

Innovation:

how management can improve throughput by understanding the flow

The cause and effect relationships between management practices and innovation excellence is an area of managerial endeavour where managers still have more questions than answers. Little is done to provide managers with comprehensive frameworks for benchmarking and improving their own understanding of the underlying issues and, ultimately, increase innovation output. Many managers experience no shortage of clever ideas and their managerial challenge is more about the bigger picture of how these ideas fit into a systemic whole that integrates original thinking with the refinement and implementation challenges of their operating environments.

Management sciences guru, Peter Drucker, predicted in 1968 that the age of discontinuity was about to enter our lives, creating management challenges of how best to manage the organisation of the future.

He did not provide a list of tools, but articulated some of the challenges, many of which are still unresolved. He challenged management to learn how to build and manage the innovative organisation as groups of humans capable of anticipating the new, capable of converting vision into technology, products and processes and willing and able to accept the new.

In his view, the emerging organisation was going to be radically different. Management got used to the idea of managing people to improve outputs on work they already knew how to do, a mindset which Drucker believed would be challenged.

MIT Professor and thought leader in innovation, Prof C M Christensen, was one of the first to identify innovation as a new management science.

In 2002 he expressed the view that innovation management today is where the quality movement was 30 years ago and that in 30 years we may find that innovation is not nearly as random as we think today.

Much of current literature on innovation focuses on specific elements of the innovation challenge, like creative thinking, process engineering, commercialisation and softer aspects like culture.

This leaves management with little integrated, tried and tested, actionable insights at a time when they need a better understanding of the cause and effect relationships to improve their ability to influence innovation outcomes through improved management practices.



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Table 1.

Category	Descriptor
Known-explicit	The knowledge we use in the organisation is recorded, accessible and is usable by the work force to achieve their goals.
Known-tacit	This is knowledge that people carry around in their heads and it is not accessible to others without the consent of the knowledge bearer.
Knowable	This is knowledge not yet synthesised, different people may have parts of what is needed for a new solution and with the right processes and techniques, new insights could be gained.
Unknown	This concerns areas of uncertainty and unpredictability and may relate to organisational or environmental aspects of managing the organisation.

This article responds to these challenges and the need for research into the variables that affect probability of innovation success.

The article starts with some reflection on terminology, proposes a specific model and then ventures into checklists intended for management to apply in a self-assessment mode to identify the most appropriate intervention areas for the improvement of the innovation pipeline.

But what is innovation?

Interviews with leading innovators revealed an interesting blend of personal and organisational definitions with clear acknowledgement that creative ideas form an important, but often small part of the innovation equation:

- ❖ new connections between known concepts,
- ❖ improved living, doing things differently and/or better,
- ❖ improved input/output ratios,
- ❖ inventions implemented and
- ❖ novelty exploited.

These views provide a basis for understanding innovation as a process which

results in the implementation of a new product, a new way to produce a product, to distribute products, to provide services or any combination of these.

Innovation management should thus aim for both technological advances and organisational improvements to advance in a given context.

Why is innovation important?

From multiple training and strategy workshops with innovation practitioners, the following reasons emerged frequently:

- ❖ continue to keep increasingly sophisticated customers satisfied and loyal,
- ❖ keep abreast of changing expectations and operating environments,
- ❖ the opportunity to add value and produce more with less organisational sustainability and impact,
- ❖ staff motivation and the realisation of their potential and
- ❖ avoid being stuck with yesterday's solutions that may not be appropriate for today's challenges.

These views imply that there are good reasons for management to improve its innovation management capabilities; managers are almost left with no choice if they want their organisations to remain in business and not be wiped out by the innovation of others.

Whilst most practitioners agree that structural and context specific nuances form part of the innovation equation, two clusters of good practices emerged including organisational and personal.

Organisational practices that improve innovation are:

- ❖ scanning literature for emerging innovations,
- ❖ know industry, stakeholders and clients problems and networking dynamics,
- ❖ market pull for innovative goods,
- ❖ protection of intellectual property,
- ❖ someone believing in you,
- ❖ resources,
- ❖ enabling structures, processes and mechanisms,
- ❖ stimulating atmosphere and intellectual challenge,
- ❖ learning from past mistakes,

Technology Phase	Descriptor
Emerging	Someone is working on it in early research mode, it may be far from operational manifestation, but something is likely to happen that may impact on the way we do things today. Potential unknown but promising.
Pacing	It has just been introduced to the world in experimental mode and has the potential to revolutionise the world.
Key	Early adopters are now using it and only some segments or sectors can still benefit substantially from its application.
Base	Everyone is now using it, it has become the accepted new way and those not using it yet may be left behind so far that they may not catch up in time.

