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Beyond the mind of the maker
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Series Article

Advances in Project Management Series[1]

Beyond the mind of the maker: Adventures in knowledge making [2]

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Knowledge management is a relatively new addition to the project management bodies of knowledge but nonetheless is increasingly recognised as an area that is crucial for the success of projects, programmes and portfolios. The big challenge for many project managers is to figure out what knowledge management is, what it entails and what it can do for you.

Peter Drucker famously proclaimed that a manager is responsible for the application and performance of knowledge. However, in practice, knowledge is highly contextual and innately dynamic. Knowledge is deeply entwined with meaning, understanding and interpretation, making it difficult to grasp, let alone manage. As a result, some scholars even suggest that there is a fundamental incongruity and mismatch between the concepts of knowledge and management.

For one thing, knowledge is not manageable in the same way as a tangible resource. The intellectual capital of an organisation resides in the individuals and the communities that make up the different facets of the organisation. Management of the knowledge embedded within people requires engagement, understanding and skills related to the management of and interaction with people and their perceptions. It also necessitates intimate and ongoing engagement with the individuals and their communities in order to share, shape and co-develop the knowledge.

So, why manage knowledge?

Knowledge is essential to making informed decisions. Moreover, innovation and increased productivity both arise through the creation and application of knowledge-based assets.

Yet, Alvesson & Kärreman (2001; p. 995) assert that '*knowledge is an ambiguous, unspecific and dynamic phenomena, intrinsically related to meaning, understanding and process, and therefore difficult to manage. There is thus a contradiction between knowledge and management*.'

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Hislop (2009; p. 59) positions knowledge management as a deliberate effort to manage the knowledge of an organization's workforce. In more recent update, Hislop and colleagues (2019) further encourage a practice-based perspective, which views knowledge as a process:

'*The practice-based perspective considers knowledge as embodied in human beings and therefore focuses on facilitating interpersonal knowledge-sharing and processes. This requires an organizational approach and involves establishing a culture in which knowledge is shared and where managers evaluate their employees on their contribution to knowledge management.*' (Hislop et al., 2019; p. 51).

Knowledge can be embedded in tangible assets such as finished goods, completed project outputs and results, machinery and manuals. However, Hislop calls attention to the need to engage with knowledge embedded within the people that make up the organisation, thereby presenting an enormous challenge for traditionally structured organisations.

Managing knowledge, or intellectual capital, that resides in the individual employees poses significant challenges to managers. Not least, the problem of asymmetric information, where managers have significantly less knowledge than the experts or highly skilled knowledge workers that they oversee (Roberts, 2015; p. 51-2). Adler's solution is to advocate community forms of organisation as an alternative to knowledge-based organisations (Adler, 2001).

Defillippi et al. (2006) note that knowledge work is neither created nor used in a social vacuum. Participants in knowledge work deal with a complex web of relationships among people and activities. Typically, there is a tendency to focus on a single type of participant and their interactions and processes. However, Defillippi et al. contend that there is a need to explain how each of the participants in knowledge work influences and is in turn influenced by the other participants. To gain a fuller picture of the different types of knowledge participants and their interactions they construct the knowledge diamond (p. 19) with four focal groups of participants (summarised and paraphrased below, after pp. 17-18):

- **The individual**: single actors who bring knowledge to and have the opportunity to take knowledge from an activity, or a project
- **The community**: occupational communities that join together in completing tasks and activities; includes different specialisms that come together on a project
- **The organisation**: one or more organisations that provide the infrastructure through which the work gets done
- **The industry**: the wider industry can be seen as a participant in and a contributor to the knowledge economy; will ultimately absorb the knowledge workers that participate in current projects, and any new learning that has been gained

The model draws attention to the wider knowledge context and identifies different groupings of participants and their interconnected impacts. Focusing on a single entity in isolation is limiting as interactions and influences are created between the different participating groupings. The knowledge diamond proposed by Defillippi et al. indicates that each individual participant may also interact with the community, organisation and industry, implying that in every project or undertaking, all four types of knowledge work are likely to be involved (p. 20).

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Engaging with the mind of the maker

The starting point for a lot of project work is around understanding the original intention. The 7th edition of the APM Body of Knowledge (2019; p. 6) starts with the notion of strategic intent, as a way of capturing the direction of travel for a new undertaking. A key challenge is to develop an emerging knowledge and understanding of the intentions and main purpose of proposed initiatives.

