Managerial competences and organizational capabilities in complex dynamic environments: Palliative care

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Abstract

Previous research on the management competences and organisational capabilities necessary for continuous innovation in complex and dynamic environments and evidence emerging from a study of innovation in palliative care are compared. A range of research on the management of different types of innovation within changing contexts is presented along with research on the relationships between management competence, organisational capabilities and innovation choices. Evidence is presented from research into innovation management in palliative care that enables a relationship between some elements of the theory and practice of innovation management in complex and dynamic environments to be established.

Introduction

A competitive position does not only stem from the existence of internal organizational capabilities, but also from their ongoing match with strategic factors (Amit and Schoemaker, 1993). This, to a significant extent, allows organisations to compare what can be done with what is expected by consumers in the market. As strategic factors are dynamic and unstable, a successful organization must also be dynamic and ready to change and re-orient its core competences in order to deal with new environmental challenges, utilising dynamic organisational capabilities (Teece, et al., 1997). Knowledge-based resources are characterised by 'uncertain imitability' (Lippman and Rumelt, 1982), which renders them relatively unprotected from imitation. However, such imitation normally takes time and organisations with superior knowledge-based resources can develop their own assets further by engaging in innovation, in order to cope with an uncertain and dynamic environment (Miller and Shamsie, 1996). This points to the transformation and reconfiguration of resources and capabilities as a key component in innovation, indicating the need for management to be actively involved in these processes. However, managers need to select, or at least identify, how they will go about becoming innovative and they need to assess the organisation's readiness for innovation. Once they have done this they need to decide what kind of innovation best suits the organisational environment. In matching the organisation to the environment, managers need to be aware that there are different types of innovation and these each require a different bundle of competences. In palliative care it seems that these requirements are practiced because flexibility is the appropriate response to dynamic complexity.

Managing Innovation

Whether contemplating radical or incremental innovation organisations need to consider the strategic incentives of investing in innovation and their organisational capabilities and must understand their capabilities before engaging in either type. Although in many organisations, including health care organisations, individuals engage in innovation without involving or informing management. Pitt and Clark (1999) suggest that the strategic management of innovation is the result of the conscious integration of management's understanding of the environment, organisational knowledge and management capabilities. This implies that management must understand the issues of capabilities, knowledge management and strategy and have decided on the type of innovation that suits. Johannessen et al (1999), reporting the management of innovation in the knowledge economy, note that there is conscious effort on the part of management to come to an understanding of circumstances, goals and capabilities. They also report that trust, among other components, has a key role to play in the successful management of innovation. McDermott and Sexton (1998), on the other hand, write that there is no prescription for managing innovation. However, even with this view, these authors describe a number of guidelines for organisations to use to become and remain innovative. The use of these guidelines is based around three organisational artefacts; culture, management and people. Again, this implies a need for management to understand the organisation and its capabilities. In many instances existing capabilities may be a handicap to the introduction and development of the

innovation (Leonard-Barton, 1992). Indeed, existing competences have been viewed by Hamel and Prahalad (1996) as capable of providing something of a straightjacket for organisations, restricting their view of the world to only that which they can see though the lens of existing competence. In these circumstances, access to appropriate facilitating resources, and competences in change management are needed.

Incremental innovation, described by Herrmann (1999, 786) as "the small changes to a product, which increase its capabilities or its quality", may prove more worthwhile for organisations. Organisations generally already have the required capabilities and knowledge in place for incremental innovation and, according to Pitt and Clark (1999), this type of innovation can avoid major disruptions to current practice and markets. In palliative care organisations it seems apparent that existing capabilities are the enablers of opportunistic incremental innovation. This occurs in an environment where the contingent variables such as demography of the patient catchments and the range of diseases for which palliative organisations provide care have changed markedly in the recent past (Higginson, 1999).

