Beneath the Surface of Conscious Patterns: Using Narrative to Characterise the Culture of Innovation at a Leading R&D Organisation

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Abstract

Knowledge is a core asset for the CSIR and a direct determinant of the organisation's relevance. A change process currently underway aims to reemphasise the strong R&D base in line with the organisation's mandate.

Strategic management of innovation is both a social and key business process for converting knowledge into value. Projects typically entail a high degree of new knowledge generation, as opposed to repackaging existing knowledge. Human skills and knowledge remain the primary limiting resource. Most work is multi-disciplinary and project teams are assembled by drawing experts from a number of organisations. The challenge is to effectively leverage knowledge towards innovation excellence, and to achieve this, it is necessary to understand the prevailing culture associated with innovation.

This chapter provides insights into the use of narrative techniques to uncover behaviours, themes and archetypes beyond everyday conscious patterns of recognition. The objectives were to explore the usefulness of narrative techniques for making sense of complex social processes, and to gain insights into cultural issues surrounding innovation. Aspects investigated include understanding the current underlying organisational values and how narrative techniques can help understand these complexities. Outcomes from this exercise support the CSIR change process.

Main findings include ten archetypes for innovation namely the: Clumsy Puppy, Couch Referee, Courageous Captain, Bright-Eyed-Bushy-Tailed Researcher, Inspiring Coach, Intellectual Maverick, Intrepid Explorer, Meticulous Bureaucrat, Narrow-minded Nitpicker and Willing Victim. Key issues that emerged are the client-scientist relationship, the value of mentoring, and a culture that may value beaurocratic behaviour at the expense of innovation.

Keywords: Narrative techniques, culture, innovation, archetypes, values and themes, change process

Background

Narratives connect ways of knowing with ways of organising (from Patriotta, 2003, pp 353).

Industrial Context

The South African Council for Scientific and Industrial Research (CSIR) was founded in 1945, and has developed into the largest research-based science and technology organisation in Africa. The CSIR aims to provide science and technology services and/or solutions to a variety of stakeholders in both the public and private sector through a portfolio that includes:

- Research, development and implementation

- Technology transfer and assessment

- Scientific and technical education and training

- Policy and strategic decision-support

- Global science and technology links

- Specialised technical and information consulting

- Prototyping and pilot-scale manufacturing

- Commercialisation of intellectual property, including venture establishment

The NRE Unit (Natural Resources and the Environment) is one of the core business units within the CSIR. It focuses on environmental research to support sustainable development within the context of national priorities and global challenges. The vision of the CSIR's NRE unit is to conduct *world-class, directed interdisciplinary research and technological innovation, with partners and stakeholders, in the fields of natural resources and the environment to contribute to the social, economic and environmental improvement of South Africa and Africa*. This is achieved by undertaking research in areas of mining, forestry, pollution and waste, water resources, resource-based sustainable development and ecosystems. Currently there are approximately 258 researchers employed within the NRE unit.

Knowledge has always been a core asset of the organisation, and is a direct determinant of the organisation's relevance. Strategic management of innovation is seen as both a social and a key business process for converting knowledge into value. The CSIR defines knowledge simply as the *capacity for informed action* (Roux, 2004), which is closely related to definitions provided by Karl-Erik Sveiby, namely *a capacity to act* (Sveiby, 1997); and Ross Dawson, namely *the capacity to act effectively* (Dawson, 2000). For the purpose of this chapter, innovation is defined as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1995). CSIR strives to facilitate effective transfer of innovation, where the adopter has both the absorptive capacity (understanding) as well as the emotional and financial commitments to allow sustained use of the acquired knowledge.

Note that while this case study subsequently refers to the CSIR, the research was confined to the NRE unit.

Problem

Current reality within CSIR NRE Unit is that typical projects entail a high degree of new knowledge generation as opposed to repackaging or reusing of existing knowledge. Projects often draw on a variety of specialist skills, necessitating project teams that draw experts from both within and outside the organisation. Availability of human skills or knowledge is seen as the primary

constraint to achieving business objectives. Flowing from these realities, a key business imperative is to attract and retain key talent, but also to effectively utilize internally (within the CSIR) and externally (outside of the CSIR) available knowledge. An overall challenge facing the organisation is to effectively leverage human skills or knowledge towards innovation excellence.

It is increasingly acknowledged that an organisation cannot manage knowledge *per se* (Snowden, 2003; Ungerer and Roux, 2005; Davenport and Prusak, 1997 and Denning, 2002) rather it is the processes and tacit aspects that require management attention. Furthermore, Snowden (2003, pp 24) believes that knowledge is both a thing and a flow that requires organisations to focus more on context and narrative elements of knowledge (caters for tacit features) than content; '...*human knowledge is deeply contextual – it is triggered by circumstance*'.

It should be noted that the larger the organisation, the more difficult it may be to clearly distinguish patterns in a complex, social space (for example related to innovation). While leadership skills are not necessarily control orientated, they are about trying to create order, and leaders need to sense and respond to the emerging organisational patterns from observation and experience. Leadership responses may include the encouragement of patterns perceived to be favourable and discouragement of patterns perceived to be unfavourable.

Snowden (2003) sees knowledge management as being *informed* by complexity and not *constrained* by it, recognising the differences between content, context and narrative management. The implications for organisations of this are that certain types of knowledge (particularly context and narrative) can not be elicited or managed by traditional techniques. The assumption behind using narrative techniques is that innovation within the organisation has happened in complex space, that is; patterns of knowing can only be recognised in retrospect.