Organisational activities are increasingly analysed in terms of value capture and value creation. Value creation chains encompass multiple activities ranging from planning (value proposition), to creation and delivery, and ultimately to value capture and communication. The implication is that a concept undergoes an extended journey between the initial idea generation and the ultimate realisation of business value.

The knowledge interaction related to the development of a project, endeavour or initiative starts with the maker, visionary or thinker who has come up with a new concept, need or another enticing proposition for the future. Fred Brooks, the manager entrusted by IBM with what is possibly the largest software development project ever undertaken (see, Dalcher, 2019b), reflects on the nature of the creative process:

"Dorothy Sayers, in her excellent book, The Mind of the Maker, divides creative activity into three stages: the idea, the implementation, and the interaction. A book, then, or a computer, or a program comes into existence first as an ideal construct, built outside time and space, but complete in the mind of the author. It is realized in time and space, by pen, ink, and paper, or by wire, silicon, and ferrite. The creation is complete when someone reads the book, uses the computer, or runs the program, thereby interacting with the mind of the maker' (Brooks, 1995; p. 15).

There are numerous implications resulting from the value chain highlighted by Brooks and Sayers. The cycle comprising the three major phases of idea, implementation, interaction is quite appealing. While it recognises the role of implementation as a core activity, it also positions the initial front-end concerned with conceptualising and formulating the idea firmly within the wider scope of conversation. Moreover, the subsequent emphasis on use, or interaction, extends the cycle into the realm of intended and actual use. Projects are carried out for a purpose and recognising that the creation cycle is complete when the user is able to utilise the artefacts that emerge from the creative process, implies an understanding of the intended outcome and expected impacts (Dalcher, 2019a). This shift of emphasis indicates that both initiation and implementation should be concerned with interaction and use, and aim to ensure that the concepts being developed make a beneficial difference to the intended user.

Engaging with the mind of the maker requires an understanding of the intention embedded and implied in every change and innovation. Crucially, it also implies that the planner grasps the intended use and outcomes that transpire from new initiatives, and that all that follow downstream in the subsequent process can engage with the planner/maker's intention and understanding. Extending the scope of conversation to include the interaction means that knowledge of the intended use (and expected benefits) is crucial to the design effort so that intention ultimately encompasses the spheres of idea, implementation and interaction.

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Successful delivery would therefore encompass sustainable engagement with idea, implementation and interaction

Reflecting on his management experiences during the development of a complex operating system programme for IBM, Brooks yearns for the conceptual integrity that comes from only engaging with one mind or a very small team of decision makers (Dalcher, 2019b; p. 8):

'*The dilemma is a cruel one. For efficiency and conceptual integrity, one prefers a few good minds doing design and construction. Yet for larger systems one wants to bring considerable manpower to bear, so that the product can make a timely appearance.*' (Brooks, 1995; p. 31)

Engaging fully with the mind of a single maker is difficult enough: Embracing the thoughts ideas and knowledge of a wider grouping would require better organised methods for engaging with communities and ecologies of doers, makers and creators. Indeed, as more individuals seek to adopt a new role as makers (Sennett, 2008; Dougherty, 2012; Hatch, 2013), and as technology enables many more to assume such roles (Anderson, 2008; Browder, 2017; Davies, 2017), we must find new ways of engaging with the minds of diverse communities and constellations of makers and embrace new forms of more meaningful and fruitful co-creation.

Managing knowledge in project environments

Knowledge can offer a source of competitive advantage, and the purpose of projects and programmes is to enable beneficial change in behaviour and create new capabilities utilising new and existing knowledge. The establishment of the temporary organisations required for project-work further defies traditional and functional organisational structures and settings. If project teams only exist for a short and limited period, it becomes more important to engage with them in order to share meaning and understanding and thus enable work to progress. Moreover, given the personal nature of knowledge within different communities and stakeholder groups, managing knowledge becomes deeply concerned with opening up boundaries, enabling communication, and facilitating meaningful exchanges.

Defillippi et al. (2006; p. 130) maintain that '*projects are interconnected to each other in an evolutionary sequence involving the successive exploitation of existing knowledge and exploration of new knowledge, thereby contributing to an organization's long-term position in the market-place for goods and services.*

Projects can thus be viewed as episodes in knowledge work. A key challenge is to develop knowledge management capability to support effective project work.

