

The Competitiveness of Having a Knowledge Advantage

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The Current Situation

Why are we in business, or rather the business we are in? There is no doubt that the business of construction and project management, construction consulting and many other related areas are not the most effective way to make money. Illegal activities such as drug running, body parts trading and other unsavoury business propositions are far more lucrative than the construction business where margins are generally tight and fees for service generally disappointing. If that is indeed the case then why do many of us engage in this business? The answer is of course because it is the business we choose to remain in, either through habit, survival, inclination or desire.

Another interesting question relates to the extent this business is under threat from outside our industry or geographical area. The major management consultancy firms have been moving steadily into the project management business with their established client base and could conceivably start to buy into or buy out established construction management and construction economics consultancies. Further, from the contracting point of view, the global market has seen German Contractors such as Hochtief, Bilfinger and Berger and Walter Bau take substantial interest in Australian first tier contractors. The outsourcing movement (which the construction industry embraced during the second half of the last century) is now showing us that companies like Bechtel are substantially outsourcing design documentation and information and communication technologies support to India. Clearly there are treats upon the horizon for Australian construction industry firms. How can these organisations that choose to stay in this industry and remain sustainable? The answer is simply that they need to remain globally competitive and for this they need a competitive advantage.

Competitive Advantage

For over twenty years now, business has been aware that the key to commercial success, and its sustainability, is **nurturing its core competencies**—those things that it can do better than its competitors. Furthermore, strategic management best practice has focussed in more recent times on generating value to new customer bases, developing new products or services or re-defining past success in new ways to meet new demands. All this requires knowledge about the past, contexts in which success and competencies were developed and defined, and knowledge of how to apply competencies to deliver future sustainable success.

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In the last decade the concept of knowledge management was formulated and evolved from a notion of managing knowledge to *managing an environment that supports and harnesses knowledge to deliver innovation* that in turn **delivers competitive advantage**. Cost differentiation involves being able to provide goods and/or services at lower a cost than competitors. Product or service differentiation is based on quality of delivery, uniqueness of distribution channel or other defining characteristics of the ‘value proposition’ that identifies the deliverer as providing a distinctive or sufficiently differentiated offering. Central to this concept is the notion that organisations (and indeed individuals) possess a set of learned and practiced core competencies that are in their best interest to concentrate upon and develop. These competencies provide a knowledge advantage. The main problem that each organisation grapples with is to know what it knows and know how to successfully transfer knowledge about its competencies within its boundaries. Managing knowledge is a highly complex and difficult thing to do because the most valuable knowledge an organisation has access to either resides mainly in people’s heads or is embedded with organisational procedures.

The first point that must be understood is that there are **no simple solutions**. In the 1980’s a lot of people believed that machines could replicate experts making complex judgements—the expert systems (ES) fad came and went with many useful ES tools developed but these have been successfully applied in only a limited number of cases, and mainly as assistants to experts engaged in diagnostics. Similarly, information and communication technologies (ICT) tools used for storing and retrieving useful knowledge have only provided a small step in the knowledge advantage vision of organisations in **nurturing its core competencies**.

Knowledge is sticky and difficult to transfer because knowledge is more than facts and even information. Knowledge is about context, the history, hidden inferences, and cause-and-effect loops that explain why something did or did not happen in a particular way. Documented manuals and procedures fail to cover all eventualities, and they are time consuming to access and absorb. Gabriel Suzulanski conducted a series of studies into the transfer (often only partial transfer) of best practice within organisations, and concluded that the three major sources of knowledge stickiness (barriers to transfer of knowledge) were *absorptive capacity, causal ambiguity and the quality of the relationship between source and recipient of knowledge* [1].