Table 2.

- ❖ stage/gate processes,
- ❖ right timing,
- ❖ acknowledging and welcoming contributions of others like brainstorming in teams and
- ❖ accept that there is no 'one size fits all' approach to innovation yet.

What personal attributes improve innovation? Here are some:

- ❖ understanding context, i.e. problems/needs and where the pattern could be changed,
- ❖ curiosity,
- ❖ a broad open mind,
- ❖ leadership,
- ❖ a passion to make a difference and personal ownership,
- ❖ the ability to escape current reality,
- ❖ discipline,
- ❖ appropriate measures and rewards,
- ❖ close to/fingers on pulse of the market,
- ❖ forward looking individuals,
- ❖ quality reflection or thinking time,
- ❖ an ability to focus on both big picture and operational requirements.

Emerging requirements for an innovation framework

The inventor of lateral thinking, Dr Edward de Bono, cautioned against definitions of creativity because of its inhibiting consequences.

The challenge to management, however, is not to seek an ultimate definition

of creativity or its role in innovation, but to have and apply a framework that would accommodate the diversity of views expressed above.

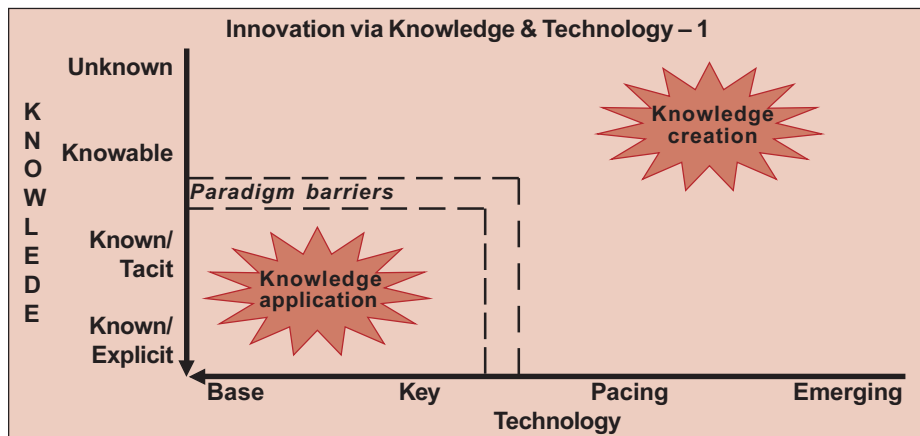
Such a framework should also explain the findings of Christensen when he studied the failure of companies to stay on top their industries when confronted by certain types of market and technological changes.

His interest was not the failure of just any company, but of good companies – those admired by many managers aspiring to greater performance, companies known for their abilities to innovate. He found that successful companies often fail because of the very management practices that have allowed them to become leaders in their fields.

Their success in the existing market tends to prevent them from implementing or adopting disruptive innovations. This management dilemma is caused primarily by the following factors as implied by Christenson and Junfu Zhang:

- ❖ To attain market leadership, successful firms listen to customers and invest in technologies that give those customers what they say they want. The downside of this practice is that it prevents them from picking up signals about emerging innovations.
- ❖ Successful firms prefer high margin business and tend to target large markets rather than small ones. Disruptive innovations usually fit into a niche market or a market that does not exist yet. These innovations promise a bright fu-

Figure 1: Innovation via knowledge and technology: knowledge creation and application.



