

Innovation in IT for Management

Dr. K. Venkata Ramana,

Associate professor,

K.M.M.Institute of Post Graduate Studies, Department of Computer Applications,
Tirupati-517502

S. Ismail Basha,

Assistant Professor,

K.M.M.Institute of Post Graduate Studies, Department of Computer Applications,
Tirupati-517502,

Abstract—Over the past half-century, scholars around the world have produced a vast body of academic research and writing on innovation. While most of this research has focused on various aspects of technological innovation (e.g., Henderson & Clark, 1990; Utterback, 1994), the trend over the last fifteen years has been toward exploring other forms of innovation, such as process innovation (e.g., Pisano, 1996), service innovation (e.g., Gallouj & Weinstein, 1997), and strategic innovation (Hamel, 1998; Markides, 1997), with a view to understanding how they are managed and how they contribute to long-term firm success.

The focus in this article is on a relatively under-researched form of innovation—management innovation—and particularly the processes through which it occurs. We apply a relatively narrow definition of management innovation—specifically, the invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals. While many of the landmarks of management innovation are familiar to every business scholar (e.g., GE's development of the modern research lab and GM's invention of the M-form organization structure), the amount of detailed knowledge about how management innovation is actually implemented is limited.

Keywords: *Enabling Technologies, Introduction, Innovation Challenges.*

I.INTRODUCTION

Innovation is one of the primary drivers for growth and profitability in business today, sitting at the top of many corporate agendas. Why? Companies have recognized that efficiency and world-class operational performance alone are not enough to create sustained competitive differentiation and advantage in today's challenging, global markets. Instead, consumers and businesses alike reward innovation. So how can companies improve innovation? Clearly innovation is highly dependent on corporate culture and the people involved. But innovation is also a process that can be managed and improved. Leading companies now recognize that structured innovation management approaches help them get the most out of the innovative potential of their people, customers, and partners. Improving innovation starts with a strategy. The innovation strategy should address culture, processes, and enabling

technology in a holistic way. Microsoft's Innovation Management Framework is designed to help companies develop a comprehensive, integrated approach to implement and support an innovation management strategy. This framework is a repeatable reference architecture for innovation and is intended to allow companies to share and learn about innovation management best practices and enabling technologies as a starting point for strategic discussions for their company's innovation management strategy.

One of the essential foundations for creating a successful company over the long term is to identify technological trends from an early stage and to exploit the opportunities that new technologies offer for product innovations. However, factors such as the hugely dynamic nature of technological progress make it increasingly difficult for companies to comprehensively identify technology-related opportunities and to harness them in a goal-oriented manner. A key prerequisite for successful technology development therefore lies in the ability of an organization to rapidly and efficiently align the requirements of the market with the potential offered by new technologies and to integrate the results in its own products and processes.

The methods and organizational solutions developed in the Technology and Innovation Management business unit to improve and synchronize research, innovation and technology development processes have been shown to trigger success in the market: companies whose technology development capabilities have been properly organized achieve higher growth, increased profitability and an enhanced competitive edge.

The Technology and Innovation Management business unit focuses on the following key topics:

- Developing and implementing innovation and technology strategies
- Increasing organizations' capacity for innovation
- Organizing innovation and research and development (R&D) effectively and efficiently using lean processes
- Identifying, evaluating and exploiting new technologies

- Setting up and supporting technology and innovation networks
- Intellectual property: IP for innovation
- IT support for R&D, technology and innovation management

We respond rapidly and professionally to our customers' needs by carrying out projects to enhance technology and innovation management. To do this, we draw on expertise from a wealth of research activities dealing with the development of scientifically-based innovative concepts, while also utilizing the experience we have acquired from comparable projects in which we developed application-oriented methods and tools. We are also fortunate to have access to an extensive range of research within the Fraunhofer network, which allows us to exploit specific skills and synergies.

II. INNOVATION CHALLENGES

When speaking about innovation it quickly becomes clear that leadership, commitment and culture count. While strategy, processes and technology play a large role, people matter. To start, let's discuss leadership. Having strong leadership for innovation is crucial. In fact, many companies are putting in place executive-level positions responsible for innovation.

