

# Demystifying corporate innovativeness

*Why you should think about your company's innovativeness in the same way you think about neuroscience and the human brain!*

*If one can learn more about the brain, understanding corporate innovativeness should be a piece of cake!*

## Overview

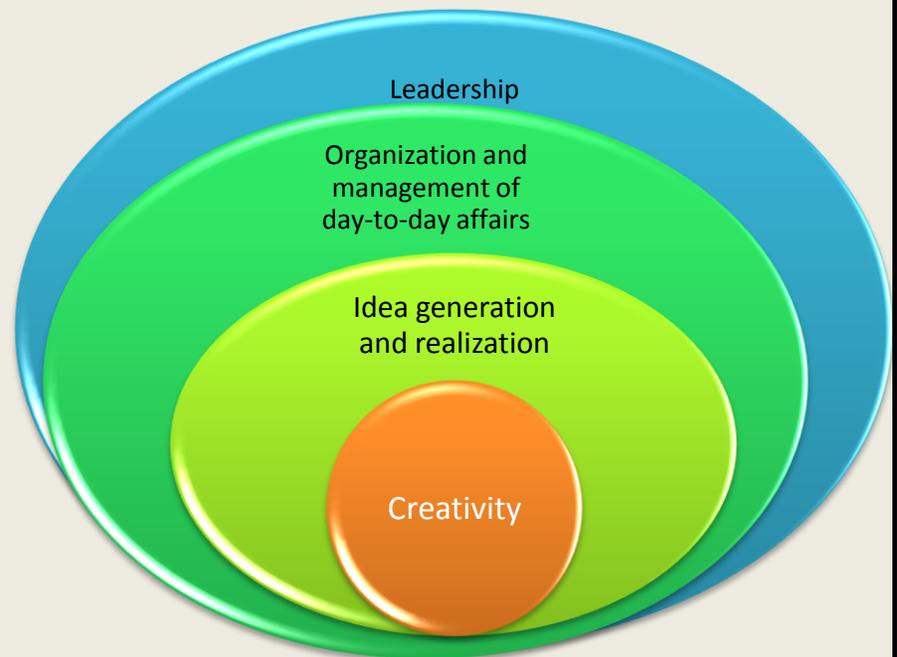
Nothing happens in the human body unless the brain gets involved. Through neuroscience we now know a lot more about the brain than we did decades ago. Creativity, as a key part of the innovation process however, remains mostly a mystery, and will likely remain so for some time to come. Creativity is at the centre of innovativeness and yet is the least understood. We do know that really clever people, singularly or in groups, are the basis of creativity – and that the talent is rare.

While creativity remains much of a mystery, other aspects of corporate innovativeness are much better understood and yet, remarkably, often missed in practice. Defragmenting a corporation's innovativeness can be part of a process which ultimately provides an opening for creativity.

The toughest nut to crack is creativity and there is no solution to this aspect of innovation except for having the right people and more specifically, the brains of people. The 'surrounds' of creativity are, however, more amenable to understanding and therefore able to be restructured and improved upon.

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Recent studies have shown that innovation per se cannot only be studied and measured but also nurtured and encouraged<sup>1</sup>. The focus of this recent book by Jonah Lehrer is in fact on the subject of creativity but the examples given are drawn from the corporate practices of highly-innovative companies such as 3M (see 3M profile) and Google; those companies which have been researched in order to understand how their management practices lead to innovations.

Other aspects of innovativeness are, however, much more open to modification than creativity. There are at least three themes to understanding the management practices which encourage innovativeness. First, obviously is leadership, nothing happens unless top level support for innovation at Board and CEO level is evidenced. Secondly, there are better and worse ways of organizing and managing a corporation and each practice, by itself or with other practices, can impact innovativeness. Thirdly, and specifically concerning the movement of ideas within the corporation, there are practices which can stimulate or retard the flow of ideas. Without ideas - the only evidence of creativity at work - there is no innovation. Innovativeness becomes marginalized.

How can we de-construct the corporation to better understand and improve its innovativeness? Perhaps there are some lessons to be learned from neuroscience and the results of studying the human brain.

## Mapping the brain and mapping corporate innovativeness; similar or not?

If there is an analogy between the brain and a corporation, does it not seem reasonable to want to probe the areas of a corporation just as science is now probing and measuring the brain's functioning? While it is difficult to put the whole corporate entity through an M.R.I. machine, there are other means of delving into the way in which the corporation, employees and stakeholder, thinks about innovation.