Barriers to Knowledge Transfer—Knowledge Stickiness

Absorptive Capacity

The most significant source of stickiness is absorptive capacity. Absorptive capacity is the ability of a firm to recognise the value of new external information, assimilate it and use it for commercial ends [2]. It is a measure of an ability to absorb ideas, information and knowledge and applies to both external and internal sources of information and knowledge. Building absorptive capacity requires long exposure to experimentation, trial and error, and reflecting deeply on lessons learned through this process. It also requires its people to seek out information and knowledge both from within the organisation as well as outside. This research activity need not be ‘academic’

in a bookish sense but is more often the practical outcome of people trying their best to make sense out of complex situations when solving problems. The more practice they have in tackling problems, taking time to reflect upon what they have learned, and transferring this knowledge to others, the greater is their absorptive capacity. When firms do not build absorptive capacity it is difficult to transfer knowledge. Then the wheel often gets reinvented and best practice is not regularly adopted.

Causal Ambiguity

A consequence of poor absorptive capacity is often a lack of ability to be able to understand the cause and effect loops— causal ambiguity i.e. not knowing the answer to why did something happen (or not happen) as expected. Naturally, if you cannot make this connection then mistakes are repeated, best practice is not replicated and the management of valuable knowledge becomes extremely difficult. To be able to effectively diagnose situations and be able to read the cause and effect linkages requires, not only deep knowledge about the context of the situation under study, but also an ability to capitalise upon a strong absorptive capacity. Access to ICT tools such as knowledge repositories have potentially great value, but the skills to fully use this valuable asset are essential to be able to make best use of such knowledge. Unfortunately, electronic knowledge repositories have a limited capacity to store contextual knowledge that can be quickly and easily accessed and understood.

The Relationship between the Source and Recipient

The third major influence on knowledge stickiness is the relationship between the source and recipient of knowledge. Electronic sources are notoriously cumbersome to engage with—not user friendly. Search engines either provide few ‘hits’ or provide an overwhelming number of them that swamps the user’s capacity to deal with the information provided. In terms of interactions between people, the issue of culture and communication plays a major and often subliminal role. An organisational culture can encourage or inhibit knowledge sharing. Personal traits also can influence relationships. Furthermore, organisational leadership style and structure all influence relationships between colleagues and their motivational drivers.

Stickiness of knowledge poses considerable problems for organisations wishing to maximise the conversion of tacit knowledge in people’s heads into explicit knowledge that has been codified. However, sustaining competitive advantage relies upon an organisation’s competencies being difficult to copy or replicate so having a knowledge advantage relies upon both codifying knowledge as well as embedding it in difficult to copy repositories such as people’s heads and organisational routines, procedures and culture.

Achieving a Competitive Advantage through Knowledge

If we accept that we need to respond to our current and near-future competitors by being more competitive than they are, and we bear in mind that knowledge and best practice transfer is difficult transfer and hence replicate we see that we have a potential strong defence to the threats I highlighted earlier in this paper. We can continue to use our local and

customer knowledge to defend ourselves—we can use our knowledge advantage. This knowledge allows us to be able to do what we do at less cost from an efficiency point of view (though outsourcing offshore to places with very low comparative salaries/wages makes this increasingly difficult). A knowledge advantage also allows us to do more things and provide different and more differentiated service. So we can see that a knowledge advantage is not only nice to have but essential to survive and be sustainable.

Figure 1 illustrates the knowledge advantage (K-Adv) concept. Its strength lies in its recognition of focussed intelligent leadership that envisions knowledge being identified, nurtured and harnessed as well as its advocacy of providing the essential human infrastructure that is supported by an enabling ICT infrastructure. The leadership infrastructure delivers the necessary project management skills to realise the knowledge vision. This enables core competencies to be developed and transferred within an organisation that both uses and builds human capital through the way that people interact to generate and share knowledge. The organisation also provides the people infrastructure to develop policies, procedures and processes that enable people to create and share knowledge for solving problems and delivering value that underpins an organisation’s competitive position.

