

# Innovation, Information Technology, Organisational Improvement and Research

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Innovation on the whole is poorly understood and therefore, unsurprisingly, we could do better in relation to our innovation levels. Why is this a problem? It isn't really a problem if you are in a sector with low levels of competition, if your

services or products are selling well and the future looks great. Enjoy it while it lasts, but Porter's 5 Forces model (figure 1) reminds us that things can and do change!

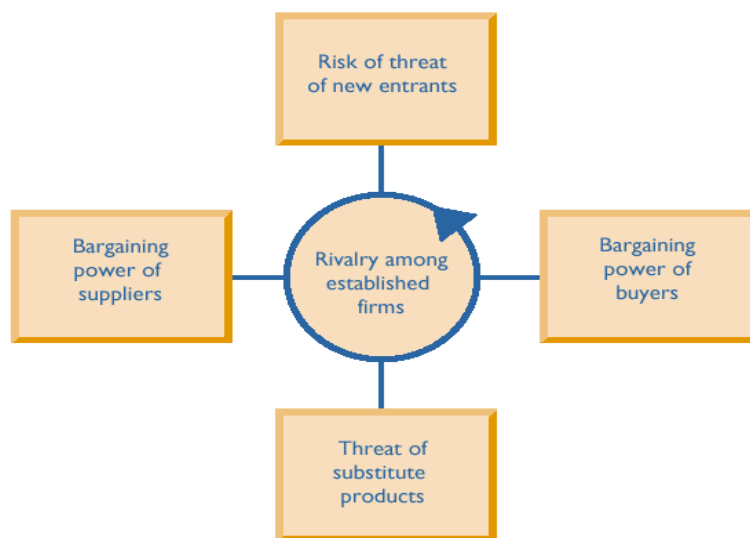


Figure 1: Porter's Five Competitive Forces Model (Porter, 1985)

Even in sectors where there is a moderate level of competition you need to be thinking more seriously about innovation as a core competence, if you take a resource based perspective of it.

This is an approach to strategic planning that examines the internal strengths and weaknesses of an organisation. It is centred on the perspective that a company can develop resources and capabilities that in the end will lead to value for the customer and a competitive advantage. These resources can be tangible such as financial assets, physical assets, e.g. buildings, equipment, land; and intangible resources – expertise, relationships with organisations, alliances, reputation and brand, information and data, organisational structures and culture, legal assets (contracts, patents, copyright). So a company can try to build on these assets (strengths) to deliver value to customers and gain a competitive advantage. Of course, an organisation's ultimate success will depend to some

extent on the level of competition in the sector and their level of innovation.

## What is it?

So what is innovation? Simply, it is doing something new. It may be creating a new product or service or even changing processes within an organisation. Innovation does not have an absolute, it is relative. For example, an organisation changes some internal processes that are standard industry practice so is this innovative? Well, to them it is and I suppose that is what really matters. In other words, today's innovation is tomorrow's routine!

Innovation is critical to long term business success since organisations must continually reinvent who they are and what they do or run the risk of becoming obsolete (McDonough, Zack, Lin and Berdrow, 2008). In Australia, the IBM-Melbourne Institute Innovation Index of Australian Industry (IBM-Melbourne Institute, 2008) has highlighted

that recent levels of innovation in Australian organisations are declining and are well below levels identified in the early 1990s. It stresses the need to create a pervasive culture of innovation across public and private sectors. The IBM-Melbourne study analyses six key data groups, comprising: research and development intensity; patent intensity; trade mark intensity; design intensity; organisational/ managerial transformation; and productivity. These groups can form a basis for assessing organisational innovation.

Innovation can happen at all levels of an organisation. Tom Peter's tells of some staff at Campbell's visiting very popular restaurants since they think some dishes in these restaurants will be the soup of tomorrow. This can also translate to small business too and he mentions how a small restaurant can pay for a meal for a waiter at another restaurant and get them explain what it was like when they return.

### Innovation Processes

Innovation is not about technology but technology can help. In fact, it can be hindrance if it is the focus of innovation. But it can help deliver and support innovation in an organisation. So what are

the keys to developing innovation? It is probably worth looking at some of the reasons why innovation fails:

- Uncertainty
- Poor commercialisation
- Poor positioning strategy
- Technological myopia
- Slowness in marketing
- Extent to which a company can protect the knowledge that underpins the innovation
- Innovations can be reverse-engineered or altered
- The product that captures a significant share of the early market is likely to completely dominate the market

The process of innovation is also poorly understood. A lot of attention is given to the idea formation phase but even the good ideas can struggle to get any further. So what is required is a process for innovation that formalizes the stages from idea generation through to implementation or commercialisation. Figure 2 shows the stages of innovation in a staged approach where the stages overlap to reduce the risk of failure by creating feedback mechanisms.