On the other hand, a model proposed by Abernathy and Clark (1985) explains why existing organisations may perform better than new entrants in terms of radical innovation. The model suggests that technological and market knowledge fortifies an innovation. It is possible for an organisation's technological capabilities to mature while its market capabilities remain competitive. Werther (1997) reflects this opinion, noting that there is advantage for organisations that can shift focus from a technological advantage in the marketplace to a management advantage as technologies mature and converge over time, thus losing their competitiveness. In this circumstance it is possible for an organisation to continue to exploit a market or situation through its management capabilities, if it is so equipped. If such capabilities are important and difficult to copy, the incumbent organisation with converging technological capabilities can then employ their market capabilities to compete with any new entrant or to maintain position against existing competitors. Focussing on the perspective of the innovative firm, Abernathy and Clark's (1985) model categorises innovations according to their impact on the existing technological and market knowledge. An innovation is 'regular' if it conserves the manufacturer's existing technological and market capabilities, 'revolutionary' innovations use outmoded technological capabilities but enhance market capabilities, and 'architectural' innovations emerge when both technological and market capabilities become obsolete (Afuah, 1998).

Henderson and Clark (1990) studied incumbent organisations that were having difficulty with incremental innovations. They suggested that since products or services are normally made up of components connected together, building them must require two kinds of knowledge – namely, knowledge of the components and of the linkages between them respectively (architectural knowledge). Architectural knowledge plays a very important role in palliative care because it provides a dynamic infrastructure that enables frequent cross-disciplinary communication unfettered by discipline-based paradigm conflicts. Hence, innovation affects component knowledge and architectural knowledge, and the effect has different consequences for different organisations. In addition, their model suggests four kinds of innovation based on the effects of innovation on knowledge: incremental innovation, radical innovation, architectural innovation and modular innovation. Henderson and Clark's (1990) model helps to demonstrate why organisations have problems with incremental innovation. They may have failed to separate what appears to be incremental innovation from architectural innovation. While the component knowledge required to exploit the innovations has not changed, architectural knowledge has changed or been destroyed. Organisations, according Afuah, (1998), have problems realising this because architectural knowledge is often tacit and embedded in the routines and procedures of an organisation, thus making it difficult to discern and respond to quickly. However from our observations in palliative care, this is not the case, as palliative care teams can rapidly assess a patient situation and use a wide array of tacit knowledge, for example understanding how relationships impact pain management, to introduce an incremental innovation. This could not occur if it was not recognised and encouraged by the management. Indeed, the need is formally acknowledged in the organisational capabilities noted later.

An innovation can be described as a function of how much knowledge goes into it and the form the knowledge takes. According to Arthur (1994), products and services can be grouped into bulk processing or knowledge based. For instance, bulk-processing products from mining or forestry are heavy on natural resources and light on know-how. Knowledge based products such as telecommunications equipment, computers and software are low in natural resources and high in technology know-how. Knowledge-based products exhibit increasing returns with high up-front cost and low per-unit production costs (Arthur, 1994). These products also exhibit network effects where the more people use the products, the more valuable they become (Katz and Shapiro, 1985). This implies that both the amount and type, tacit or explicit, of knowledge a firm creates is an important consideration. Health care organisations have vast stores of knowledge based products and require the necessary management capabilities to ensure that the competences required to enhance these products are held by the organisation. Yet, according to Mintzberg (1997), health care organisations, particularly hospitals, can contain fragmented and divisive discipline-based management groups that would seem to be incapable of understanding the need for, let alone managing, sets of competences that can create and enable architectural knowledge.

Tushman and Rosenkopf (1992), in exploring the dynamics of innovation, looked at the extent of a firm's influence on the evolution of the innovation and the industry standard. They argue that this depends on the amount of technological uncertainty, complexity of technology and stage of the evolution. Complexity is a function of factors including; the innovation's dimension of merit; its attributes as perceived by the local environment, the number of interfaces between the innovation and complementary innovations, the number of components that make up the innovation and the linkages between them and the number of organisations in the local environment that are impacted on by it. Complexity is very high in the palliative care environment (Davison and Hyland 2002).

Bessant and Boer (2002) argue that knowledge based organisations such as palliative health care facilities need to engage in continuous innovation, being both operationally effective in exploitation and strategically flexible in exploration. It was often argued that these two capabilities could not be combined successfully. Yet, according to Bessant and Boer (2002) recent developments in society, markets, technology and industry suggests that leading organisations need to find configurations of processes, procedures, people technologies organisational arrangements that allows them to become continuously innovative.