Turning to guidance related to the application of knowledge management practice within projects and programmes is limited by the lack of adequate resources that enable managers and leaders to make sense of their landscape. The article by Judy Payne, Eileen Roden and Steve Simister draws on their recent book *Managing Knowledge in Project Environments*, published by Routledge, which endeavours to provide such a resource.

The authors recognise the confusion within the project context. They acknowledge that while projects empower change and improvement, no individual or repository 'owns' all the knowledge required to bring about effective change. Their work offers a new way of making

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sense of project work through knowledge and its management. Projects create, explore and exploit knowledge. This implies different needs and processes that can be viewed through a knowledge lens.

Crucially, the authors avoid the all too familiar temptation to provide recipes and prescriptions in the form of templates, tools and registers that can be copied or replicated. In recognition of the contextual and situated nature of knowledge and the need to make informed decisions, their approach emphasises the development of a set of underlying principles that can be applied to knowledge work. The principles combine with management choices and contextual factors to develop a detailed framework for making sense of knowledge in projects.

Their framework helps to make sense of the choice of development approaches and life cycles used in project work. It takes into account what is known and recognises the uncertain and ambiguous dimensions, enabling managers to respond to their context. Payne, Roden and Simister make an important distinction between creating new knowledge and exploiting existing knowledge. Both are important; however, they require fundamentally different approaches and will be applied at different times. Recognising the distinctions and working through the set of principles can make a big difference to devising effective knowledge management in projects and programmes.

The perspective adopted by Payne, Roden and Simister offers many new insights into the practice of knowledge management. It innovates and encourages new approaches and a fresh viewpoint. The resulting guidance is aimed at practitioners who are looking to transform their individual practice and create more effective and efficient projects. The framework and principles provide an important starting point for managing knowledge in projects. In this way, the authors make an important and much needed contribution to project management literature and advance the discussion related to the management of knowledge in social and temporary settings.

Learning to work with knowledge

The case for better and more nuanced management of knowledge is overwhelming. Knowledge is central to decision making, progress making and ultimately to long-term survival (Dalcher, 2014).

However, knowledge is not simply an asset that can be captured. Nagel points out that knowledge always belongs to someone, be it an individual or a group (2014, p. 3). It is therefore always highly contextualised, personalised and subjective. Consequently, the act of knowing is an ongoing social phenomena. However, it not always what we know that makes a difference.

O'Dell et al. (1998) assert that 'what you don't know will cost you—or even ruin you'. They recall a poignant observation by Arthur Clarke that cave dwellers froze to death on beds of coal (p. ix). Sadly, while the coal was immediately underneath them, they couldn't see it, mine it or use it. This supports the notion that sometimes we simply don't know what we don't know. This chimes with Confucius' notion that '*real knowledge is to know the extent of one's ignorance*'.

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Sometimes, we simply don't know what we know. Lew Platt, the former CEO of Hewlett Packard was keen to point out that '*If HP knew what HP knows, we would be three times more profitable*.'

The key then is having the ability to organise knowledge in a useful form for a given situation and to understand what it entails. In those terms, Immanuel Kant's perspective that '*science is organised knowledge; and wisdom is organised life*' provides the idealised model to aim for.

However, Nicolaus Copernicus was perhaps better able to identify the connection between the ideas of knowing and knowledge: '*To know that we know what we know, and to know that we do not know what we do not know, that is true knowledge*.' The meta-knowledge perspective, or the ability to step back and see patterns, connections and links is often more important than the minutia of detail. In Benjamin Franklin's words '*the doorstep to the temple of wisdom is a knowledge of our own ignorance*'.

Perhaps it is also time to start taking stock of our own ignorance and allow what we know and need to shape the approaches that we adopt for experimenting, exploring and exploiting knowledge opportunities. Payne, Roden and Simister do a good job reminding us that knowledge is situated and context is key; therefore, we need to strategically tailor interventions to match our ambitions and intentions, the organisational appetite for risk and change, and the penchant for learning. But the final word goes to Anton Chekov for observing that 'knowledge is of no value unless you put it into practice'. That gives us a basis for developing knowledge for, in and of practice so that it can improve our interactions and condition over time as we continue to experiment, grow and develop the capability to leverage our intellectual capital for the greater good of our joint endeavours.

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