Idea Work Style – A Hypothetical Web-Based Approach to Monitoring the Innovative Health of Organizations

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Abstract

Increasingly, ideas matter to companies. This paper reports the preliminary findings of a managed innovation pilot project at Aliant, a telecommunications company in Canada. A post-hoc analysis of the data collected suggests that a new measure of behavioural style – Idea Work Style – can be used to monitor the conditions for innovation in organizations.

Idea Work Style, determined from interactions within a web-based idea management tool, is proposed as a measure of individual behavioural style. Hypothetically, the innovative health of organizational environments in which individuals find themselves immersed can be described by comparing IWS to a measure of individual cognitive style.

1. Introduction – Idea Management in the “Knowledge Economy”

Innovation management tools are emerging as implements for improving the organization of “intellectual capital” in corporations. Aliant1, a Canadian telecommunications company, recently conducted a pilot project in managed innovation using a web-based idea management tool supplied by IdeaPilot AS2 of Denmark. The literature of knowledge management research provides a context in which this kind of tool can be understood as part of a larger knowledge management toolkit.

Knowledge management helps businesses account for intangible value – “a paradigm where sustainable competitive advantage is tied to individual workers’ and organizational knowledge” [1]. Accordingly, intangible assets - knowledge and other forms of intellectual capital - are now seen by many companies as sources of previously hidden value and as strategically important resources. Companies use a variety of methods – among them the Skandia “Navigator” model and Robert Kaplan’s and David Norton’s “Balanced Scorecard” approach [1] - to measure and manage intangible non-financial assets as well as financial ones.

Tools for managing “intangibles” – like the Balanced Scorecard and Navigator approaches – may provide frameworks within which to quantify the potential value of knowledge and ideas and thereby provide a basis for management. In the words of Kaplan and Norton, “as companies around the world transform themselves for competition that is based on information, their ability to exploit intangible assets has become far more decisive than their ability to invest in and manage physical assets.” [2]

Innovation management provides a practical way to deal with intellectual capital within knowledge asset frameworks. According to Gartner, the international research and consulting firm, innovation management is coming into its own as a bona fide business practice, with value as “a process for evaluating innovations rapidly and determining which will provide the best value on investment”[3]:

Many commercial applications are emerging to provide broad support of innovation management. These are robust tools that are becoming an essential part of innovation in many leading enterprises. These tools have also moved from supporting single users in creative thinking or “brainstorming” to supporting group or team dynamics and enterprisewide processes. [4]

“Intellectual capital” - a term coined by John Kenneth Galbraith in 1969 [1] - is now part of the lexicon of knowledge economics. Implicit in the Balanced Scorecard and other intangible asset management approaches, it is an explicit component of the Skandia

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1 Aliant Inc. (TSX: AIT) is the incumbent telecommunications service provider in Atlantic Canada. More information on the company can be found at www.aliant.ca
2 IdeaPilot offers a combination of software tools, training and coaching in the area of business creativity. More information on the company can be found at www.ideapilot.com
model. According to this model, intellectual capital is the sum of human and structural capital where:

Human Capital is defined as the combined knowledge, skill, innovativeness, and ability of the company’s individual employees to meet the task at hand. It also includes the company’s values, culture, and philosophy. Human capital cannot be owned by the company.

Structural Capital is the hardware, software, databases, organizational structure, patents, trademarks, and everything else of organizational capability that supports those employees’ productivity – in other words, everything that gets left behind at the office when employees go home. … Unlike human capital, structural capital can be owned and thereby traded. [1]

In Gartner’s view, innovation management tools are emerging in five distinct categories [4]:

- Idea management
- Innovation life cycle management
- Product development
- Environmental innovation management
- “outside-the-box” innovation management

Management approaches such as Balanced Scorecard and Navigator are frameworks for understanding how intellectual capital (and other intangible assets) creates value in the context of a company’s overall value system. They are not, per se, methods for assessing the value of knowledge assets. If the value of ideas is to be effectively harnessed, measurable and manageable parameters must be identified. This is the role of innovation management tools.

The managed innovation project at Aliant was restricted to idea management, according to the Gartner categorization, focusing on “capturing ideas from individuals … and making them available to others … in a knowledge sharing sense … or for further evaluation” [4].

A structured idea management approach has the potential to change employees’ ideas from intangible to tangible form. In doing so, it may enable companies to capture and exploit their potential value, at least in theory. Seen in the context of the Skandia Navigator model, idea management software tools and the data contained in their data bases are part of the structural capital (owned by, and therefore the tradable property) of a company³.