strategy

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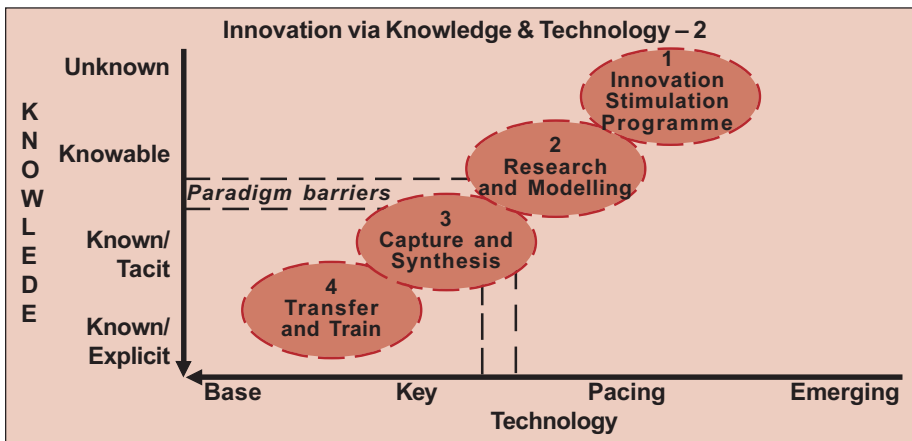


Figure 2: Innovation via knowledge and technology: influence clusters.

ture, but usually bring little or no profit in the short term. Great firms have missed innovations because they were too eager to seek something big.

- ❖ Innovations usually bring a new product that will compete with the current well marketed product or a new organisation that will turn the existing corporate structure upside down. Companies with huge market share prohibits itself from developing disruptive technologies and competing with itself. This leaves them vulnerable to be dethroned by other firms with disruptive innovations.
- ❖ Great firms often miss innovations be-

cause they view it as too risky to pursue. The triumph of disruptive innovations usually hinges on an emerging market. It is easy to recognise an emerging market after the fact, but not before the fact. Who could possibly have predicted the prevalence of personal computers and mobile phones today? A disruptive innovation, never tested on the market, has a much higher chance of ending up as a failed project. Venture capitalists often have to live with the cruel reality that one in every three of their investments produces a total write-off, so they choose to avoid such projects.

Two pillars of managing for innovation throughput

By adopting a knowledge and technology – the two pillars to manage innovation – perspective to innovation, managers will find that most, if not all, the above definitions and requirements can be accommodated in an integrated framework for managing innovation at different levels and functional fields of the organisation.

Knowledge, defined here as the capacity for informed action, can be categorised in multiple ways. For purposes of this article, a simple taxonomy based on the work of Zack and Sveiby will suffice (see Table 1).

The arrow suggests the flow from knowledge generation to its application and adoption or from the unknown to the explicitly known.

Technology can also be categorised into multiple clusters of meaning, some of which are more useful than others. Whilst most management publications refer to technology, surprisingly few provide a clear definition of the concept.

For purposes of this article, technology is viewed as the practical mechanisms or tools including physical hardware and software, derived from scientific advances and know-how, packaged to process or deliver the results, goals, goods and services desired by people or improve man's ability

Table 3.

Cluster	Benchmarking challenges	Your current practice aligned?	
		-1 No	+1 Yes
1. Innovation stimulation programmes	Do you know which organisations and people make it their business to identify problems, challenges and unresolved needs of people in your field of operations or functional areas? Do you have good relationships with the leading thinkers in the field? Are you connected to these thought leaders who either make or influence decisions on future technology solutions? Engage in possibilities driven dialogue or structured foresight processes. Are you co-creating or shaping the future through your resourcing decisions?		
2. Research and modelling	Use screening mechanisms to monitor any new announcements about technologies that may impact on your organisation. Identify suppliers, staff and others with a working knowledge of new technology or possible applications. Engage these people in 'what if' conversations and sensitivity analysis. Ensure that your R&D activities cater for emerging opportunities and threats. Determine your vulnerability should competitors be able to apply the new technologies faster or better than you.		
3. Capture and synthesis	Identify the early adopters in your domain or organisation. Ensure their willingness to share insights. Capture these insights via video, multi-media or other mechanisms. Synthesize and package these as edited, validated insights. Ensure access by the right people, like change agents and scenario planners.		
4. Transfer	Know who is currently benefiting from the new insights or technologies. Know who else can benefit from these insights and practices. Arrange access and ensure value adding feedback mechanisms. Monitor adoption cycles for critical mass and economies of scale. Use these forums to identify future problems/challenges and formulate new innovation stimulation programmes.		
Total points		-	+

to perform specific areas of work.

This includes objects ranging from pencil and paper to the latest sophisticated electronic gadget that aims to make easier and more efficient that which was previously slow and tedious. This article proposes a technology adoption approach based on the work of Hastbacka.

By combining the above two pillars into the following continuum, a whole new approach to managing the interface areas becomes possible. The first observation is that there appears to be two areas of management relevance.