Just as in neuroscience, it is necessary to pose the right questions and look in the right areas. We do know, from our research; that there are certain characteristics exhibited by highly-innovative organizations. Not all corporations exhibit these characteristics. Just as in the brain, it is the inter mingling of these Factors which encourage or discourage innovativeness and it is this intermingling which makes for complex analysis.

How does knowing about the human brain relate to the functioning of a corporation? What features should one probe to understand the corporation's 'brain'? Neuroscience tells us a lot about the functioning of the brain by breaking up the complexity into areas for investigation.

*The same methods used to increase our understanding of the workings of the brain can help us to better understand a corporation's innovativeness.*

*Probing and measuring is the key to achieving this understanding; just as it is in neuroscience.*

<sup>1</sup> The Economist, March 17, 2012, a review of a new book by Jonah Lehrer, Imagine; How Creativity Works, published by Canongate

### Frontal lobe<sup>2</sup>

The front part of the brain; involved in planning, organizing, problem solving, selective attention, personality and a variety of "higher cognitive functions" including behavior and emotions.

*These functions; i.e. planning and organizing, are the main activities of top management. The frontal lobe should represent **top management** since, should damage occur, this can result in significant mood changes. **The tone of a corporation is, after all, set by top management.***

### Parietal lobe

The parietal lobes contain the primary sensory cortex which controls sensation (touch, pressure). Behind the primary sensory cortex is a large association area that controls fine sensation (judgment of texture, weight, size, shape).

*The parietal lobe **could reference the information and communication system within the corporation; the better the IT system and the flow of information, the more individuals have a sense of what is happening throughout the corporation and are motivated to participate.***

### Occipital lobe

The occipital lobe is a region in the back of the brain which processes visual information. Not only is the occipital lobe mainly responsible for visual reception, it also contains association areas that help in the visual recognition of shapes and colors. Damage to this lobe can cause visual deficits.

*The occipital lobe **could refer to those in the organization most connected [or should be] with outside information sources; a characteristic of collaboration.** This is the area where 'lesions produce hallucinations' and can result in inaccurately seeing objects. In other words, data is seen but inappropriately interpreted.*

### Temporal lobe

There are two temporal lobes, one on each side of the brain located at about the level of the ears. These lobes allow a person to tell one smell from another and one sound from another. They also help in sorting new information (like faces and scenes) and are believed to be responsible for short-term memory. The temporal lobes functions for hearing, memory and categorization of objects, sensing smells and sounds, as well as processing of complex stimuli like faces and scenes, is perhaps the most important since it represents an integrating mechanism bringing a lot of information together.

*The temporal lobe, in a corporation, might be analogous to the function of each and every supervisor or manager with a responsibility for taking in the information and acting to integrate, discard, and sort out what is important and what it not.*

### Brain stem

The brain stem is the lower extension of the brain where it connects to the spinal cord. Neurological functions located in the brainstem include those necessary for survival (breathing, digestion, heart rate, blood pressure) and for arousal (being awake and alert). Most of

*Innovativeness is dependent upon having a set of management practices in place which open up the corporate psyche and, by so doing, encourages the free flow of new ideas.*

*Unlocking creativity by having the appropriate set of management practices is the challenge.*

<sup>2</sup> <http://www.waiting.com/brainanatomy>. A Guide to Brain Anatomy.

the cranial nerves come from the brainstem. The brainstem is the pathway for all fiber tracts passing up and down from peripheral nerves and spinal cord to the highest parts of the brain. Though small, this is an extremely important part of the brain as the nerve connections **of the motor and sensory systems from the main part of the brain to the rest of the body pass through the brain stem**. The brain stem also plays an important role in the regulation of cardiac and respiratory function. It also regulates the central nervous system, and is pivotal in maintaining consciousness and regulating the sleep cycle.

*Within the corporation, this extremely important part of the brain could be thought about as the command control system, the organization structure, and the means of communicating throughout the organization. Nothing happens – or the wrong things can happen – if this structure – pathway for new ideas - is not functioning well.*

### **Cerebellum**

The **cerebellum** is a region of the brain that plays an important role in the integration of sensory perception, coordination and motor control. In order to coordinate motor control, there are many neural pathways linking the cerebellum with the cerebral motor cortex. The cerebellum integrates these pathways, like a train conductor, using the constant feedback on body position to fine-tune motor movements.