To avoid ending up with "the same old answers", narrative techniques and storytelling can be used to uncover values, issues and characters or archetypes beyond the everyday conscious patterns of recognition. For example, anecdotes represent a source of unguarded information, which may not surface through question and answer techniques. Typically, patterns that emerge from the anecdotes differ from the answers that people involved in innovation may give if asked to fill in a questionnaire or during an interview. This rationale has led to a narrative enquiry into the patterns that characterise innovation at CSIR, the outcome of which provides a baseline from which to influence behaviour, lead change, share knowledge and guide decisions regarding CSIR's future direction.

Learning Objectives:

- To investigate or explore the usefulness of narrative techniques for complex social processes

- To uncover the archetypes present in innovation at an R&D organisation and understand where they add value or hinder innovation

- To uncover the dominant themes associated with innovation and creativity within a research environment

- To understand the cultural complexities surrounding innovation at CSIR NRE

Approach

James and Minnis (2004) believe that the more intricate organisational knowledge is, the less effectively it can be codified. Stories provide examples of nuances that otherwise may be difficult to write down and may even remove some ambiguity and make meaning more clear. Further benefits of organisational storytelling include: allowing people to track or benchmark their own behaviour

and theories; generating new knowledge and ideas; obtaining a deeper understanding of underlying cultural issues; providing a means of communicating possibly difficult issues in a non-threatening manner; allowing a far greater depth and texture of knowledge to be conveyed; and using anecdotes to provide repositories of accumulated wisdom (Mitchell, 2005, Patriotta, 2003, Snowden, 2001b).

Within an organisation work occurs in a complex social environment where anecdotes (for example told around the photocopier or during a coffee break) allow people a means of distilling information on behaviours and values that influences attitudes and shape the prevailing culture. Narrative enquiry can be used as a mechanism to organise human cognition and make sense of multiple signals present in organisational anecdotes (Snowden, 2001a).

This study made use of two techniques developed by the Cynefin Centre for Organisational Change, namely:

- Discovery technique: Anecdote circles were used to facilitate the informal sharing of experiences by participants within a peer group. An anecdote is a real life account of an individual's or a community's experience. It is usually unstructured, simple, conveys various values, messages and rules, and is told from a particular perspective. Anecdotes are associated with a historical event or experience and as such have a time imprint. Anecdotes differ from stories in that they are based on facts and real experiences, where stories reflect altered realities and carry a specific message (Snowden, 2003).

- Sense-making technique: Two-stage emergence was used to extract emergent constructs (Values, Themes, and Archetypes) from the outputs (anecdotes) of the anecdote circles. The first stage uncovers ordered properties from the outputs (characters, issues and behaviours), and the second stage reveals unordered properties culminating in the archetypes, themes and values.

Case Analysis

"The real voyage of discovery consists not of seeing new lands but in seeing with new eyes" Marcel Proust (quoted in Snowden, 2004, pp5)

During November 2004 two anecdote circles were held, the aim of which was to capture anecdotes and experiences of participants relating to innovation. A total of 20 senior researchers were selected to participate in this exercise because of their levels of experience and represented three different geographic locations (Pretoria, Stellenbosch and Durban). Divided into two groups the researchers sat in informal circles and told anecdotes of their experiences of innovation from various projects and contexts. Using an informal setting (an open plan lounge area with bean bags and snacks) created a comfortable environment conducive to sharing of stories. Each session was facilitated by a member of the facilitation team familiar with the Cynefin techniques and was supported by a young researcher.

It was emphasised that an anecdote should focus on an experience and not on opinion or personal knowledge. During the anecdote circle, a number of pre-determined open and prompting questions were asked by the facilitator upon which the participants self-selected the order in which the anecdotes were shared. Anecdotes were recorded with a digital recorder and manual notes. The collection of anecdotes was captured in a narrative database, following a protocol that allows future extraction according to themes, issues, characters, emotions, behaviours, and etcetera. One of several uses of this narrative data is to, through a further facilitated session, extract organisational archetypes, emerging themes and emerging values, which in turn may be used to inform organisational strategies and change management.

This discovery phase resulted in 144 anecdotes being captured which became the basis for a two-stage emergence workshop held in March 2005. A new set of 14 participants worked together to extract the character attributes, behaviours and issues from the anecdotes. A new set of participants

were selected to provide further diversity in the participants and further interpretation of the stories. The participants followed a facilitated predetermined process allowing the attributes to become archetypes, the behaviours - values and the issues - themes. A cartoonist was present during the later stages who, with no prior briefing, sketched the attributes of the archetypes according the discussions.

The final step in the process was to populate the narrative database that examined each of the original anecdotes for the extent to which the archetypes, values and themes were present. The data were captured by using participants from the two-stage emergence workshop working in pairs. The data were then analysed in order to determine any emerging trends. The sense-making stage yielded ten archetypes, twelve themes and fourteen values associated with either supporting or hindering innovation at the CSIR.

Results and Business Impacts

*"Narrative is the way human beings actually manage to understand and interact with other human beings in the world ... if you want to understand the world of human beings – and organizations are fully of human beings – you've really got no choice. **You have to understand narrative"** [own emphasis] (taken from Denning, 2002, pp18).*

Results

The Archetypes

Ten archetypes that characterise innovation resulted from the narrative process namely the: Clumsy Puppy, Couch Referee, Courageous Captain, Bright-Eyed-Bushy-Tailed Researcher, Inspiring Coach, Intellectual Maverick, Intrepid Explorer, Meticulous Bureaucrat, Narrow-minded Nitpicker and Willing Victim.