Hargadon [5] theorizes that certain innovation networks “link people, ideas, and objects together in ways that form effective and lasting communities and technologies.” Within the context of managing knowledge assets, a network-based idea management tool can be understood as a mechanism for transforming tacit, intangible human capital into explicit, tangible structural capital. Intellectual capital in explicit form can be managed, manipulated, exposed to and combined with other tangible and intangible resources and objects – people, funds and other ideas, for example. This is the intended function of idea management, but as we will see, the process of conducting this function in a web-based environment generates residual data which can be used to monitor the organizational environment for innovation.

2. Idea Management Pilot Project

Following a period of customization, Aliant completed a pilot implementation project with 172 participants over the period June 3 – September 30, 2002. Several business units cooperated in sponsoring the project and supporting a project team charged with overseeing the customization work, conducting an employee trial, measuring success and determining the next steps for future implementation. During the employee trial, the project team trained sponsors, facilitators and participants, performed basic administrative and troubleshooting functions and measured, evaluated and made minor adjustments to the tool.

The basic premise of the IdeaPilot approach is that, while employees have plenty of good ideas, they often have difficulty putting them into practice. The web-based idea management tool is designed to help employees innovate by removing two key barriers to innovation in companies:

- No one knows everyone – many employees simply don’t know the key people to contact and work with to draw out the potential of their ideas and understand if there is a benefit in implementing them.
- No one sees everyone – there are significant geographic barriers to innovation. Even when

³ The issue of the ownership of intellectual capital is interesting and contentious, but beyond the scope of this paper. For an excellent discussion on the conflict between knowledge workers (the controllers of intellectual capital) and investors (the controllers of financial capital) see Martin & Moldoveanu, “Capital Versus Talent”.
people know who can help them with their ideas, it can be very difficult to get people together in a timely and cost-effective way.

The tool presented participants with specific business challenges facing the company. Participants were asked to enter new ideas - related to the challenges - into the system, as well as to contribute to the ideas created by others. Through the ensuing on-line discussions between diverse participants, ideas would be turned into fully developed concepts for presentation to the appropriate decision makers, known as “strategic anchors”.

The intent was to capture ideas and develop them into concepts in a collaborative, asynchronous on-line environment. Within this process, there are several terms, which, having general meaning in ordinary use, acquired specific meaning in the idea management context:

An **idea** is the conception of a single person - it often comes from a single perspective and may lack the benefit of others’ experience, knowledge and skills.

A **concept**, which includes all appropriate points of view, is completely ready for consideration as a project, in the correct strategic context and with the input of all relevant stakeholders.

A **challenge** is a business problem or opportunity faced by the company.

The idea management tool presented participants with various challenges. Participants entered new ideas related to the challenges. They also contributed comments to ideas (both their own and other people’s) already existing in the system. Collectively, the comments constituted a collaborative effort to convert ideas into fully developed concepts, which were subsequently presented to decision makers for evaluation and judgment. This method of transforming an idea into a concept is known as “idea processing”.

The tool allowed employees to submit ideas within carefully defined strategic challenges. A person enters an idea - usually defined from a single perspective and lacking the benefit of others’ experience and skills - into the system. Processing happens, and value is added, when other users comment on the idea. They bring in different, but relevant, points of view, gradually turning the idea into a concept; ready for consideration as a project, in the correct strategic context and with the input of the appropriate stakeholders. The results illustrate that there may be significant differences in the way employees work with ideas. Some employees, the data show, prefer generating new ideas, while others would rather work on refining the ideas of others. Good idea **generators** are not necessarily good idea **processors**.

A company’s innovative ability depends both on its employees’ ability to create new ideas and on their ability to process other people’s ideas. Idea processing lowers the inherent risk in implementing an idea by forcing managers to address the details before committing to action. Effective processing seems to happen when employees are able to work on ideas in a way that suits their individual preferences. Processing an idea requires discussions between several departments to understand how it can – or can’t – work within a business organization. A significant amount of value is added (and cost is avoided) in processing ideas, but it is an area that is seldom well understood by managers.

### 3. Pilot Project Results

The results of the pilot project were evaluated and, while the positive aspects of the program were recognized, the leadership team felt that there were too many other strategic priorities competing for its attention to proceed with a broader implementation, at least for the time being. High-level executive support had been identified by the project team as a critical success factor, so plans for further experimentation with the tool were cancelled in early 2003.

Some key findings of the pilot project were:

- Management involvement, leadership and facilitation were critical factors for success in taking ideas from conception to implementation.
- The company did not have a problem generating and capturing high quality, strategically aligned ideas. (The ability of the IdeaPilot tool to support the alignment of ideas with strategy is consistent with some authors’ views of intangible asset management as a link between short-term action and long-term strategy. Kaplan and Norton see Balanced Scorecard as a “Strategic Management System” providing a strategy-action connection that is missing in traditional management systems. [2])
- “Idea networking” appeared to be a real phenomenon – sharing ideas in a common
forum appeared to stimulate the creation of more ideas.