In one zone managers focus on what is known and available in the form of technologies and how best to apply and optimise. On the other side of what could be described as a paradigm barrier, sits knowledge creation or the search for the new.

It is proposed that this is the first innovation management priority area. The choice to management is obvious: wait for something to happen or shape what is happening so that you are ready to benefit from the new, once it becomes usable.

Figure 1 suggests four knowledge/technology interfacing clusters for management to influence the flow and throughput of innovation.

The dotted lines indicate that it is really the flow that matters in an appropriately structured portfolio of actions where each cluster dovetails into the next and the composition of the portfolio is determined by the competitiveness dynamics of the particular sector or functional domain.

Implications for benchmarking of current versus desired management practices

Cluster 1: Innovation stimulation programmes

This is where management can and should

take action to monitor, influence and shape the future by being connected to the right minds in time to co-shape the new. The alternative is to wait and see and possibly be surprised when others come up with the new.

Cluster 2: Research and modelling

Here management has to bring together people who may have been exposed to elements of the future and from which interaction new insights can emerge that could benefit the organisation.

Cluster 3: Capture and synthesis

Some people may already have used the new in their environments as early adopters and the management challenge is to be able to identify these people, capture and synthesise their insights so that others can learn from it.

Cluster 4: Transfer and train

In this cluster the emphasis is on extracting the best possible value from insights and knowledge that your organisation already has and knows. Training is used to make the organisation more efficient by capitalising on what is known to work in the pursuit of existing objectives.

The challenge is to capture and make available to others what you already know works and getting all the affected parties to share in expanding the knowledge base.

Table 3 overleaf applies the thinking in a practical manner by suggesting specific questions for consideration.

The table is not intended to serve as comprehensive or validated measurement instrument, but merely to point out areas in need of improvement.

A manager who achieves only negative scores overall or in some sections of this self-assessment is clearly in a weaker innovation management position than another manager who can confidently rate positives.

Implications and applications

It is proposed that this model be used widely by managers to determine its relevance to fields within and beyond their immediate zones of control to include:

- ❖ customers' and other stakeholders' perceptions of how you perform,
- ❖ your people involved with the development of new offerings,
- ❖ internal functions such as marketing, production, HR, finance, etc.,
- ❖ management levels (GM, CEO, management, workers, etc.) people, personal, groups or institutional levels,
- ❖ process audits and
- ❖ linkages to your strategic management cycles. Culture dipsticks on levels of trust, openness and sharing.

Conclusions

Innovation is becoming the new differentiating field of organisations in our highly competitive business environments. Management has to develop the skills to manage this emerging phenomenon and ensure that they benefit from new insights and technologies as active participants rather than remaining spectators or becoming victims of someone else's innovations.

Many of the tools currently available to managers cover only aspects of innovation and often reflect functional field or personal bias.

This article proposes the management of innovation as a continuous pipeline where knowledge and technology form the two major pillars of a proposed model and managers can better manage throughput by understanding the requirements of and flow between the four knowledge and technology interfacing zones. ■

A list of reference is available from the editor.

First business school exhibition to be held

If you are on a quest for comprehensive information on MBA's as well as business and management short courses, conferences and forums, then Gallagher Estate on 13 September and Cape Town Convention Centre on 26 September, is the place to be.

The Association of Graduate Schools of Business and Management (AGSBM) will be holding an exhibition show casing all accredited business schools under one roof.

The 16 leading business schools in South Africa will be present. Visitors will be able to interact with a range of faculty, admissions officers and career consultants from all the provinces.

Prof Nick Binedell, president of the

AGSBM and director of the Gordon Institute of Business Science stated, "This exhibition provides a novel opportunity for individuals and professional people to network, discuss and investigate the many programmes and courses available on the market.

"The various MBA's with their specialised streams will be on show as well as a selection of executive education short courses and programmes. The event aims to find the synergy between business and education."

In today's fast paced world, HR professionals and individuals are continually stretched to find the best products to ensure a return on their education investment. The event drives

access to this product knowledge base at a single convenient location.

High profile companies will be offering their expertise in areas such as finance, information technology, employment opportunities, publishing and educational services.

Over R200 000 worth of business courses can be won including the Senior Management Programme from the University of Pretoria Graduate School of Management and the Advanced Business Programme from TUT Business School, Tshwane University of Technology.

For more information, visit www.bschoolexpo.co.za to register online for free or register at the door.