The cartoon drawings of the archetypes are provided below with explanatory text of their typical attributes. The archetypes were developed during the two-stage emergence workshop, and the method allowed the final archetypes to be mapped back to the characters that were contained in the original anecdotes.

Each archetypes attributes was mapped back to the characters captured within the anecdotes. The text box shows the original characters the archetype is composed of. As each archetype is composed of a number of characters, only the dominant characters (those that constitute at least 60% of the archetype) are shown. As an example, 29% of the students and/or learners in the anecdotes are associated with the Clumsy Puppy Archetype.
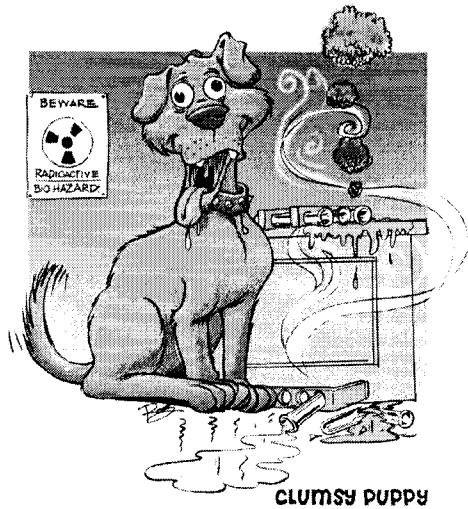
CLUMSY PUPPY

The Clumsy Puppies are new recruits with **little working experience** and always raring to try new things. They are most in need of **support, mentoring** and are **dependant** on more experienced staff for **nurturing** and **skills development**.

Once they overcome their **insecurities** and given the **space and opportunity to learn,** the Clumsy Puppy can be a valuable contributor. However, in their **enthusiasm** a Clumsy Puppy may **not listen well** and will need **constructive feedback** from others to build their confidence.

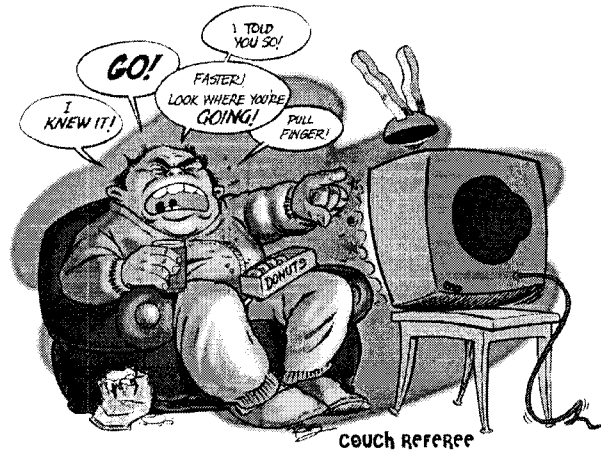**Clumsy Puppy character composition:**

Students and Learners - 29%

Followers - 14%

Scientists - 14%

The Couch Referee is a **'know-it-all'** who believes things would have worked out if only s/he was listened to in the first place. This is the type of person who can be heard saying; "I told you so!"

Couch Referees are more often than not negatively perceived by colleagues who see them as **demanding, insensitive** and **arrogant,** with **unrealistic expectations**. The Couch Referee on the other hand, feels that **no one listens** to them or **values their inputs enough.**

couch referee

Couch Referee character composition:

Clients - 45%

Scientists - 22%

The Courageous Captain is **enthusiastic, inspirational** and **forward looking**. His or her energy, **dedication** and **strength of character** afford many followers and is likely to be heard saying; "Right everyone, follow me I know where we need to go..."

Self motivated, energetic and **appreciated** for being reliable, the Courageous Captain is generally optimistic and **unperturbed** by what lies ahead on the horizon. Within the CSIR s/he is seen to have **access to funding** and great research projects.

The Courageous Captain is the subject of many an organizational story and these stories are likely to take on mythical status.

courageous captain

Courageous Captain character composition:

Achievers - 39%

Followers - 23%

The Bright-eyed Bushy-tailed Researchers are young, **enthusiastic, goal orientated** people. They can be **relied upon** to achieve results, organise and **get things done.** This does tend to pull them into **managerial** and **operational tasks** (as opposed to research).

The Bright-eyed Bushy-tailed Researchers tend to be highly **productive over-achievers** who continually **move their own goal posts.** However, as a result of their management tasks they are often **office bound** and **don't get to see the bigger research picture.**

Bright-eyed Researcher character composition:	Managers - 46%
	Leaders - 18%
	Achievers - 18%

The Inspiring Coach is a true **team player** and the organizational cheerleader! This is a **people-person** who is **supportive** and committed to making a *team* successful. An Inspiring Coach **adds value** by providing support where it is needed, focusing on a **common goal** and having the **ability to accept criticism.**

Sharing knowledge and **communicating** is important to an Inspiring Coach. While acknowledged as an achiever, the Inspiring Coach likes to have a **hands-on approach** to getting things done. An Inspiring Coach tends to **multi-task,** but always remains **committed to the team.**

Inspiring Coach character composition:	Team member - 19%
	Achiever - 19%
	Follower - 19%

inteiiectual maverick

The Intellectual Maverick is a **visionary** who has **insights** into the bigger picture and a broad spectrum of knowledge to draw upon. S/he is a **lateral thinker** who enjoys the challenge of solving **complex problems**.

Intellectual Mavericks **love a challenge** and are not afraid to take **risks**. New, original ideas often come from Intellectual Mavericks and they will **focus on an idea** until it is conceptualised to a manner that they feel can be passed on to someone else to take further. An Intellectual Maverick is seen to have **strength of character** and key **insights to the market**.