- Idea processing seemed to be more difficult for employees than idea generation (Many people treated the system as a “suggestion box” rather than as a true forum for collaboration. In the suggestion box model, ideas can be submitted by all employees, but are processed and evaluated by a select group. This model requires less effort on the part of participants, but it has some problems; the process is often not transparent, for example.)

- Individuals in the contributor population can be described by their tendency to act as ‘generators’ (people whose primary contribution is to come up with new ideas) or as ‘processors’ (people who prefer to work on ideas created by others). The continuum from generator to processor can be quantified by a new measure, Idea Work Style (IWS).

These findings reflect the opinions of the Gartner analysts [4] on idea management technologies and conditions for their success in workplaces:

The success of [idea management] initiatives depends strongly on culture, high-quality business processes and executive support. Technology enables the business processes.

These tools simplify the process of idea generation capture and analysis. When they are well-supported by leadership and reward systems, they can be very productive in terms of the number of viable ideas generated.

The challenge is how to take ideas to the next step, how to reconcile them with each other, and how to measure the results of the idea generation program. Enterprises must have a strategic framework for evaluating ideas and an overall process to continually drive good ideas to commercialization or implementation.

Considering the place of executive support in a managed innovation agenda, Aliant’s decision to suspend its idea management program is an appropriate one. Other organizations, though, may be able to build on Aliant’s experimental results. One outcome warranting further investigation is the concept of Idea Work Style.

4. Idea Work Style

At the conclusion of the employee trial period, the data contained in the idea management tool were examined with a view to discovering underlying constructs.

The data set I examined represents the contributions (including the creation of the ideas themselves) of 66 active participants to 68 ideas across three challenges. The data set covers the period from the project start date, 3 June 2002 up to 20 September 2002.

Data from the trial project sheds some light on the way employees work with ideas. The results suggest a new measure, Idea Work Style, which may help to explain how people work with ideas. For any given individual, IWS Score is defined as:

\[ IWS = i - c \left( \frac{I}{C} \right) \]

Where:
- \( i \) = number of original ideas generated by the individual participant;
- \( c \) = number of comments made by the individual participant to ideas generated by others;
- \( I \) = total number of ideas in system;
- \( C \) = total number of comments made to other participants’ ideas (excluding “follow-up” comments by one individual to her own idea).

For the Aliant pilot project, IWS scores for the 66 active participants were distributed as shown in Figure 1 (with a normal distribution superimposed).

![Figure 1. Idea Work Style Scores](image-url)
A negative IWS score indicates an individual who prefers commenting on existing ideas to creating original new ideas. A positive score indicates one who prefers to generate new ideas and typically does not comment on those generated by other people. A zero score signifies someone whose ratio of ideas to comments (on the ideas of others) is identical to the idea/comment ratio (where ‘follow-up’ comments to individual’s own ideas are excluded) for the entire participant population. Idea Work Style score is a measure of imbalance in the approach that employees take to working with ideas.

Fifty percent of pilot project participants scored between -0.7 and 1.0 on the IWS scale. In other words, about half the people on the pilot did not exhibit a preference for either creating or processing; they were comfortable in either role. The other half was fairly evenly split, between those who prefer generating, and those who prefer processing. Generators and processors are therefore not eccentric fringe groups; they are represented in significant numbers.

A hierarchical cluster analysis supports the finding that there are at least two distinct behavioural roles within the active participant population. A principle components analysis of the idea-comment data together with the additional variables ‘follow-ups’ (comments made by an individual to his or her own idea) and ‘challenges’ (the number of challenges in which a participant is active) suggests a modified IWS with these variables included could explain as much as 76% of variance in the data. (However, because there is insufficient data to form strong conclusions, the simpler IWS, incorporating only ideas and comments, is presented here). Whether it is IWS or some similar construct, which may include ‘follow-ups’, ‘challenges’, or some other as-yet unobserved variables, it seems there are observable variations in the way different people work with ideas.

5. Behavioral Style versus Cognitive Style – IWS and Kirton Adaption-Innovation Inventory

IdeaPilot is a structured tool that allows both synchronous and asynchronous input. Prante et al [6] find that a synchronous (as opposed to turn-taking, which differs from asynchronous) capability and a structured “idea space” were factors which supported the generation of ideas in tools for computer supported collaborative work. It seems that these factors also contributed to the success of the IdeaPilot tool as an idea generator in the Aliant project. The project team and the software developers were surprised to find that they did not translate into idea processing success. However, I suspect that this is largely due to a combination of participants’ lack of processing experience and their familiarity with “suggestion box” methods. Absent these interfering conditions, these factors may also contribute to good idea processing. The appearance of two distinct behavioural roles – generator and processor – highlights the difference between these functions.