According to Boer (2002) continuous innovation is the ongoing interaction between operations, incremental improvement, learning and radical innovation aimed at effectively combining operational effectiveness and strategic flexibility, exploitation and exploration. In seeking to develop a culture of continuous innovation there needs to be a focus on an organisation's capability to renew all or part of its managerial competences and to create radically new competences in order to achieve congruence with the changing business environment (Teece et al., 1997). In hospices this can be expressed as a method of understanding situations that is capable of changing as situations change. This is related, primarily, to understanding the patient's situation as a basis for care (Latimer et al, 1996; Witt Sherman, 1999). Understanding a patient's situation in palliative care is more than generating an exclusively clinical picture of a patient's condition. The quality of life of people at the end of their lives is an issue of relief of suffering, whether the cause is physical, emotional or spiritual; known or unknown (Latimer et al, 1996; Higginson, 1999; Witt Sherman, 1999). Understanding a patient's situation means painting a whole picture of a person or people that includes not only the disease that is the root cause of the patient's location in a hospice but also the root causes of any distress in patient or family.

Capabilities and Competences
According to Gieskes and Langenberg (2000), capabilities are integrated resources that the organisation draws together deliberately. These resources include tangible and intangible assets ranging from behaviours and skills to information systems. Competences are described by Karnoe (1995, 430) as a "repertoire of experiences, skills, and beliefs" and by Drejer (2000, 206) as "a system of technology, human beings, organisational (formal) and cultural (informal) elements and the

interactions of these elements". Exploratory research in palliative care organisations in Sydney appears to be indicating that competences are the dynamic that enables the operationalisation of organisational capabilities, as noted by Teece et al (1997).

This would seem to reflect what Boccardelli and Magnusson (2000) term a dynamic capabilities approach. In the dynamic capabilities approach, core competences stem from the dynamic interaction of tangible and intangible resources and organizational know-how, within and between organisations. The dynamics of these interactions allow organisations to move from one bundle of competences to a new one that better fits the emerging environmental challenges. This dynamic reconfiguration of competences is mainly led by organizational knowledge creation processes and learning processes. The theoretical foundations draw a picture where the evolution from a bundle of core competences to a new bundle or a single new competence can be due to internal and external sources of competence development or by combining existing competences in new ways. This rebundling occurs on a regular basis in palliative care. Patient care professionals are continually looking for new ways and new combinations that will assist patients in their end of life state. In the patient care team members can call on a wide range of competences and reconfigure or transform them to suit the individual patient.

Garud and Nayyar (1994) have examined transformative capacity, which is described as a capability to accomplish three different tasks: choose technologies, maintain them over time, and to reactivate them when required. This transformative capacity is a key competency for palliative care professionals. Other authors have worked on the capacity of creating knowledge (Nonaka and Takeuchi, 1995), and on the need to integrate different capabilities in R&D work (Clark and Fujimoto 1991; Kogut and Zander, 1992). The complexity of the palliative care environment requires a dynamic mastering of the configuration competences as the patient care team is configured on a patient by patient basis depending on the individual patient's requirements and the stage of the disease (Davison and Hyland 2002).

These combinative competences aim at integrating complex, systemic, and often tacit knowledge. This is a decisive factor in order to turn a project into a single step of a longer sequence of technological knowledge development (Iansiti and Clark, 1994; Bartezzaghi et al., 1998). Therefore, combinative competences not only work within a single project, but also in a longitudinal sequence and in simultaneous projects such as the treatment of a variety of terminal patients in the final stages of several different diseases (Nobeoka and Cusumano, 1997). Palliative care teams and team members utilise a concurrent transfer strategy (Nabeoka, 1995) where a new care project transfers knowledge, information and technologies from older projects or from a base of collective palliative experience while other care projects are still in train. This requires continuous interactions and communications between teams and, in return, increases the efficiency of the design (Nabeoka, 1995) of care for patients. Team membership is common and teams operate in parallel, with members moving between teams, so the ties between teams are strong. This means that there is at least a two-way interaction that can assimilate non-codified knowledge that is created because the nature of the teams' relationships and interactions invite and enable testing, mistakes and instruction, particularly with complex knowledge (Hansen, 1999). Competences of selection and transformation aim at grasping the residual potential of knowledge. The former allow organisations to concentrate their resources and boost performance because they release resources from the development of old and well defined competences, while the latter are used to perform the necessary incremental development to obtain and launch on the market numerous applications from the same technological basis. The purpose of creative competences is to assist in bringing about radically new products, processes and procedures. Often, this implies finding ways of breaking with established ideas to create room for the application of new perspectives, which can be facilitated by the use of strong metaphors that do not fit with existing frames of interpretation (Nonaka and Takeuchi, 1995), or by exposure to individuals or communities holding different perspectives (Boland and Tenkasi, 1995). In Palliative care teams the objective is the relief of distress not the cure of disease. This means that care team members are enabled in the methods and types of treatments they can use to ensure a better end of life experience for the patient. So they are able to use their creative competences in ways not always available to other health care professionals.