Intellectual Maverick character composition:

Achievers - 15%
Analyst - 15%
Scientist - 15%
Leader - 15%

Intrepid Explorers love to **explore new directions** or ideas and are **creative, lateral thinkers**. They have an **adventurous** spirit and love a challenge. Where the Intellectual Maverick is not afraid to take risks, the Intrepid Explorer is not afraid to take the **initiative** and make the first move.

The Intrepid Explorer gets **bored easily** and constantly needs new stimuli in his/her environment. Colleagues see the Intrepid Explorer as **arrogant, individualistic, opinionated** and **complex**. In top form an Intrepid Explorer could be heard saying; "Guess what I just discovered ... I bet you couldn't!"

Intrepid Explorer character composition:

Innovator - 38%

Scientist - 38%

intrepid explorer

meticulous beaurocrat

The Meticulous Bureaucrats are **perfectionists** who like to focus on **details** and are painstaking particular with their work. Unlike many of the other innovation archetypes they are driven by targets and **deadlines** and are **analytically minded**. Come what may, a Meticulous Bureaucrat will deliver their work on brief, on budget and on time.

A Meticulous Bureaucrat will **clash with others**, get involved in organisational **politics** and is **not easily swayed** from their values. S/he is easily **stressed** by errors or change. Colleagues see the Meticulous Bureaucrat as **dictatorial** and **inclined to sabotage**.
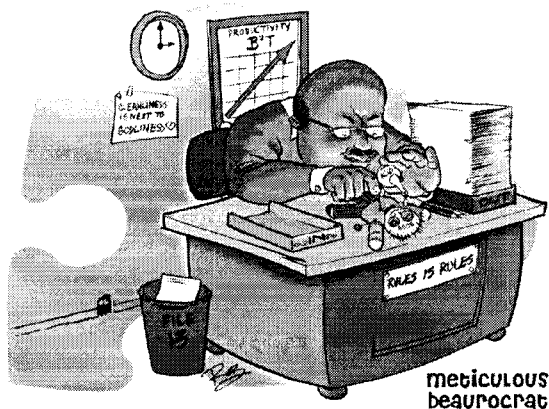
Meticulous Beaurocrat character composition:

Analyst - 19%
Family - 19%

The Narrow-minded Nitpicker is **detail focused** with a very **narrow perspective** on what is acceptable or not. They prefer to operate alone or in a **silo, do not communicate** well and generally have a **low morale**.

A Narrow-minded Nitpicker will work hard on **micro-task details,** which is seen as **selfish** or **non-value adding** work by bigger picture thinkers. Colleagues perceive the Nitpicker as **lacking commitment** to the organization or team and **selfish.**

The Narrow-Minded Nitpicker is the archetype that displays the most negative qualities.


narrow-minded nitpicker

Narrow-minded Nitpicker character composition:	Victim - 33%
	Follower - 17%
	Analyst - 17%

Willing Victim is the gloomy person who **feels sorry for him- or herself.** S/he **believes** that his or her contributions are **never adequately acknowledged** or properly appreciated. A Willing Victim is **pessimistic** and quick to **pass blame.**

Colleagues see the Willing Victim as **egotistical, overly critical** and generally **naïve** to larger issues. The Willing Victim will **not take the initiative or volunteer an idea** as they believe that their inputs will not be appreciated anyway.
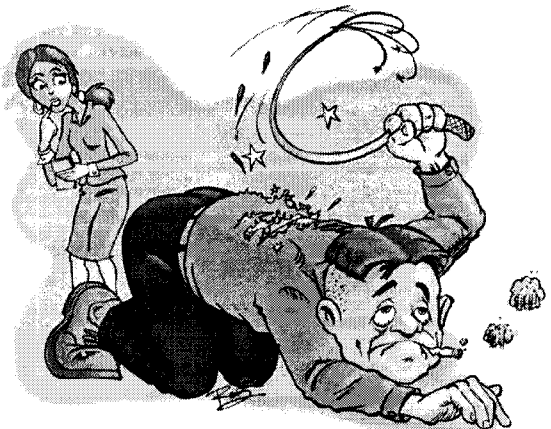
willing victim

Willing Victim character composition:	Victim - 46%
	Innovator - 16%

The Intrepid Explorer was by far the most common and strongest featured archetype in innovation anecdotes, followed by the Intellectual Maverick. While the impact of the Bright-eyed Bushy-tailed Researcher is not as great, the archetype is featured consistently throughout the anecdotes. The least frequent occurring archetypes are the Narrow-minded Nitpicker and the Willing Victim; however the Willing Victim is the only archetype to score high on project management, an important part of leveraging innovation.

Many of the archetypes share similar weaknesses and strengths, for example, effective transformation is consistently weak. It is interesting to note that while transformation is a core organisational theme results this exercise indicate that innovation is probably not the most effective 'home' to achieve transformational goals. However, mentoring has been shown as a key aspect of successful innovation. The highest ranking archetypes (Intrepid Explorer and Intellectual Maverick) are role models for innovation and the type of characters around which coffee table talk and mythical stories form. For this reason showing support for the Intrepid Explorer and Intellectual Maverick types could assist in initiating and gaining support for implementing transformation.
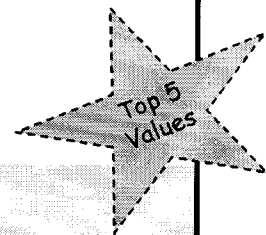
Themes and Values

Anecdotes extract shared views and meanings for a community (Patriotta, 2003). From an organisational culture perspective these shared worldviews are important to understand the common features of an organisation's culture. For learning to be most effective a certain degree of overlap in understanding is needed (James and Minnis, 2004; Roux and Claassen., 2005,) and sensemaking of the anecdotes helps understand where these overlaps may be.