### **Working together**

Damage to any one of the lobes, as well as other parts of the brain, most importantly the **cerebellum** and the **brain stem**, can have dramatic affects on the overall functioning of the brain. **Knowing which parts of the brain have been damaged is an important part of any diagnosis** and provides a focus for remedial work.

*Similarly in any corporation, **knowing where the culture of the organization is not helpful** to innovation should lead to an improved diagnosis of the problem and to adopting a focus for remedial action. Both the ‘corporate brain’ and the human brain are functionally complex and require a careful and probing diagnosis.*

### **Summary**

No doubt about it, the brain is a complex system and we are only beginning to understand how it works. Innovation in a corporation is not nearly as complex which should make innovation even easier to de-construct for purposes of achieving, ultimately, a greater understanding – if one applies the appropriate techniques.

Each corporation is different as is each brain. Recognizing this simple fact should deter anyone from simply selecting a number of ‘good advice ideas for improving innovation’. In the same way a brain surgeon will take the time to decide where the probe should be inserted based on his understanding of the brain map. Mapping is the key, rather than experimentation!

On a more humorous note, it has been pointed out that the brain has no nerve endings. One can therefore probe the brain without incurring pain. For the corporation there is little or no infliction of pain through attempting to tap into the opinions of employees or stakeholders at large.

By attaching functionality to these four lobes, the brain stem and the cerebellum, one begins to demystify the functioning of this most complex creation and better understand the performance and needs of each component. Can this same thinking be applied to the corporation?

## Deconstructing innovativeness

Just as in the investigation of brain functioning, the starting point for understanding is to search for the outward manifestations of any problem. Most brain research started with a focus on particularly unusual problems. It is often easier, at least for research purposes, to look at the extremes rather than try to diagnose so-called normal behavior or operations.

Many corporations use as a measure the percentage of new products which have been introduced over the last 5 years and seek to keep this figure at 25% or better (see P&G<sup>3</sup> profile). The hypothesis is that the product line is continually being refreshed, new business platforms established (See DSM profile), and that change will bring about growth and profit. Definitely the percentage of new products is an indication of **product-inspired innovation** but is, in reality, only one part of the answer to the question; is my corporation's innovativeness in place and working?

For purposes of understanding innovativeness, we have opted to look initially at a select number of measurable outcomes of a corporation's innovativeness.

Means of measurement	Explanation
<b>On-line survey results.</b>	If the score (the 'Delta') is over 60 there is probably a problem(s) to address.
<b>Innovators are leaving the company – or not.</b>	Factor #21 – a huge gap between the 'Ideal' and 'Reality' indicates the presence of an issue.
<b>Company has an innovative tradition – or not.</b>	Factor #22 – a tradition established and still exists? Establishing a tradition is more difficult than keeping one!
<b>A sense that innovation is increasing or decreasing.</b>	Factor #24 – probing in which direction innovation is trending?

The on-line survey instrument provides an overall score for each respondent and his/her view of the corporation's innovativeness. The score; the difference between respondent's 'Ideal' and 'Reality' for each Factor and summed, provides insight into the degree of concern overall. The total is compared to the average for all respondents and is therefore a measure of concern relative to a base established by all respondents.

Three Factors, in addition to the results of the on-line survey, provide an early and easy recognition of the presence of a problem with a corporation's innovativeness. By itself, the overall score is useful but in our opinion should be supported by other outward manifestations of a potential problem. One key area is whether there is a sense that people known as innovators are leaving or staying with the company; Factor #21. Better known as the 'talent drain', departures can be serious for mid to long-term growth of the company.

Two other Factors round out the sense of what is happening in the corporation. Factor #22, asking whether the company has an innovative tradition or not, provides insight into employees

<sup>3</sup> <http://www.corporateinnovationonline.com>. Corporate profiles.

and/or stakeholders opinions about the company. Factor #24, asking whether innovation is increasing or decreasing provides additional insight into respondents' opinions. Perception may be reality.

The summation of each of these outward indications of success in innovation or not, should stimulate further enquiry into the reasons for these opinions.