Another key issue is the capability to recognize and exploit technological opportunities (Teece et al., 1997). This is highly important for organisations running science-based businesses, where the strategic and economic performance is often related to R&D competences (Van de Ven, 1986; Coombs, 1996) and to the capability of recognizing and following new technological trajectories. However it is also of critical importance in hospices where the dynamic nature of care requires that activities similar to R&D activities, such as inter-project learning (Nabeoka, 1995) and the sharing of information across organisational boundaries (Hansen, 1999), are carried out quickly and sometimes within changing guidelines. Discovering technological opportunities is far from an easy and certain task, as opportunities arise from radical changes in the established technical paradigms such as drug treatment (Abernathy and Utterback, 1978; Dosi, 1982), and they do not look like totally exogenous variables from the R&D activities performed by the company (Teece et al., 1997).

Understanding Palliative Care
Palliative care occurs in an environment where people are the centre, not diseases, where care results from the understanding of the causes of suffering that are the result of many factors(Barbato, 1999) and where multi-profession teams work collegeately so that the primary issue becomes and remains patient comfort (Meyers, 1997). The quality of life of people at the end of their lives is an issue of relief of suffering, whether the cause is physical, emotional or spiritual; known or unknown (Latimer et al, 1996; Higginson, 1999; Witt Sherman, 1999). The patient is central in the ethics, philosophy and practice of palliative care (Latimer et al, 1996; Meyers, 1997; Rasmusson and Sandman, 1998; Krishnasamy, 1999; Witt Sherman, 1999). The patient's end-of-life state and central role in efforts to manage that state makes the patient a participatory member of the palliative care team who maintains a level of autonomy and control in relation to the other team members (Latimer et al, 1996, McGrath, 1998). The key to understanding the importance of architectural knowledge in palliative care is the focus on relief of suffering in the patient and in patient-based carers such as family and friends. The causes of suffering during the end of life process are often broadly based and it is this aspect that mandates the use of multidisciplinary teams of palliative carers.

As part of an ongoing study into innovation management in palliative care a series of focus groups are being conducted in hospices in Sydney. As a result of this exploratory work we have observed and analysed a range of competences that can be bundled together to provide the requisite organisational capabilities that palliative care hospices have developed to support and manage their innovation processes. In the palliative care organisations studied in Sydney we have noted that patient care teams form, break down and reform from a multidisciplinary pool. The driver of team composition is the patient's situation. Knowing the patient and the patient's carers is described as being core and pivotal to the successful provision of palliative care by Luker et al (2000) and must happen as early in the palliative process as possible. Individual patients bring individual care contexts into the palliative network. This means that each patient must be known individually. Within this community, relationships based on trust and integrity are constructed between the palliative care professionals and the patient and patient-based carers to facilitate the provision of care at all levels (Latimer et al, 1996; Krishnasamy, 1999).

Broadly speaking, each discipline involved in multidisciplinary palliative care teams is there with an operational connection to the major components of care such as medicine, nursing, pastoral care, social care, physiotherapy and occupational therapy. Each discipline contains its own specific knowledge of its component. However, interviews with multidisciplinary teams about individual behaviours within the teams and their relationship to the management of innovation have revealed a number of interesting factors that can be expressed in terms of Henderson and Clark's (1990) concept of architectural knowledge.