The tables below show the outcomes from the themes and values emergence process.

Themes
Scientific integrity
Effective communication
Leadership
Stimulating creativity and innovation
Manage staff turnover
Effective transformation
Appropriate reward and recognition
Branding and corporate image
Effective project management
Effective Systems and structures
Value your staff
Defining and implementing a common objective

Top 4 themes
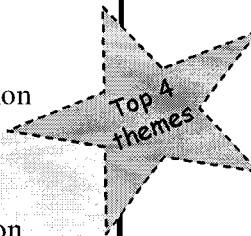
Values
Systems that encourage the right behaviour
Endorsing the right values
A knowledge enabling environment
A positive learning culture
Open and effective communication
Accepting or tolerating under performance
Lack of a project management imperative
Management focus on power and bottom line to the expense of innovation
Personal ownership of career development
Good performance management
Organisational commitment to creative space
Organisational commitment to understanding and responding to motivational needs
Roles and responsibilities are clearly aligned and communicated
Promoting positive team dynamics

Top 5 Values

The most notable feature from the themes and behaviours is that they are consistently very positive. It became clear during the sensemaking phase that the results, particularly for the values, show

some manipulation to reflect what *should* happen for successful innovation and not necessarily what *did* happen.

It is interesting to note that during the emergence workshop people were the least comfortable grouping the values for likeness and continually tried to rather group according to what they thought the outputs should reflect. The facilitation team noted that the level of discomfort among the participants to group values for likeness resulted in a tendency to try and pre-empt the outcomes. For this reason the archetypes will remain the focus of this chapter, and not the values and themes. However, in this context it is worth noting the results and the observations.

A dominant theme in the anecdotes is an obvious one: ensuring the ability to stimulate creativity and innovation. Other dominant themes include effective communication, leadership and scientific integrity. Interestingly, the ability to manage staff turnover, effective transformation and appropriate reward and recognition do not feature strongly, yet these top the list of organisational level goals.

The results showed that the strongest values for innovation are open and effective communication, having a positive learning culture and creating a knowledge-enabling environment. The least frequent values are the negative values of lacking a project management imperative and accepting or tolerating underperformance.

Effective communication is shown to be very important for innovation, ranking high as both a value and a theme. Put differently; the results indicate that if you want successful innovation you need a culture that values and encourages the sharing ideas through effective communication mechanisms. Communication is important for sharing knowledge and leveraging ideas into something 'do-able'. There are very few anecdotes that tell of an experience where innovation happened because someone did not want to share an idea for fear of lack of recognition or losing control. Sharing and communicating across teams was a clear theme throughout the anecdotes captured.

The text boxes below show excerpts from the anecdotes.

Quote on the value of experiential learning…

"When you get a heart bypass you don't pay for the hours that the doctor works on you; you pay for the hours that he spent learning and working on other people. "

Anecdote on reward and recognition…

"After we completed a huge EIA [Environmental Impact Assessment], one of the vice presidents indicated that they wanted to reward the team appropriately. As project manager I got up and said: 'I think you can't do better than just give us the space to go on a game drive. That will reward our families as well for having put up with us.' We were then allowed to spend a week at the Victoria Falls. Our families joined us for two days and stayed for free. The core team was there for a couple of days afterwards. It was the best reward they could have given us. "

Key Findings

In general, outputs from the sensemaking process reveal a number of interesting issues which are characterising innovation at the CSIR NRE unit. This section provides a brief overview of the key findings and concerns.

It is important to note that the values, themes and archetypes identified arise directly from the anecdotes and thus the actual experiences of staff. While there may appear to be certain gaps in the list, this is because these issues did not arise strongly from the anecdotes and is an indicator of those values that pattern entrainment tells us should be a part of innovation, but may be rarely practiced in the organisation.

Snowden (2003) believes that an individual builds his or her own patterns through learning processes and experience which enables him or her to understand complex situations and thus make decisions when surrounded by uncertainty. The anecdotes collected for this exercise point to uncertainty and risk being present in an innovation environment, where previously existing patterns are broken in order to form new ones.

Pattern entrainment in communities can result in 'group-think' and the unwillingness for a particular community to recognize or accept patterns outside of their own paradigm (Kurtz and Snowden, 2003). Retrospect and internalization of experience, is a good collector of patterns. Individuals that participate in a project contribute their own personal experiences and patterns to processes of innovation. The following discusses how the archetypes for innovation each contribute to an innovation environment.

A Space for Innovation

The CSIR case study revealed a number of archetypes that raise concerns for innovation practices namely: the Coach Referee, the Willing Victim, the Bright-eyed Bushy-tailed Researcher and the Intellectual Maverick.

A key issue emanating from the outputs of this exercise is the client-scientist relationship. To demonstrate, the Couch Referee archetype comprises 45% of the client character. From a Couch Referee you are most likely to hear 'if you had just listened to me in the first place we would not be in this situation.' Understanding exactly what the client wants and can use effectively is critical to the success of any project and requires good listening and interpretation skills; which are lacking in some of the archetypes (notably the Couch Referee, Intellectual Maverick and the Intrepid Explorer).