Accenture's Overcoming Barriers to Innovation shows that organizations with a single point of accountability for innovation reported higher innovation performance and capabilities as compared with their peers at a ratio of two to one. Perhaps this explains the significant growth in companies reporting they have a formally accountable innovation executive in place, growing from 33% to 43% from 2011 to 2012 according to the Capgemini study.

These leaders are responsible for building a culture for innovation. Dave Frazee of 3M frequently cites the Peter Drucker quote when speaking of innovation; "**Culture eats strategy for lunch.**" This is particularly true for innovation. Working on corporate culture for innovation has many facets. Addressing recognition and rewards are a given. But a successful innovation culture also in stills an acceptance towards innovation risk to reward successful innovation but be sure not to punish risk taking and failure.

III. ENABLING TECHNOLOGIES FOR INNOVATION MANAGEMENT

The Microsoft DIRA Framework

This Innovation Management Framework is tightly aligned with Microsoft's Discrete Industry Reference Architecture for the discrete manufacturing industry. The DIRA framework covers three primary business imperatives that are critical to the growth and profitability of a manufacturing enterprise. These imperatives are:

- **Innovate** - Manage cross-boundary innovation and accelerate time-to-market
- **Perform** - Deliver operational excellence with reliable business continuity
- **Grow** - "Observe & serve" customers globally to drive growth with profitable proximity

This framework represents the "Innovation Management" portion of the "Innovate" imperative (see diagram). This framework will also align with the Product Lifecycle Management (PLM) Framework, which also falls under the Innovate imperative of DIRA.

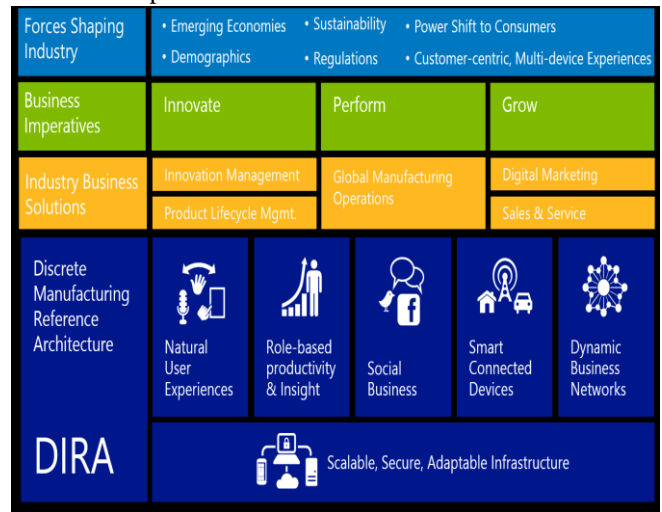


Figure :: Microsoft Discrete Industry Reference Architecture (DIRA)

To support and enable these three imperatives, DIRA introduces five technology capabilities (see diagram 2), or "pillars" that help manufacturers layer a collaborative framework on top of existing systems of record, enabling more loosely coupled, people-centric processes to help companies integrate information from different systems to make better decisions. According to Sanjay Ravi, Managing Director, Worldwide Discrete Manufacturing Industry for Microsoft, "*The five core pillars of the DIRA framework empower people within manufacturing organizations with key capabilities required to thrive in a rapidly changing business environment and deliver significant business results across Innovation, Operational Performance, and Growth.*"