## Innovativeness and management practices

The on-line survey, one of the tools used to measure innovativeness, addresses employees' opinions regarding 25 Factors which provide metrics for corporate innovativeness. Respondents are asked to provide their opinion on what would be an 'Ideal' situation and then asked for their opinion on their 'Reality'. The answers to three of the 25 Factors, #21, #22, and #24 – see above – can indicate the presence of a problem to be addressed.

For purposes of this analysis we segment management practices into three themes;

- Leadership
- Organization and management of day-to-day operations
- Idea generation and realization

For each of these three themes we have allocated those Factors which most relate to the theme. The challenge is to put together a portrayal of corporate innovativeness based on the opinions expressed. Probably less complicated than putting together an Ikea chair!



### Leadership

There are five Factors which can be used to probe and measure leadership's role in the innovation process.

Opinions on whether management places an undue emphasis on the need for short-term profits need to be examined. If the message is that quarterly profits are most important then there is little room for people to think too far ahead or expecting that funds for new ventures, however appealing, will materialize. There is need for management to convey a balance between short-term and longer-term profit motives.

Surprisingly, some management's do not call for innovation. That is always the choice and it could be appropriate in certain

#### **Leadership Factors**

- *Emphasis on short versus longer-term profits – F#1*
- *Extent to which management explicitly looks for innovation – F#2*
- *Planning emphasizes opportunities and not just cost reduction – F#4*
- *Use of career ladders and recognition of innovators – F#7*
- *Tolerance for risk in the planning process – F#9*

circumstances. But if the latent desire of the organizations' employees (and stakeholders) is to be innovative, then there is disconnect between top management including the Board and the broad cross section of stakeholders.

Our research indicates clearly that risk taking, at all levels, is a feature of highly-innovative companies and risk taking, in particular in planning, is an encouraged trait.

Those companies such as 3M, P&G, and John Deere make a point of singling out those who are innovators in the company and providing rewards, not always monetary, for exceptional performance.

### **Organization and management of day-to-day affairs**

Eight Factors which address how management goes about organizing and managing routinely impact a company's innovativeness. These Factors have much to do with people management, internal communication, delegation of responsibility, accountability, and reporting; i.e. management practices issues which are well recognized.

There is not much new in this category. The question is, however, how all of these practices are viewed by employees. Is there a consistency of viewpoint or are there disconnects which could inhibit innovation? Are the views of employees in line with those of senior management and the Board? If not, why not?

Most of these management practices and their successful application have been well documented. Studies of 3M's management practices abound. Almost every study of innovation management makes mention of 3M's practices and have done so for over a century.

Other examples which have been profiled – researched – include; John Deere, P&G, GE, Nucor, and Toyota. The pattern is clear, people come first, a degree of informality in communications and decision making is called for as well as delegation of responsibility, and authority and accountability are essential elements in innovative companies. A balance between shooting from the hip and planning paralysis is also seen as a desired management practice.

#### ***Organization and management of day-to-day affairs Factors***

- *Emphasis on management of people and their interactions – F#6*
- *Degree of formal communications in the organization – F#10*
- *Use of independent work groups – F#11*
- *Management decisions with input from a broad cross section of employees – F#12*
- *Formality of the decision process – F#13*
- *Planning versus action orientation – F#15*
- *Decentralization versus centralized hierarchy – F#18*
- *Staff versus line involvement in the decision process – F#20*

## Idea generation and realization

Six Factors, mainly comprised of attitudes and decisions by management are seen to impact the flow of ideas in an organization.

For those companies placing a priority on innovativeness, it is clear that some notion of how ideas develop within an organization should be well understood. Recent software developments are facilitating the means of capturing and managing ideas through to implementation. This is further evidence of the importance of 'idea management' to many companies.

Tolerance plays a big part in this process. Tolerance for failure, mavericks, different values and ways of exhibiting same is an important attribute. Often it is difficult for senior management to get an objective handle on these important Factors since the opinions are very much a subjective judgment and not easily rendered in an otherwise open and transparent corporation.

None-the-less, opinions on several of these Factors can be game-stoppers when it comes to surfacing ideas.

While product-inspired innovation is much impacted by spending on R&D, as noted earlier, the effectiveness of spending is equally if not more important. Again a value judgment!

Innovativeness is composed of a broad spectrum of initiatives from science-based to what could be referred to as 'suggestion-box' ideas; just good ideas for improving productivity – so valuable to the process of continuous improvement.

The measurements noted above attempt to answer critical questions about innovativeness.