> *Extract from an anecdote:*
>
> *"Having finished the project the client rejected all the solutions in our big report because he said it would be too complicated for the people to understand."*

The results point to issues where clients may have trouble relating to scientists and getting them to listen and understand to their needs. This may mean that new ideas or solutions may either not be tailored to the client's actual needs, or they can be overlooked. Furthermore, if the automatic reaction to a client is a negative one, and the client is seen as interfering, the likelihood of successful innovation is limited. Active engagement and conversation between the client and scientist is necessary for successful innovation.

An anecdote on success...

"We were having problems relating to our client. During a discussion about why the project was not running smoothly we were surprised at one of the key things that the client insisted on, namely that we work from their offices. He asked how we can understand our clients when we don't experience their working environment first-hand – and the suggestion was to work for a year in their environment to learn how they do things and get a better sense of how we can deliver value into that environment."

At first glance the Bright-eyed Bushy-tailed Researcher represents the young scientists eager to contribute ideas and work hard at tasks; someone you most likely would want in your team. However, closer examination of this archetype revealed that two thirds of the characters that make up this researcher archetype are the manager and leader. The concern this raises is that a situation may exist where staff that are young, inexperienced and in need of mentoring and growth from senior scientists, are taking on managerial tasks. This reflects a situation where enthusiastic new researchers in the organisation are pulled into project management and administrative tasks and not primarily into R&D activities.

These findings are in line with developments within the CSIR where concern for the development and growth of young researchers at the CSIR has led to the establishment of a Young Researchers Forum and funding is set aside specifically for skills development of young researchers. A recent survey of young researchers to determine what the necessary skills were that they needed to develop revealed a strong demand for practical experience on research projects to grow their basic science skills and opportunities for networking and linking to other leading scientists.

Anecdote...

"It is a disheartening thing; you can so easily get caught up in politics. You then try to keep to the rules so much that you forget what you are [employed] *there for."*

While a Clumsy Puppy is likely to volunteer for a task they need to be paired with a strong mentor to guide them. Due to their presence and standing within the organisation the Intellectual Maverick and Intrepid Explorer archetypes are likely to include a number of the mentors. However, if a particularly sensitive mentee is paired with the less sensitive archetypes (like the Intellectual Maverick or Intrepid Explorer below) this may develop into a destructive relationship where the Clumsy Puppy may become despondent and lose their enthusiasm. The short anecdote below demonstrates how this can occur.

> *Anecdote told by a Clumsy Puppy about his/her mentor the Intellectual Maverick...*
>
> *After a lot of hard work and I had finished writing up the report I asked him [mentor]: "What do you think?"*
>
> *He stared into the distance and said; "I am really worried about this project."*
>
> *And then I panicked and thought there must be some fundamental design fault. "Where did I go wrong? Did I misconceptualise [sic] the whole thing? Was there something wrong with my science procedures? "*
>
> *All of this went through my mind, as he remained silent.*

The Willing Victim archetype shows that within the CSIR there might be a lack of recognition and respect of those people with new ideas (16% of the Willing Victim comprises the Innovator character). There is a danger that the organisation may be rewarding bureaucratic behaviour and not the true lateral thinkers.

The Intellectual Maverick, while showing a strong tendency towards innovative behaviour, does, however seems to be very scheming and is not perceived favourably. The Maverick likes to set him or herself apart from everyone else and is not worried about being unpopular or disruptive to a process that they might not agree with. This may lead to suppressing or holding back good ideas by less confident and outspoken staff.

A further trend seen in the archetypes is that the scientists are seen to be working towards achieving the greater good in contrast to the management types who are seen as bottom-line driven and hindering the innovation process.

The very strong positive bias in all the outputs paints a very rosy and probably skewed picture, of innovation. This positive approach may be masking a reality where people might be conforming too easily and even suppressing new ideas to maintain the current status quo. Many of the answers or results from the values and themes show standard answers and there may be fear to tell the truth or unconscious adherence to the ideal picture.

Myth and Fable

Anecdotes play a large role in building institutional memory and there are certain stories that most people know or have told themselves. These are typically the stories that new people joining the organisation are exposed to early on in their employment. Some of these stories have been around in different forms for many years and have developed mythical status. These stories carry messages about the values and behaviours that the organisation strives for.

Mythical stories are important to identify as they point to important cultural systems that are subtly embedded in the organisation (Snowden, 2001b; Denning, 2002; and Kurtz and Snowden, 2003). As mythical stories grow and develop they become rich in metaphor and emotion and though they will be told by many story-tellers, certain phrases will remain and become rooted in the lingo of an organisation.

While all the anecdotes captured were kept anonymous, many people involved in the process could easily identify the people from some of the stories as they had often heard the stories many times before. An emerging thread from these stories is that they are emotive, rich in metaphor, often scornful and self-reflecting. What binds the story together is the message which is mostly about bucking the system, learning through doing and taking chances. It is worth noting that in many cases these specific stories are about unease or dissatisfaction in the way things are done, rather than supporting organisational processes.

A key lesson learnt is to keep to the facts of the anecdotes as much as possible as people will easily pick up subtle changes from the version they are familiar with. An example of a mythical story in the CSIR is provided in the box below. This story is told to demonstrate a number of values in the CSIR. First, the story highlights the value of experiential learning of a scientist; the problem could not have been solved without having had so many years of experience. Second, that innovation and value can not be measured by filling in timesheets to account for time. This is a story told often within the organisation and supports the message from the archetypes where emphasis and pressure is placed on scientists to make money; a message that can be in conflict with the time and space needed for good quality research.