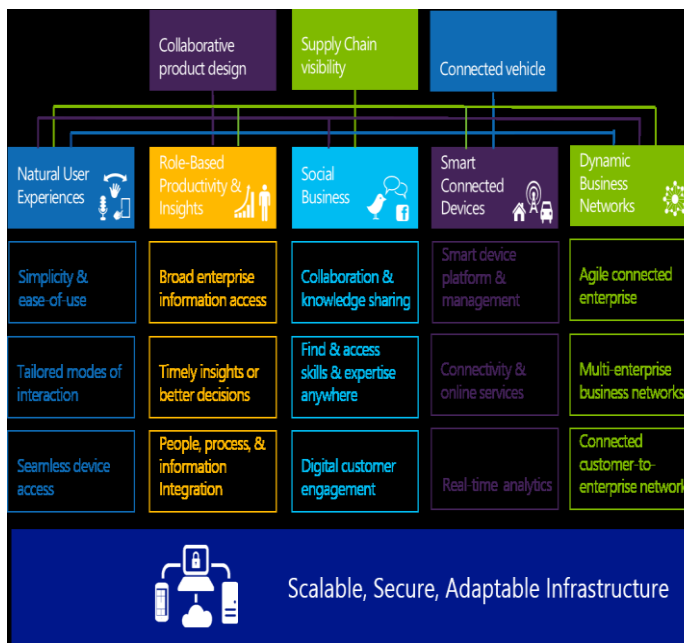


Figure :: Five Core Pillars of DIRA

Of course it's important to note that while innovation management is highly applicable to the discrete manufacturing industry, it is equally important to other manufacturers including the process industries and non-manufacturing industries such as service industries. As Simon Floyd, Director of Innovation & Product Lifecycle Management Solutions for Microsoft explains *"The innovation process is remarkably similar across industries. For manufacturers they may be innovating on hardware products, for others it may be software or service oriented products, but the process of generating, developing and selecting the best ideas or proposals, is applicable to all."* Microsoft recognizes that innovation does have unique characteristics across industries, although the first version of this framework focuses on the similarities and best practices across industries.

IV. MICROSOFT TECHNOLOGIES FOR MANAGING INNOVATIONS

Not surprisingly, technology can play a big role in supporting today's innovation strategies. In addition to solutions that companies have become familiar with over the years, there are also a number of newer technologies that are reshaping what is possible in the collaborative aspects of innovation. Fundamental changes in technology have enhanced existing best practices and enabled new approaches and business models to improve innovation. The use of social media sites, increased use of social computing technologies such as ratings, blogs and wikis, and the ability to get immediate feedback and input from employees, customers and markets allows companies to accelerate innovation. For example, social computing technologies can significantly improve all of the sub-processes in the Innovation Management Framework:

- **Envision.** Company leadership can use social techniques to gather input on the strategy and collaborate on the vision.
- **Engage.** Crowd sourcing techniques can be used to promote Challenges, gather responses, and collect social feedback on ideas. Discussions, sharing, and general community interactions can be used to progressively refine ideas according to feedback received.
- **Evolve.** Social collaboration can be used to develop additional content, socialize concepts to improve them, and share mockups or prototypes to further understand and mature the idea.
- **Evaluate.** Initial evaluations can be made by leveraging social metrics such as votes or other social ranking prior to more formal evaluation techniques.
- **Execute.** Developing products and executing projects effectively is a team effort. Social techniques can help companies more effectively share information, status, and knowledge during execution to get the most out of the cross-functional team effort.

Improvements and broader adoption of collaborative technologies help companies work across physical, organizational, and business boundaries and enable more revolutionary business models that allow for more rapid and inexpensive market testing. Online, social collaboration also serves as a self-documenting form of innovation, developing a record of the innovation process to help identify, protect, and develop intellectual property. Beyond software technology, new trends in manufacturing such as the rise of the "maker movement" and additive manufacturing (such as 3D printing) have also lowered the threshold to bring innovations to market.

It is clear is that processes and technologies for innovation are evolving rapidly, providing a threat and an opportunity for manufacturers. *"A lot of companies see an acute threat of disruption from emerging technologies like the cloud, big data, social computing, and mobile devices,"* says Capgemini's Joe Boggio, *"E-commerce taught executives that if you don't understand technology disruptions you can miss opportunities."* The rapid change in technology and process has confused things for many companies. This framework can help companies get a clear picture of how technology can help support the innovation strategy by showing how enabling Microsoft and Microsoft partner technologies, both old and new, support a framework of best practice processes. Solutions that support Innovation Management include:

- ❖ Enterprise Social / Collaboration / Communications Platforms
- ❖ Idea / Innovation Management
- ❖ Innovation Portfolio Management / Road-mapping
- ❖ Intellectual Property / Patent Management
- ❖ Project and Program Management (PM)
- ❖ Product Portfolio Management (PPM)