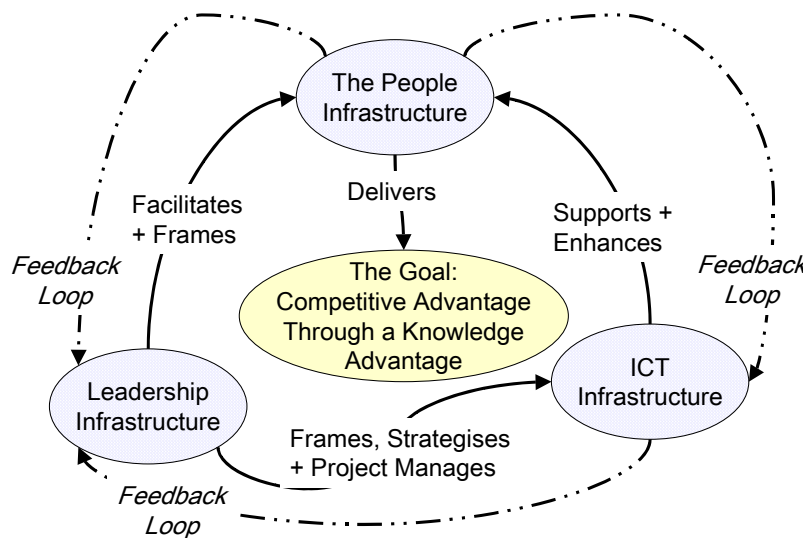


Figure 1 – Illustration of the K-Adv Concept

People cannot always be conveniently collocated when working together. Some degree of separation is unavoidable. This raises the knowledge management problem of

communication and coordination of effort. Fortunately, ICT provides a valuable and critical enabling infrastructure that helps people create, share and use knowledge. ICT tools allow people to be virtually collocated and for their activities to be coordinated. The whole purpose of knowledge management ICT tools is to assist people to access, use and coordinate knowledge for problem solving. ICT can also be helpful by performing some tasks more quickly than humans—searching information banks, rapidly undertaking simulations and calculations that assist humans to better evaluate cause and effect loops when problem solving. The ICT infrastructure needs to be supported to enable people to use it effectively.

The K-Adv model provides a framework for understanding how knowledge can be used as a core strategic asset by managing the duality of tacit and

explicit knowledge. It can be adopted and used as a strategic tool to help organisations develop a better understanding of how they can develop their core competencies, by *managing an environment that supports and harnesses knowledge to deliver innovation*, which in turn **delivers competitive advantage**. The model has also been developed for use as a benchmarking tool that identifies where organisations or their business units lie in terms of maturity in the application of K-Adv. It also allows them to map their 'now' against a 'preferred future' with respect to effectively using their knowledge assets to deliver sustainable competitive advantage. Thus, it can be used by organisations to help them with their strategic planning. A K-Adv Guide was developed as part of a major investment² in knowledge management in the construction industry and provides a set of practical operational tools with which to apply the model to help create, share and use tacit and explicit knowledge.

Conclusions

The reasoning for using the K-Adv model as a template for managing the organisation's knowledge assets is that it provides a coherent and integrated model to maximise complementary aspects of leadership, people and ICT tools. When all are addressed in a coherent form there are far better opportunities for successfully delivering competitive advantage than there would be using an ad hoc approach of introducing some ICT tools here and there, attempting to transfer best practices in isolation or getting people together for talk-fests in the hope that knowledge creation, sharing and use will eventuate.

With the adoption of the K-Adv model, organisations can be better positioned to know what they know and how to effectively transfer knowledge throughout their organisation. At the same time they can provide a more attractive and intellectually stimulating environment in which talented people, motivated by the opportunity to learn and share knowledge, can be appreciated and valued. This can help organisations to populate their business units with highly talented and motivated people, a key aim for any learning organisation with aspirations for performance excellence. It is this source of energy that will provide the means to realise a firm's competitive advantage through its unique knowledge sources that help drive down costs but more importantly deliver better service and product value—this will make those firms sustainable.

References

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2. Cohen, W.M. and D. Levinthal, *Absorptive Capacity: A New Perspective on Learning and Innovation*. *Administrative Science Quarterly*, 1990. **35**(1): p. 128-152.

² Project 2001-004 (2B)—Delivering Improved Knowledge Management and Innovation Diffusion Cooperative Research Centre in Construction Innovation <http://www.construction-innovation.info> the project committed over \$400,000 in cash funds and the same as in-kind investment by industry and university partners.