Discussion and Conclusion

As component of research into the management of innovation in palliative care, exploratory interviews with hospice management teams indicate that palliative care organisations use up to six individual organisational capabilities: managing knowledge, managing information, interdisciplinary operations, collaborative operations, managing technology, managing change and its effects (Davison and Hyland, 2001). Under these, described in interviews with multidisciplinary palliative patient care teams, seem to be bundled up to seven sets of competences: use of organisational artefacts to create trust, rapid patient inclusion is stable social structures, address values based issues, understand the patient's situation as a basis for care, working in teams, collaboration, managing ambivalence (Davison and Sloan, 2002). Of these sets, the first three are used by palliative professionals in relationships with patients and patient-based carers, for example families. The last three are used between members of the multidisciplinary care teams. It appears that the fourth, understanding the patient's situation as a basis for care is used as a bridge linking the other two groupings of competences.

A number of linkages have been noted between the previous research and exploratory findings. Garud and Nayyar's (1994) transformative capacities, used to choose technologies, maintain them over time, and to reactivate them as required seem to have a number of applications in the palliative care environment. Palliative care organisations studied have a standing requirement to operate this way. At the organisational level palliative care organisations, while perhaps not calling it so, understand the need for transformative capacities. This is reflected in the organisational capabilities described by palliative care management committees. It would appear that each of these capabilities is necessary to enable transformative capacities. At the operational level, a number of the competences described in interview would seem appropriate. For example, understanding the patient as a basis for care could be a basis for the appropriate choice of care technologies, as could collaboration and working in teams. Maintenance and reactivation of technologies over time might also be dependent on these competences.

Combinative competences aim at integrating complex, systemic, and often tacit knowledge. Here again it would seem that palliative organisations recognise the need for and practice these competences. They are enabled by organisational capabilities such as managing knowledge, managing information and collaborative and interdisciplinary operations. At the operational level competences such as creating trust and stable social structures to enable understanding of tacit knowledge, and addressing values-based issues to create meaning would all seem capable of producing knowledge and information for integration while collaboration in teams is the integrative competence.

Configuration competence (Bessant and Boer, 2002), where organisations find configurations of processes, procedures, people, technologies and organisational arrangements that allow them to become continuously innovative, also seems to have application in palliative care. This is enabled by capabilities such as collaborative operations and managing technology and interdisciplinary operations. In operations competences such as working in teams, collaborating in patient care and understanding the patient's situation as a basis of care could be characterised as combinative.

With regard to the creation and use of knowledge it appears that both component and architectural knowledge (Henderson and Clark, 1990) are used in palliative care. Interviews with multidisciplinary patient care teams provide evidence of constant communication within and between teams. For example, when discussing the issue of holistic care as a driver of the need to gather and exchange a broad range of information about patients and patient-based carers, a team member noted, "..constantly, formally and informally, probably definitely more informally than formally, you can see everyone's having these little conversations all over the place, bouncing ideas. Trying to decide if there are any more ideas. So that you are not doing it on your own, but its a team.". An outpatient team member reported, "There's constant talking. I think there's a big effort made, like when you've seen a patient, to, you know, fill in all the other people involved when you get back. Even if its quick, for a couple of minutes.". And another, "We all talk amongst ourselves. I mean we'll sit down and talk about the troubles that a patient might be having at home. Is there something that can be done? Would this benefit the patient? Do you think that if you saw them this would help? So that's how we

all talk together about these sorts of things.". Members of individual disciplines observe aspects or requirements of care outside of their disciplines when dealing with patients and patient-based carers. One team member talked about observing "issues that might relate to another professional so that I could give that person an idea that they were needed. They have particular specialist skills and knowledge. We all have the overview.". Collaboration appears to extend further than observation and reporting. When discussing teamwork one team contributed, "Its not a control thing, its not like 'this is my patient'.". There is a conscious willingness to share information and knowledge (Davison and Sloan, 2002).

The result of these communications is architectural knowledge, the knowledge of the relationships between the components of care, maintained and redeveloped as a patient's situation changes during the end of life experience. As for component knowledge, while it is developed within the individual disciplines it appears, from the interviews reported above, that a second level of this type of knowledge is developed as a result of belonging to the multidisciplinary team. Team membership brings with it the responsibility for members to become familiar with components of disciplines other than their own so that all eyes are on as many aspects of a patient's situation as possible, thus enabling as broad an understanding as possible.