The IWS score appears to have potential for classifying individuals by the behaviours they exhibit in performing idea work. IWS is a measure of behavioural style, that is, the behaviours which individuals prefer in a collaborative innovation setting. It closely resembles a measure of cognitive style - Kirton Adaption-Innovation Inventory (KAI). Kirton’s Adaption-Innovation theory (A-I theory) is an attempt to explain “differences in the thinking style of individuals, with particular reference to creativity, problem solving and decision making” [7]. Thinking style differs from problem-solving or creative ability (or for that matter, intelligence) in that it is a measure of how a person chooses to go about solving a problem, rather than how well the problem is solved. Hypothetically, IWS is a behavioural analog to KAI’s measure of cognitive style. It is a measure of how an individual behaves in an idea work situation, rather than how well he or she works with ideas.

On the KAI scale, populations are distributed normally on a continuum. ‘Adaptors’ and ‘innovators’ are situated, like processors and generators, at opposite ends:

Adaptors characteristically produce a sufficiency of ideas… based closely on, but stretching, existing agreed definitions of the problem and likely solutions. They look at these in detail and proceed within the established paradigm (theories policies, mores, practices) that is established in their organisations. Much of their effort in effecting change is in improving and ‘doing better’...

Innovators, by contrast, are more likely in the pursuit of change to reconstruct the problem, separating it from its enveloping accepted thought, paradigms and customary viewpoints, and emerge with much less expected, and probably less acceptable solutions … They are less concerned with ‘doing things better’ and more with ‘doing things differently’.

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Behaviour, Kirton states, is flexible, while cognitive style is unvarying. But behaviour is determined by the environment as well as by characteristics of the individual. Markides asserts, for example, that “the single most important determinant of employee behavior is the underlying context or environment of the organization” [8]. If the individuals in an organization do not change, then behaviour changes must result from differences in the environment.

My hypothesis is that, under conditions which are conducive to innovation, IWS correlates with KAI, with adaptors exhibiting processor behaviour and innovators exhibiting generator behaviour. If the hypothesis is true, a misalignment between individuals’ KAI and IWS scores would indicate problems in the organizational environment for innovation, since KAI, part of a deep seated dimension of personality [7], is constant. To test this hypothesis, a measure of organizational environment quality is required.

Amabile’s KEYS instrument is a good example of a tool for measuring workplace conditions for innovation. KEYS is a survey-based instrument that addresses the work environment (including Environmental Stimulants to Creativity and Environmental Obstacles to Creativity) and the “work outcomes of creativity and productivity”. Amabile explains that the tool helps researchers “understand the social environment in organizations and how it might impact creativity” [9].

KAI, KEYS, and IWS could be combined, in an experimental setting, to develop a better understanding of the dynamics between personality, environment, and behaviour and to validate IWS as an appropriate and direct measure of innovative behaviour. But, any two of the three factors (personality, environment and behaviour) should be sufficient to provide a complete picture of the innovative health of an organization. Why then, since tools such as KEYS and KAI are already established and validated, is a measure of innovative behaviour required?

Many existing tools are survey-based. Personal experience suggests that employees’ patience for answering surveys is quite finite, limiting the possibility for frequent measurement. Another problem with surveys is that they can only inquire about past behaviour. A combined IWS-KAI method would take a different approach, relying on individuals in an organization as sentinels for the health of their environment. This approach promises some advantages as a continuous and direct measure of the creative process. Because it draws on data collected from an on-line collaborative tool, IWS can be periodically (or even continuously) calculated, giving real-time updates not just on the conditions which will encourage creative behaviour, but on actual creative outputs themselves.

6. Conclusion and Future Work

Various models for measuring and managing knowledge assets, among them, Balanced Scorecard and Skandia Navigator, are emerging. They constitute frameworks for making intangible value explicit as well as for linking strategy and short-term action. Within these frameworks, idea management tools can be seen as mechanisms for transforming the intellectual capital in employees’ ideas from a human capital asset to a structural capital asset, in the process shifting its ownership from employees (where it is often not actionable) to the organization (where it can accounted for, managed, optimized and combined with other tangible and intangible assets).

The behavioural preferences of individuals seem to be important factors in innovation management performance. In the Aliant pilot project, I observed significant differences in the way individuals interacted with an idea management system. The Idea Work Style measure developed as a result of these observations may be useful as a monitoring tool for the innovative health of organizations.

The next step will be to design and conduct experiments to test the hypothetical linkage between Idea Work Style and Kirton Adaption-Innovation Inventory. While it is unlikely that Aliant will continue this research, others are invited to adapt and extend these concepts.

7. References