> *"A few years ago one a senior scientist who has been working at the CSIR for many years doing research into water resources was urgently called out to a mine to have a look at a water quality problem they were experiencing. This scientist was able to understand the problem and suggest a solution within a few minutes and without too much trouble. The client was very happy as the solution could be easily and cheaply implemented. When the time came for payment the scientist suggested that instead of paying the usual hourly charge out rate, the client should pay a small fraction of the savings they had achieved by implementing the solution. The client was only to happy to agree to this arrangement, resulting in a good day for all."*

Working Relationships

An aspect that came out of the anecdotes told during the anecdote circles were the values around '*how we treat each other*'; particularly relating to relationships between co-workers, mentors and mentees, as well as between managers and subordinates.

Many of the anecdotes were not related to innovation *per se*, but rather to creating the space for a new recruit (e.g. Clumsy Puppy) to pair up with a more experienced scientist (typically the Courageous Captain or Intrepid Explorer). These anecdotes less frequently related to the Intellectual Maverick who prefers to work on ideas independently and who may intimidate or discourage juniors. Many of the anecdotes where the Intellectual Maverick was present relate to conflicts with management or administrative systems and procedures. The Intellectual Maverick is the archetype most likely to clash or rebel against organisational systems.

> **Anecdote about the Intellectual Maverick:**
>
> *"A key part of my research plan indicated the need for mathematical modelling and physical limnology skills that were not available in our group. No one else saw the scientific value of doing the work on this system, so I decided that I would do the work myself. I worked out a suitable sampling and measurement program and borrowed the equipment I needed from local universities and consulting firms. I ended up doing the work in my own time over weekends as the research managers saw no technical value in the work. By the end of the study I had published 5 papers in international journals, made 3 international conference presentations, and in a four year period I had received requests from over 100 overseas guests visiting our institute to be taken on a guided tour of the study site".*

Anecdote about the **Clumsy Puppy***:*

"I remember right at the beginning of my career going on a project field trip with a Marine Biologist and a Coastal Engineer (both PhDs) to a bridge at the mouth of the Kromme Estuary. Then, while standing on the bridge, this engineer and biologist started arguing for about an hour and a half about how the mouth dynamics of the whole system worked and should they dredge the estuary or not. Each had his own perspective and could not get the other to agree with their understanding of the problem. They were making such a scene yelling at each other that a bunch of people stopped to watch what was happening. I just stood staring at them; my eyes were big because they were at the point of being quite abusive of each other arguing their points. Eventually they resolved their problems, shook hands and went off for a beer! Looking back, at that point in my career it was a wonderful experience for me to learn about how these estuarine systems work from the two very different perspectives of an engineer and biologist."

A further point that the anecdote about the scientist working on his own demonstrates, concerns the conflicts that arise between scientists driven by ideas and the managers responsible for managing the organisation. This shows the culture of "us versus them" that has developed and which can, and has, lead to conflict.

The archetypes highlight the value and necessity of mentoring and peer support in innovation processes. It is interesting to note that this is not followed though in the values or themes. Stories about taking personal ownership of one's career are most closely associated with the young researcher taking initiative on his/her own and not pushed or driven by a mentor or leader. Stories of leadership speak mostly to someone who was willing to interface with management structures or clients.

Business Impacts

Impact can be achieved through the use of effective communication techniques to disseminate the results. The cartoons of the archetypes have impact as they provide a non-threatening mechanism for staff to see a small part of themselves in each of the archetypes. Archetypes are important KM tools as they allow complex adaptive systems (which organisations are) to be understood in a manner that does not involve expert interpretation (Snowden, 2001a). Anecdotes and the archetypes create role models and build a sense of identity. Furthermore the archetypes are useful as:

- a representation of culture,
- a means to understand customers, and
- a means to bring two differing cultures together (situations of 'us versus them'). (after Snowden, 2001b)

This is supported by Patriotta (2003) who sees stories as an important component in an organisation discourse because they:

- show how knowledge can be mobilised to deal with situations (i.e. 'how we deal with things here'),
- are connected to actual experiences and reveal common sense wisdom, and
- are able to highlight shared worldviews.

An important area of impact for the results is the change process currently underway in the CSIR. The aim of the process is to re-emphasise the R&D base in line with the organisation's national mandate. Outcomes from this narrative case study largely support the change process at the CSIR, shifting focus toward strong innovation archetypes like the Intrepid Explorer. Aspects include processes to understand the current underlying organisation values and culture and narrative can add value to these complexities.

Emerging Patterns

Diversity in its multitude of facets has long been acknowledged as a contributor to organisational knowledge and innovation (Hill, 2004). Correctly managed diverse work groups can add value where homogenous groups never could. Having a diverse workforce means having to communicate key messages and values through a variety of media. The value of archetypes (as opposed to stereotypes) is that they resonate with a more diverse audience.

Capturing anecdotes from people will allow organisational patterns to begin to emerge (Mitchell, 2005). These patterns can add value by allowing a deeper understanding of the cultural patterns of an organisation, how problems tend to be resolved, and can help describe the working atmosphere between colleagues. The archetype cartoons are intended to allow people to identify a small part of themselves in each cartoon, whether it is in retrospect or current experiences. For example, a senior researcher may have seen him or herself in the Clumsy Puppy when starting their career and now be able to identify more with another archetype like the Intellectual Maverick or Courageous Captain.

While everyone should be able to identify with the archetypes most people will identify more strongly with one or two archetypes (Snowden, 2001a). The organisation is composed of a complement of all the archetypes that interact and work together on a daily basis. This section has tried to highlight what the possible impacts or benefits are for innovation of having these archetypes in the organisation.