- ❖ Knowledge Management
- ❖ Product Lifecycle Management (PLM)
- ❖ Search / Search Based Applications (SBA)
- ❖ Mobility platforms and devices

V.CONCLUSION

Finally, some initial thoughts on the role academics can play in the process of management innovation. Like Abrahamson and Fairchild (2001), we are concerned that academics may be losing out to other members of the fashion-setting community, such as consultants and gurus, in terms of their ability to influence practice. Our framework suggests some possible ways forward. One is for academics to become more creative in the development of new ideas and thought experiments that organizations might put into practice. Another is to become more engaged in the activity we call "idea testing," whereby the academic engages closely with the focal organization and brings his or her insight to bear on the particular problem the organization is grappling with. This concept of engaged scholarship (Van de Ven & Johnson, 2006) has a long history, but its legitimacy as a valid form of scholarship has faltered in recent decades. Another alternative is a management innovation laboratory, such as London Business Schools' MLab, where researchers and practitioners come together to develop new practices in partnership. These suggestions require further exploration, both in terms of the nature of the interventions they would require and in the outcomes they would achieve. They also challenge many of the traditional orthodoxies of the profession, in that they are likely to involve new methodologies that are unproven and hard to implement. But we believe they are worth pursuing. A more active role for management scholars in the process of management innovation would be of value to innovating organizations, and it would allow them to reclaim their previously influential role as creators of both new and useful management knowledge.

REFERENCES

1. Abrahamson, E. 1991. Managerial fads and fashions: The diffusion and rejection of innovations.
2. Academy of Management Review, 16: 586-612.
3. Abrahamson, E. 1996. Management fashion. Academy of Management Review, 21: 254-285.
4. Abrahamson, E. 1997. The emergence and prevalence of employee management rhetorics: The effects of long waves, labor unions, and turnover, 1875 to 1992. Academy of Management Journal, 40: 491-533.
5. Abrahamson, E., & Fairchild, G. 1999. Management fashion: Lifecycles, triggers, and collective learning processes. Administrative Science Quarterly, 44: 708-740.
6. Administrative Science Quarterly, 44: 708-740.
7. Abrahamson, E., & Fairchild, G. 2001. Knowledge industries and idea entrepreneurs. In C. B. Schoonhoven & E. Romanelli (Eds.), The entrepreneurship dynamic in industry evolution: 147-177. Stanford, CA: Stanford University Press.
8. Baker, S. and Mouncey, P. (2003), 'The Market Researcher's Manifesto', International Journal of Market Research, Vol. 45, No. 4, pp. 415 - 433
9. Barney, J. (1991), 'Firm Resources and Sustained Competitive Advantage', Journal of Management, Vol. 17, No. 1, pp. 99 - 120.
10. Clark, T. 2004. The fashion of management fashion: A surge too far? Organization, 11: 297-306.
11. More RA. Risk factors in accepted and rejected new industrial products. Industrial Marketing Management 1982;11:9-15.
12. Moriarty RT, Kosnik TJ. High-tech concept, continuity, and change. IEEE Engineering Management Review 1990;3:25 - 35.
13. Normann R. Organizational innovativeness: product variation, and reorientation. Administrative Science Quarterly 1971;16:203-15.
14. OECD. The nature of innovation and the evolution of the productive system. technology and productivity-the challenge for economic policy. Paris: OECD, 1991. p. 303-14.
15. Olson EM, Walker OC, Ruekert RW. Organizing for effective new product development: the moderating role of product innovativeness. Journal of Marketing 1995;59:48-62.
16. Wood, G. (2002), Flutter's Departure Leaves Bitter Taste, available at: <http://sport.guardian.co.uk/horseracing/story/0,,634157,00.html> (accessed 2002).
17. Zollo, W. and Winter, S. (2002), 'Deliberate Learning and the Evolution of Dynamic Capabilities', Organization Science, Vol. 13, No. 3, pp. 339 - 351.