovation efficiency in markets with low uncertainty, while regulations have the opposite effect (p. 256). Conversely, in cases of high market uncertainty, regulation leads to lower innovation efficiency, while formal standards have the reverse effect. Their results suggest that the choice of instrument, and the accrued benefits from its use depend on situated characteristics, such as market uncertainty, signposting the potential usefulness of a contingency-centric perspective in determining the selection and application of specific standards and approaches. At a general level the model and results establish a connectedness between standardisation and innovation (p. 258). projects are also enacted and executed in different settings, indicating a potential sensitivity to contextual factors, in order to promote and enhance further innovation.

The multitude of project-related standards, and the implicit legitimisation of the mindsets and cultures that they engender, will likely persist. The initial drive for standardisation stemmed from an acute desire for interchangeable material artefacts. Standards have proliferated across most areas and domains. Yet, over the intervening years competing standards have introduced standardised differentiation through alternative mindsets, cultures, processes and ideologies, sowing deep division in how project-related work is perceived and carried out. Indeed, standards have been shown to be technical, managerial, human, social, moral, legal and ontological devices, often all at once. The words we use carry with them elements from all of these aspects; how we use them and what meaning we and other listeners ascribe to them can make a big difference. The plurality of competing approaches should point to a diversity of contexts where they might be judiciously employed. Instead, many are pursued with an orthodox zeal in the name of an unattainable and unrealistic unitary vision embedded in the rather simplistic belief in a single optimal path to development.

The initial desire of the standards pioneers for creating ways of sharing knowledge should remain a driving concern – the implication is that we need to have some brave conversations about standards, approaches, underlying assumptions and their implications. Rather than develop remote parallel communities, that continue to diverge, the desire and motivation to ensure interoperability across perspectives, standards and mindsets in the project-domain must be paramount. The ability to communicate has long been recognised as a central tenet in project thinking and also in embedding change successfully. We are yet to explore the full terrain of situations, contexts and options and their potential to offer a contingency-infused outlook. A standards-informed perspective can offer a fresh way of fostering a more agnostic attitude in order to better explore the practical implications of different approaches. Such a dialogue could be focused on recognising the merits and drawbacks of the range of approaches at our disposal as a first step towards growing and strengthening our repertoire for delivering beneficial change in diverse settings.

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Professor Dalcher has written over 300 papers and book chapters on project management and software engineering. He is Editor-in-Chief of *Journal of Software: Evolution and Process*, a leading international software engineering journal. He is the editor of the book series, *Advances in Project Management*, published by Routledge and of the companion series *Fundamentals of Project Management*. Heavily involved in a variety of research projects and subjects, Professor Dalcher has built a reputation as leader and innovator in

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Darren is an Honorary Fellow of the APM, a Chartered Fellow of the British Computer Society, a Fellow of the Chartered Management Institute, and the Royal Society of Arts, a Senior Member of the Institute of Electrical and Electronic Engineers, a Senior Fellow of the Higher Education Academy and a Member of the Project Management Institute (PMI), the British Academy of Management and the International Council on Systems Engineering. He is a Chartered IT Practitioner. He sits on numerous senior research and professional boards, including The PMI Academic Insight Team, the BCS Fellows Technical Advisory Group, the CMI Academic Council and the APM Group Ethics and Standards Governance Board as well as the British Library Management Book of the Year Panel. He is the Academic Advisor, author and co-Editor of the highly influential 7<sup>th</sup> edition of the APM Body of Knowledge. Prof Dalcher is an academic advisor for the *PM World Journal*. He can be contacted at [d.dalcher@lancaster.ac.uk](mailto:d.dalcher@lancaster.ac.uk).