Harvesting and Managing Knowledge in Construction

Ani Raiden

section 'How to manage change' articulates a variety of prescriptive models as a precursor to the more appropriate examination of challenges and alternatives to the planned approach! That leads to the discussion of several emergent models of change and how managers may, advisedly, endeavour to accommodate and deal with change. It might have been helpful to give more attention to the research of Harris and Ogbonna (e.g. 2002) who determine issues in organizational change yielding important (often unanticipated) outcomes.

'Considering the development of strategic options' constitutes Chapter 10. It begins with consideration of Ansoff's matrix, progresses to brief consideration of Porter's model, use of resources, according to Hamel and Prahalad (1994), the value chain, SWOT, RBV, and core competences. Criteria for judging strategy are discussed and use of scenarios is noted. A more extensive section concerns 'the importance of context' in which various bases for formulation and judging strategy are examined.

Chapter 11 concerns 'Implementing the strategy— issues, dilemmas and delivery of strategic outcomes'. The examination of differences between 'intended' and 'realized' strategy is useful and important. The latter sections address dealing with failure, causes of failure and recovery possibilities. However, the rather brief examination of turbulent markets belies the importance of such an environment for construction organizations.

Finally, Chapter 12 'Turning theory into practice— some empirical examples of strategy in construction organizations' is an assembly of perspectives from a wide variety of practitioners, drawn from a very broad spectrum of organizations. As such, the content is highly variable as, it seems, the authors present what they see as important for the topic, rather than following issues from a prescriptive template. The chapter is a nice ending to the volume.

The strength of this volume is the discussions of construction—it is worth reading. What is refresh- ing is the sub-themes of continuous change requir- ing perspective of emergence due to knowledge limitation and uncertainty—after all, managing must be forward-looking. That leads to a desire to remove the blame and claim 'culture', so often a feature of construction; and to educate personnel towards a different mindset—a becoming ontol- ogy—in which uncertainty and variability are regarded as natural and normal while certainty and planned outcomes are not!

References

Baumol, W.J. (1959) *Business Behaviour, Value and Growth*, Macmillan, New York.

Chandler, A.D. (1962) *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*, MIT Press, Cambridge, MA.

Hamel, G. and Prahalad, C.K. (1994) *Competing for the Future*, Harvard Business School Press, Boston, MA.

Harris, L.C. and Ogbonna, E. (2002) The unintended consequences of culture interventions: a study of unexpected outcomes. *British Journal of Management*, **13**(1), 31–49.

Kahneman, D. and Lovallo, D. (1993) Timid choices and bold forecasts: a cognitive perspective on risk taking. *Management Science*, **39**(1), 17–31.

Weick, K.E. (2005) Managing the unexpected: complexity as distributed sensemaking, in McDaniel, R.R. and Driebe, D.J. (eds) *Uncertainty and Surprise in Complex Systems*, Springer-Verlag, Berlin, pp. 51–65.

Winter, M., Smith, C., Morris, P. and Cicmil, S. (2006) Directions for future research in project management: the main findings of a UK government-funded research network. *International Journal of Project Management*, **24** (8), 638–49.

ANITA LIU
The University of Hong Kong
ammliu@hku.hk

Harvesting and Managing Knowledge in Construction
Yacine Rezgui and John Miles, Spon Press, London, 2011, 232 pp., ISBN 978 0 415 54596 9, £29.00 (pb)

This book does what its title promises: it lays out theoretical foundations on managing knowledge in construction and presents business applications that may offer a solution to managing knowledge.

The book opens with a succinct and informative background and rationale for the text. The brief discussion on epistemology of knowledge (and data and information) and tacit and explicit knowledge usefully positions the book. The authors' view is to try and incorporate many different perspectives 'and leave the final interpretations to the reader' (p. 4). In light of this, it is somewhat surprising to see the authors adopt a positivist stance in the book (p. 8). This may

only be surprising to me, as my own viewpoint leans toward interpretivist acknowledgement of the social nature of [all] organizational being, that including knowledge, information and data in construction. Indeed, I would have liked to see much more extensive and in-depth discussion on how the particular approach taken has influenced the development of the text. (However, I understand this may not be necessary in an introductory, generic text.)

While concepts such as social capital are explored in terms of their usefulness/contribution/place in knowledge management, an acknowledgement or discussion of the challenges in developing the required linkages (for example in relation to ability, motivation and opportunity, p. 16) would have added a welcome critical flavour to the text. Like this book, literature on human resource management also advocates the ability, motivation and opportunity (AMO) model (after Boxall and Purcell, 2003, p. 5) but arguably with more explicit consideration of the potential difficulties in achieving the desired performance outcomes (see for example Marchington and Wilkinson, 2008, pp. 124–5).

In relation to knowledge management, the book provides a comprehensive overview by its succinct coverage of many major developments in relevant theory, such as those introduced in Chapters 5 and 6 on knowledge management systems. It is clear the book focuses on use of information technology in terms of the suggested business applications. While there is no doubt about the benefits of some systems, for example in supporting technical decision-making, the discourse would benefit from closer consideration of the informal and social elements of harvesting and managing knowledge. In defining knowledge, the authors cite Alavi and Leidner (2001): 'it is personalised information (which may or may not be new, unique, useful or accurate) related to facts, procedures, concepts, interpretations, ideas, observations, and judgements' (p. 3). Much of this is inherently tacit. The evolutionary algorithms (discussed in Chapter 9) and genetic algorithms (discussed in Chapter 10) rely on explicit data.