## PARTLY PARALLEL

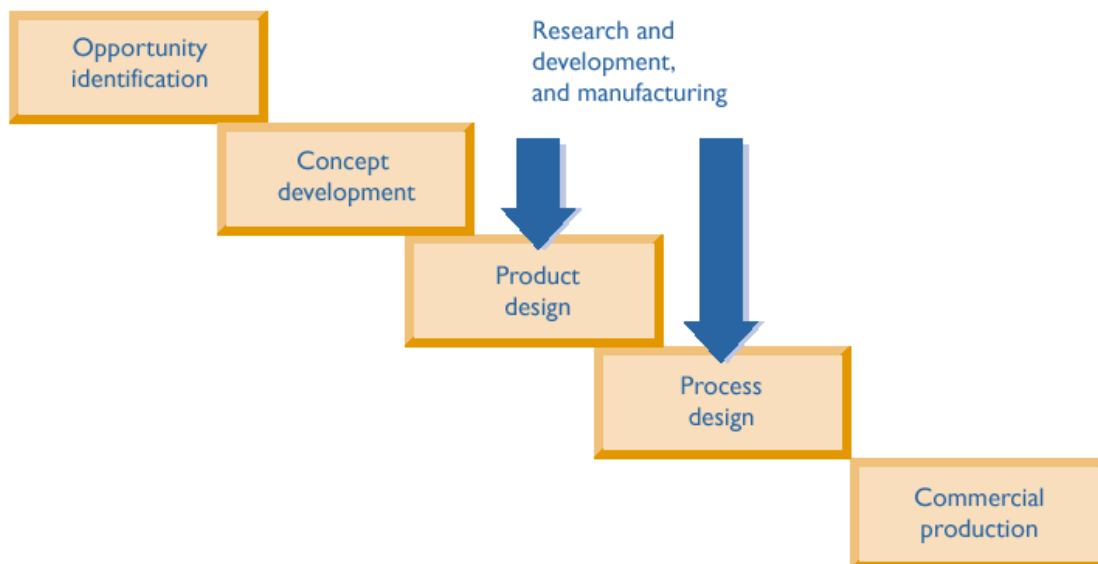


Figure 2: Stages of Innovation (Hill, et al., 2009)

Proctor and Gamble use innovation workshops where the senior management team including the CEO play a key role. These innovation workshops allow ideas to be presented and discussed through

posters (like a rich picture) and any barriers to implementation and success identified.

## Role of Knowledge Management in Innovation

To successfully develop an organisation's innovative capability requires that a strategic approach to managing knowledge and innovation is taken. An organisation's competitive advantage is increasingly derived from its knowledge and its ability to innovate based on that knowledge (Bjelland and Chapman-Wood, 2008). The problem is that managing knowledge has been viewed from

an operational perspective rather than a strategic one and has tended to focus on lower level efficiencies rather than innovation and creativity (McDonough et al., 2008). Given that people are increasingly working in distributed organisations and collaborating through the use of information and communication technologies a major problem can be seen as how to develop innovative organisations through knowledge management in virtual environments.