Some of the key patterns emerging from this exercise include:

- The client-scientist relationship. Problems with client relationships and the communication gap that exists between the scientist and the customer. Some of the scientist-type characters are shown as always knowing better and clients as being angry and frustrated.

- The very positive spin on the values and themes resulting from the emergence workshops point to a concern that staff at the CSIR are either unwilling or afraid to share their real feelings, or more likely, that the organisation has become smug. This is a perception that is often shared by non-scientists; cartoons depicting scientists often show them as aloof and arrogant.

- There is a danger with the underlying bureaucracy that we may be rewarding bureaucratic behaviour and not the real lateral thinkers, at the expense of innovation. This behaviour might also be *pushing* the Bright-eyed-bushy-tailed Researcher into managerial tasks in an attempt to allow the more experienced scientists to free up some time for research work and to comply with the administrative requirements. Another interpretation is that the Bright-eyed-bushy-tailed Researcher may be *pulled* into managerial tasks as the organisation may value and reward management behaviour more than innovation.
From an organisational cultural perspective this points to a culture that values bureaucratic behaviour and may be suspicious of staff that pushes the boundary of what is considered to be acceptable behaviour.
- There is an encouraging trend of an organisation that values mentoring. This highlights the value that is placed on effective mentoring to achieve organisational goals.

Conclusions

Within a South African context, storytelling is an important element of cultural heritage. Oral histories and the use of stories to communicate messages and values is an important component of South African society, and audiences are often very receptive and appreciative of a story.

The use of narrative techniques allowed a number of the staff to learn about the value of narrative sharing in an organisational context. As this was a new technique a number of lessons were learnt. Key issues that arose include managing representivity and diversity of participants, techniques or ways of extracting meaning from the data and communicating the outcomes. While knowledge management is an essential part of the CSIR's business, getting buy-in to the softer sides of knowledge sharing can be difficult.

KM in CSIR embraces a human-centred approach where understanding culture and learning practices is important to grow the knowledge base. An additional KM activity is to entrench KM principles into business practices by developing strategies and plans for knowledge sharing and learning. Narrative has provided an additional tool in the KM toolbox.

Through the use of a narrative technique to understand aspects of innovation experiences at the CSIR a number of issues emerged that require further exploration:

- Client relationships and some exploration into the perceptions clients may have of the CSIR. This could be facilitated by running further anecdote circles with key clients who are willing to participate. The aim would be to gain different perspectives on how clients see innovation at the CSIR and whether new ideas are allowed to develop within the current systems.
- A further issue that surfaced was that the archetypes reflect perceptions of clients and of the organisation that differ greatly. There is also interesting differences between how the archetypes see each other. Value can be added by using techniques that allow people identifying with aspects of these diverse archetypes to examine how archetypes illuminate the sources of conflict and thus find creative ways of dealing with conflict.
- There are areas of highly successful and innovative environments in the CSIR that continually push boundaries, but there are also pockets of failure. By examining and understanding what makes the successful areas successful, learning can be transferred or implemented in the less successful areas.

A key lesson from the exercise is that innovation can only happen when innovative behaviour is well-regarded, encouraged and enshrined in the organisational culture. People who contribute to successful innovations should be recognised for the particular value they add and the role that they play. As much as an individual may add value, they can equally destroy it if their particular abilities are incorrectly used.

Practical Tips and Key Lessons:

- Typically, literature on narrative techniques has shown that stereotypes are believed to exist in archetypes; however this exercise has shown that within an organisation strong biases may also exist within themes and values. For this case study, it was particularly evident when patterning values. The stereotype represents prejudices that exist, or the answers that people think they should be giving, versus those that they actually experience. Understanding the behaviours that make up organisational values is far less intuitive than understanding the characters present.

- A great deal of value from narrative exercises lies in the sensemaking process. Lessons learnt during the sensemaking include:

  o Capturing all the data throughout the various stages. A great deal of data is generated (particularly through the two-stage emergence workshop) and it is valuable to account for all inputs that are made and to be able to map the results back to the original anecdotes. This allows one to link the outputs back to the original anecdotes that contributed to a particular outcome.

  o It is valuable to involve people outside of the organisation and project team to lend a fresh perspective and ask difficult questions which otherwise may not have been considered. An outsider will see different patterns emerging from the anecdotes.

  o The more diverse the range of participants, the more diverse the inputs and interpretations of the stories are. Here diversity relates not only to cultural and gender diversity, but specifically to diversity in terms of career development (e.g. an intern and principle scientist) and fields of specialisation (e.g. an engineer or ecologist).

- For people to truly participate effectively they need to see the value in the exercise and benefit personally from it. Sharing anecdotes among participants adds value by allowing them to learn from one another's perspectives.

- There are many stories (with subtle differences depending on the story teller) that most, if not all staff at CSIR NRE unit are familiar with even if the event occurred long before their joining the organisation. Many of these lessons on 'how we do things around here' will never be found in any organisational or orientation document, but are rather communicated to new staff through story. These stories point to networks of 'invisible processes' whose patterns and purposes may be elicited through stories. When these anecdotes are told, they are often told with high levels of vivid detail.

- Most stories about successful innovation have shown similar 'take-home-messages': that great things can happen when you take a risk, learn from a mentor and challenge the existing systems if they hamper progress.

- Innovation does happen when the boundaries of current paradigms are pushed. Many of the stories told relate to encountering problems or issues with current processes and new ideas were successfully implemented only when a new direction was taken. This however requires strong, determined archetypes who are prepared to take calculated risks.

Acknowledgements

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