As illustrated by examples from power generation, built environment design and fire service stations (pp. 102–3) explicit data may be complex to process considering the potential volume of possible outcomes (e.g. 10^{55} or 10^{18}) but ultimately it is all about mathematics. Surely, increasingly challenging levels of complexity are introduced when data (or information) are not available in a neat, numerical format; indeed this is especially true when we are dealing with knowledge about people and their behaviour. This is when the above-mentioned informal and social elements of harvesting and managing knowledge become relevant. Algorithms are not able to assess human interaction

nor do they exercise common sense or judgement. The book discusses this in relation to construction design (pp. 124–5) where the BGRID representation (a computerised system which employs a genetic algorithm to search for viable steel frame design options) is offered only as a supportive data/information management tool to aid the human decision-making process. But many other construction processes are equally, if not more, 'human'. Consider for example the role of a contracts/project manager. They are essentially the hub of all data and information related to his/her programme of works or a project. This will include drawings and financial information (data and information), but importantly these managers are also in a key position to utilize and develop the tacit knowledge that is owned by people involved with the project. Furthermore, they become the link for integration within and between units (be that individual members of staff or teams of workers) as well as the whole (learning across and between projects together with wider organizational learning). Their management style may differ between people and situations—their response is often a result of tacit knowledge and experience. (From an organizational point of view, managers also tend to differ in the ways in which they deal with particular situations.) A participative style may work in one set of circumstances, whereas a more directive top-down approach may be required with another group of people in a similar situation.

Altogether, these situations and this type of [tacit] knowledge, learning and behaviour are likely to be impossible to codify so as to become useful to another part of the organization or a project without the appropriate 'agent' (person) physically and perceptually being involved in the process. Thus, it is no surprise that knowledge workers have been recognized as valuable assets in organizations. They are not easily replaced by another professional/manager without loss of knowledge (data and information they have stored, organized and distributed can be easily retained).

Hence, taking an overtly critical view on the concept of knowledge management generally one may question whether we are perhaps more accurately dealing with data/information harvesting and management, rather than knowledge management. The former can be captured and shared via information technology; the latter however is an outcome of an individualized activity. Harvesting, storing, retrieving and distributing explicit data is not a problem; only sufficient storage facilities and information and communication technologies are required. The capabilities of modern computers are almost endless.

There is widespread support for the argument that knowledge management is not, nor should it be, a technology thing. Rezgui and Miles note in their text:

'it is not the technology itself but the way people use it that determines the role of IT in supporting knowledge management practices' (p. 192). Moreover, the feasibility of managing [tacit] knowledge has also been questioned (Alvesson and Kärreman, 2001). In light of this, I wonder if the attention given to algorithmic business applications is somewhat generous (Chapters 9, 10 and 11 are devoted to this). As it is, this part of the text will be of more interest to technologically minded readers, rather than those with a keen awareness of and interest in the human activity and knowledge in construction organizations.

On balance, the latter parts of the book build on systems philosophy as a vehicle to help develop a more holistic approach to managing data, information and technology (and people and processes) in construction (p. 159). Virtual teams are considered in Chapter 12, with a useful outline of the complexities in team identity, trust and leadership, together with partnering and alliances. Here, the social issues are addressed and weaknesses are identified in approaches driven by information and communication technology.

The concluding chapter (Chapter 14) integrates intangible ideas about networks of relationships, supportive environment and social capital with more tangible factors such as skills, experience and information technology in discussion about value creation. Difficulties in effective communication and working as teams are recognized as the key challenges that may hinder nurturing of knowledge.

Overall, it is evident that the authors have built the book on extensive research and practical experience in the field (see p. 9). As a result, the text offers a credible introduction to many issues relevant to harvesting and managing knowledge in construction. The text is comprehensive in coverage, hence a great generic reference source. As such, it offers good value for money.

Appropriately, each chapter is short, and focuses on a specific area, which makes the book easy to manage as a reference source. It is possible to read in small sections. The text is very well referenced throughout, again supporting its usefulness as a reference source. The writing style is accessible; narrative flows and is well signposted from the start.

The introductory nature of the book justifies the broad target audience: undergraduate and postgraduate students, researchers and practitioners from architecture, construction and engineering disciplines (p. 11). However, my feeling is that, among undergraduate students, only finalists will appreciate the opportunity to develop 'open reflections' and their own interpretations of the material presented (as encouraged by the authors, p. 4). Master's students will be more comfortable with this. Doctoral students not familiar with the field may find the text a useful introduction, as may researchers and practitioners wishing to gain insights into knowledge management. This book provides a comprehensive foundation, from which readers could then work on depending on their interests and direction of study.

References

Alavi, M. and Leidner, D. (2001) Review: knowledge management and knowledge management systems: conceptual foundations and research issues. *MIS Quarterly*, **25**(1), 107–36.

Alvesson, M. and Kärreman, D. (2001) Odd couple: making sense of the curious concept of knowledge management. *Journal of Management Studies*, **38**(7), 995–1018.

Boxall, P. and Purcell, J. (2003) *Strategy and Human Resource Management*, Palgrave Macmillan, Basingstoke.

Marchington, M. and Wilkinson, A. (2008) *Human Resource Management at Work*, 4th edn, CIPD, London.

Ani Raiden
Nottingham Trent University
ani.raiden@ntu.ac.uk
© 2012, Ani Raiden