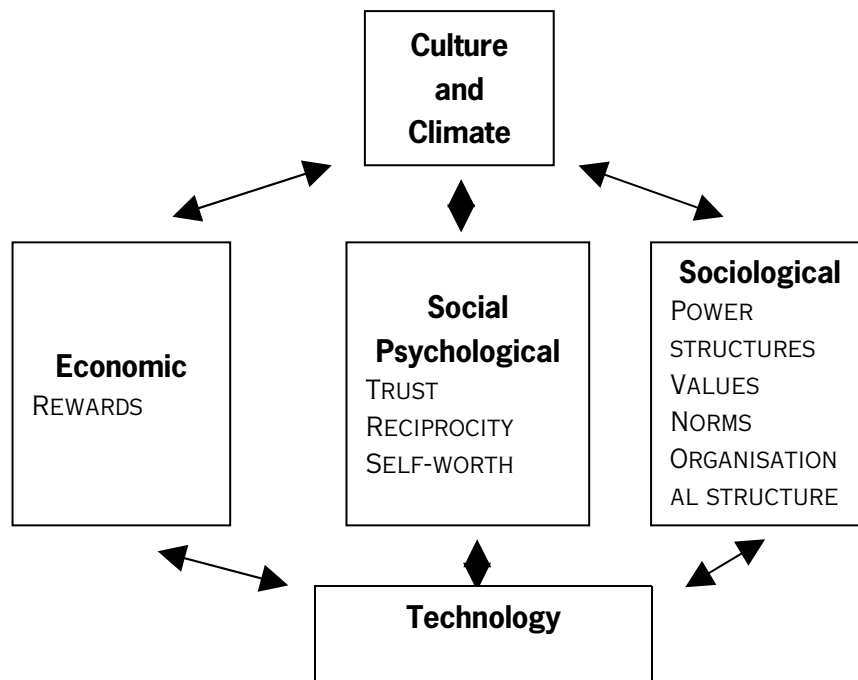


Figure 3: Factors Impacting on the Use of Technology for Knowledge Management

A rational view of knowledge considers knowledge as a commodity and assesses the impact of rewards on knowledge sharing (figure 3). Trust, reciprocity and self-worth, power structures, values and norms (organisational culture) are all known to influence levels of knowledge sharing. An organisation's effectiveness in leveraging knowledge is also influenced by its absorptive capacity, in other words its capacity to acquire and assimilate knowledge and then to exploit the knowledge for organisational advantage (Zahra and George, 2002). Knowledge management in organisations has tended to focus on operational efficiencies rather than strategic innovation although its potential is now being recognised by leading organisations (Bjelland and Chapman-Wood, 2008).

- it becomes a comprehensive analysis of a topic. For example, IBM brought 150,000 employees together using wikis to brainstorm potential innovations (Bjelland, Chapman-Wood, 2008).

A range of potential knowledge/collaboration tools can be used within a virtual team environment that includes members from within an organisation and across cooperating organisations. The use of the tools will be analysed to determine how and where they contribute to organisational innovation. The following provides examples of collaborative tools that can be used to share and generate knowledge:

- Wikis – are collaborative web sites where users can add to the content. They can be used to share insights and experiences and are often organised around specific organisational problems or opportunities. One of the benefits of a wiki is that knowledge is built upon by each contribution until
- Web site forums – can be used to brainstorm ideas and can include bulletin board type contributions. Organisers of the web site forum may structure the content and moderate contributions.

- Idea marketplace - are intermediaries that facilitate the exchange of ideas and talent between owners and acquirers. Owners can make their ideas and talent visible and available to others. Acquirers can discover and gain access (via purchases, licenses or other arrangements) to the ideas and talent they need. They are especially relevant to research based organisations (Gartner, 2008).
- On-line chat rooms – can be used to discuss ideas and innovations.
- Other collaborative tools including email, tele-conferencing (two-way audio), video-conferencing (two-way audio and video), data-conferencing (whiteboards, application sharing, data presentations), Intranets, proprietary groupware tools, and electronic meeting systems (Bajwa, Lewis, Pervan and Lai, 2005).

Knowledge collaboration tools have to be integrated with systems that are already in place and each organisation's approach to how people, processes and tools are integrated is unique (Thomke, 2006).

Social networking concepts are a big part of Web 2.0. Yet companies are struggling to know whether these ideas are relevant for their organisation. Suggestions to help improve adoption of Web 2.0 ideas are put forward by Chui, Miller and Roberts (2009):

1. The transformation to a bottom-up culture needs help from the top
2. The best uses come from users
3. Uses should be part of a user's daily workflow
4. Usual rewards for participation are not enough
5. Overcome fear of lack of management control
6. Target key users with networks

### Lessons for innovation

The lessons we can learn about innovation and the role of IT are many. We should remember that Innovation doesn't just happen, it needs a conscious effort to develop levels of innovation with top management support. Critically, we need a process for innovation and one that covers the stages from idea generation through to commercialisation. With top management support and a culture of knowledge sharing, the IT and Web 2.0 systems have a role and purpose. Without those pre-requisites the tools are unlikely to be used to any great extent.

### Implications for Research

Here are some thoughts on innovation and research. Innovation is everyone's job in research but it does need senior champions and leaders. Enthusiastic leadership is critical to innovation success. Innovate at the intersections of disciplines.

Force fit metaphor's to develop breakthrough ideas. An example of this is the research team that took the metaphor of a formula one pit-stop and applied it to accident units in hospitals. The improvements in time and error rates were substantial. Remember that creativity and innovation are different so having the idea is not enough you need to look at the logistics of research such as the practicality of data gathering.

### Summary

Over the coming years innovation will gain more attention at national and organisational levels. It requires a lot of things to come together and so it is complex and prone to failure. Organisations that focus on innovation and make improvements in this area will prosper.

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