A number of models of innovation management have been drawn from the previous research and presented with the objective of providing a context for a study of the management of innovation in multidisciplinary patient care teams in palliative care, a complex and dynamic environment. In addition, exploratory findings from the study have been presented as early evidence of the existence of incremental innovation in palliative care and to extend the understanding of this environment.

References
Abernathy, W. and Clark, K.B. (1985) 'Mapping the winds of creative destruction' *Research Policy* Vol 14 pp 3-22
Abernathy, W.J., Utterback J.M., (1978) 'Patterns of Industrial Innovation' *Technology Review*, Jun-Jul pp 41-47.
Afuah, A. (1998) 'Innovation Management' Strategies, *Implementation and Profits,* Oxford University Press, New York
Amit, R., Schoemaker P.J., (1993) 'Strategic Assets and Organizational Rent', *Strategic Management Journal* Vol 14 pp. 33-46
Arthur, B. (1994) *Increasing returns and path dependence in the economy* Ann Arbor: University of Michigan Press
Boland Jr. R. J., Tenkasi R.V. (1995) 'Perspective Making and Perspective Taking in Communities of Knowing' *Organization Science* 6(4) pp 350-372
Barbato, M., (1999) 'Palliative care in the 21st century - Sink or swim' *Newsletter of the New South Wales Society of Palliative Medicine* May
Bessant, J. and Boer, H. (2002) 'Continuous innovation' IPOS Seminar
Boccardelli, P., Magnusson M. G., (2000) 'Dynamic Mastering of Technological and Managerial Competences. Some Preliminary Results from a Study in the Telecom Industry' Paper presented at the *Strategic Management Society 20th Annual International Conference* Vancouver
Boer. H. 2002 Continuous Innovation Seminar presented at University of Western Sydney Campbelltown Australia, April
Coombs, R., (1996) 'Core Competences and the Strategic Management of R&D' in Belcher A., Hassard J., Procter S. J., (eds) *R&D Decisions. Strategy, Policy and Innovations* London Routledge
Davison, G. Hyland, P., (forthcoming 2002) 'Palliative care: An environment that promotes continuous improvement' in Geisler, E. Krabbandam, K., and Schuring, R., (eds), *Technology, Healthcare and Management in the Hospital of the Future* Connecticut Greenwood Publishing
Davison, G., and Sloan, T., (forthcoming 2002) 'Individual behaviours in interdisciplinary teams in a complex and complicated environment: palliative care' *Proceedings of the Hospital of the Future Conference* Chicago

Dosi, G., (1982) 'Technological Paradigms and Technological Trajectories' *Research Policy* Vol 11 pp 147-162

Drejer, A., (2000) 'Organisational learning and competence development' *The Learning Organization* Vol 7 No 4 pp 206-220

Garud, R., Nayyar, P.R. (1994) 'Transformative capacity: Continual structuring by intertemporal technology transfer' *Strategic Management Journal* 15(5) pp 355-386

Gieskes, J.F.B., Langenberg, I.W.H.A., (2000) 'Learning and improvement in Product Innovation Processes: Enabling Behaviours' *Proceedings INCOSE Conference* (International Council on Systems Engineering) Minneapolis,

Hamel, G., Prahalad, C.K., (1996) *Competing for the Future*, Harvard Business School Press

Hansen, M.T., (1999) 'The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits' *Administrative Science Quarterly* Vol 44 No 1 pp 82-111

Henderson, R.M. and Clark, K.B., (1990) 'Architectural Innovation: the Reconfiguration of Existing Product Technologies and the Failure of Established Firms' *Administrative Science Quarterly* 35 pp 9-30

Herrmann, D., (1999) 'Tracking systems as a catalyst for incremental innovation' *Management Decision* Vol 37 No 10

Higginson, I.J., (1999) 'Evidence based palliative care' *British Medical Journal* Vol 319 No 7208 pp 462-463

Hyland, P., Gieskes, J., Sloan, T., (2001) 'Occupational Clusters as Determinants of Learning in the Product Innovation Process' *Journal of Workplace Learning* Vol 12 No5 pp 198-208

Iansiti, M., Clark K. B., (1994) 'Integration and Dynamic Capability: Evidence from Product Development in Automobiles and Mainframe Computers' *Industrial and Corporate Change* 3 pp 557-605