- Do all or most employees appreciate the importance of innovation to the future of the company?
- Is management's message regarding innovation getting through?
- Is what we do as managers, encouraging innovation thinking?
- What is the employee attitude to innovation?
- Are innovative people leaving the firm? Why?
- Is the starting point that the company already has an innovative tradition or is the view that this has yet to come?
- How do we identify our innovativeness? How broad and how deep does our innovativeness go?

In summary, the idea is to remove constrictions which interfere with the release of ideas for improving productivity and shareholder value.

### ***Idea generation and realization Factors***

- *Tolerance for mavericks – F#3*
- *Tolerance for failure – F#5*
- *Tolerance for variation from a corporate norm – F#8*
- *Mechanisms in place to reward innovators – F#14*
- *Resources generally available for new ventures – F#19*
- *R&D budget levels above the competition – F#23*

## Stages of innovativeness

Any approach to addressing innovativeness needs to recognize the corporation's stage of development.

For example, while **fundamental research, applied science and development** are exceedingly important for the medium and long-term future of most companies, it is less important for the struggling-to-survive SME. Keeping in touch with fundamental developments in technology is, however, important and can be accomplished by maintaining close and meaningful contacts with research institutions, universities and bright individuals. Early collaboration can build relationships which may prove useful at a later stage of development.

Innovation management practices designed to encourage innovation and to mark its importance are thus dependent upon the stage of development.

Having a strong management team is a first priority but some sort of orderly process for managing innovation efforts soon becomes essential to ensure that activities which are productive are fast-tracked are those which are non-productive are eliminated or minimized. Thus having a system in place which can capture and manage the creative and implementation process (**idea generation and realization**) is an important contributor to accomplishing tasks in the earlier beginnings of a SME. An early focus on the importance of innovation can also plant the seeds that the organization has a 'culture of innovation'.

<b>Innovation Stages</b>					
	<b>Industry Maturity</b>				
<b>Innovation management</b>	<b>Start Up</b>	<b>Rapid Growth</b>	<b>Growth</b>	<b>Mature</b>	<b>Aging</b>
<b>Management's overall attention</b>	Establishing credibility Entrepreneurship Survival	Developing a strong competitive position Market share	Maintaining a strong competitive position	Maintenance of profit and market position	Exiting the business Ongoing survival
<b>Innovation effort</b>	Specific new product development tasks Setting in place the seeds of a culture for innovation	Business model establishment New product quality and support Customer feedback for success		Product enhancements and modifications Search for innovation	Opportunistic only
<b>Innovation management systems</b>	Non existent Reward is skewed to share value appreciation	Simple idea management system Rewards migrate to other forms of recognition	Full-fledged idea management system Sophisticated reward system for full range of innovation spectrum		System maintenance
<b>Management structure</b>	Loose and informal, lack of definition of responsibilities Individual performance	Some organizational definition required Individual and group performance	Group performance Decentralized Well defined responsibilities and accountabilities		
<b>Management's innovation style</b>	Open and ad hoc	Bordering on participative	Open and non-hierarchical	Formal, delegation and control	
<b>Collaborative initiatives</b>	Virtually none outside the enterprise	Mainly Internal effort	Seeking outside collaborators; research institutions etc. for new ideas	Managing outside collaboration	
<b>Likely casualty during stage</b>	Cost reduction and continuous improvement, cost containment		Risk profile shifts from risk taking to more conservative	New products	No new products

Highly-innovative companies have a breadth and depth to their innovation practices which starts early on in their history and is, we have found, much influenced by the founder's attitudes and values. Our research into early developments at GE, 3M, John Deere and other noted companies bear evidence that innovativeness starts early on. Typically, however, a start-up struggles with just one aspect of innovation; a new product or a new business model. Seldom is a start-up

concerned with continuous improvement. Our research also indicates that companies which undergo rapid expansion invariably forget about continuous improvement. Starbucks, one of the companies profiled, is a case in point. Management's attention is, as one might expect, focused on growth. Thus different aspects of innovation come into play at various stages of a company's growth.

## Summary

Thinking about the corporation as a kind of human brain can be helpful in the diagnosis of successful or failed innovativeness.

- Probe and measure.
- Deconstruct the organization to help understand what is actually going on.
- Recognize that perception can be as important as reality.
- Take account of the stage of development of the corporation, just as one does in researching brain functionality.

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