Johannessen, J.A., Olaisen, J., Olsen, B., (1999) 'Managing and organizing innovation in the knowledge economy' *European Journal of Innovation Management* Vol 2 No 3

Karnoe, P., (1995) 'Competence as process and the social embeddedness of competence building' *Academy of Management Journal* Best Papers Proceedings

Katz, Michael L.; Shapiro, Carl, (1985) 'Network Externalities, Competition, and Compatibility' *The American Economic Review* 75(3) pp 424-441

Kogut B., Zander U. (1992) 'Knowledge of the Firm, Combinative Capabilities and the Replication of Technology' *Organization Science* Vol 3 pp 383-397

Krishnasamy, M.,(1999) 'Nursing, morality, and emotions: phase I and phase II clinical trials and patients with cancer' *Cancer Nursing* Vol 22 No 4 pp 251-259

Latimer, E., editor. McDonald, J., Krauser, J., (1996) 'Toward the provision of effective palliative care in Ontario' *Excerpts from OMA Colloquium on Care of the Dying Patient*

Leonard-Barton, D. (1992) 'The factory as a learning laboratory' *Sloan Management Review* Fall pp37-50

Lippman, S. A., Rumelt R., (1982) 'Uncertain Imitability: An Analysis of Interfirm Differences in Efficiency under Competition' *Bell Journal of Economics* Vol 13 pp 418-438

Luker, K.A., Austin, L., Caress, A., Hallett, C.E., (2000) 'The importance of 'knowing the patient'; community nurses' constructions of quality in providing palliative care' *Journal of Advanced Nursing* Vol 31 No 4 pp 775-782

March, J. G., Simon, H. A., (1993), *Organizations*, , Cambridge (MA):Blackwell

McDermott, B., Sexton, G.(1998) 'Sowing the seeds of corporate innovation', *Journal for Quality & Participation* Vol 21 No 6 pp 18-23.

Meyers, J.C., (1997) 'The pharmacist's role in palliative care and chronic pain management', *Drug Topics* Vol. 141 No. 1 pp98-107

Miller, D., Shamsie J., (1996), 'The Resource-Based View of the Firm in Two Environments: The Hollywood Film Studios from 1936 to 1965' *Academy of Management Journal* Vol. 39 pp 519-543

Mintzberg, H., (1997) 'Toward healthier hospitals', *Health Care Management Review*, Vol. 22 No 4 pp 9-18

Nabeoka, K., (1995) 'Inter-project learning in new product development' *Academy of Management Journal* Best Papers Proceedings pp 432-436

Nobeoka, K., Cusumano M. A., (1997) 'Multiproject Strategy and Sales Growth: the Benefits of Rapid Design Transfer in New Product Development' *Strategic Management Journal* Vol 18 pp 169-186

Nelson, R. R., Winter S. G., (1982) *An Evolutionary Theory of Economic Change* Cambridge Mass Belknap

Nonaka, I., Takeuchi H., (1995) 'The Knowledge Creating Company' *Oxford University Press New York*

Pitt, M., Clark, K., (1999) 'Competing on competence: A knowledge perspective on the management of strategic innovation' *Technology Analysis & Strategic Management* Vol 11 No 3 pp 301-316

Rasmussen, B.H., Sandman, P.O. (1998) 'How patients spend their time in a hospice and in an oncological unit' *Journal of Advanced Nursing* Volume 28 No 4 pp 818-828

Teece, D. J., Pisano G., Shuen, A., (1997) 'Dynamic Capabilities and Strategic Management' *Strategic Management Journal* Vol 18 pp 509-533

Tushman, M.L. Rosenkopf, L. (1992) 'Organisational determinants of technological change: towards a sociology of technological evolution' *Research in Organisational Behaviour* Vol 14 No pp 311-347

Van de Ven, A. H., (1986) 'Central Problems in the Management of Innovation' *Management Science* 32 pp 590-607

Werther, W.B. (1997) 'Strategy Driven Technology in International Competition', *Proceedings of the Sixth International Management of Technology Conference'* Gothenburg, Sweden, pp 13-24

Witt Sherman, D., 'Training advanced practice palliative care nurses' *Generations* Volume 23, Issue 1, pp97-90, Spring 1999