

# *Knowledge as emerging patterns of interaction*



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"Doesn't Matter!" said Phouchg. "We must know it! Now!"  
"Now?" inquired Deep Thought.  
"Yes! Now..."  
"All right," said the computer and settled into silence again. The two men fidgeted. The tension was unbearable.  
"You are really not going to like it", observed Deep Thought.  
"Tell us!"  
"All right", said Deep Thought. "The Answer to the Great Question..."  
"Yes...!"  
"Of Life, the Universe and Everything..." said Deep Thought.  
"Yes...!"  
"Is..." said Deep Thought, and paused.  
"Yes...!"  
"Is..."  
"Yes...!!!...?"  
"Forty-two", said Deep Thought, with infinite majesty and calm.

**From: Douglas Adams, "The Hitch Hikers Guide to the Galaxy"  
(Adams 1995:128)**

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### **1 Introduction**

This paper examines how knowledge can be seen as continuously emerging patterns of interactions between individuals.

It particularly focuses the nature of human organisations and how that nature affects the learning in individuals and –as a consequence- the continuous emergence of organisational knowledge.

In order to do this, we will first look at the nature of organisations. This by examining what we see is the most helpful way to characterise organisations, clearly offsetting organisations as 'systems' versus 'processes'.

It will be clarified that knowledge may exist only in the interaction between people and can therefore not simply be reified as 'tangible', 'tacit' or 'explicit'.

We propose it exists in context and only in context. Thus, we consider knowledge as intrinsically social. Also, we consider knowledge as something that emerges only 'from within'. There are no outsiders. Someone with information that exists in total isolation without the possibility to act cannot generate knowledge. This makes knowledge inherently 'local'. 'Global knowledge', as in 'best practices' or 'business processes' are an illusion if they do not resonate with the experience of people in local interactions.

We will use recent insights from the complexity sciences to examine the interactions and hence the continuous emergence of knowledge.

It will become clear that 'knowledge' and 'organising' are 'complicitly' linked.

In the quote above from the 'Hitchhikers Guide to the Galaxy', this is illustrated with the illustrated with an interesting philosophical undertone, despite its inherent humour. The supercomputer Deep Thought took seven and a half million years to come up with the answer to Life, The Universe and Everything as the world-famous '42'. In the next chapter from the book the immediate implication is that we then first (sic!) have to know the 'Ultimate Question' (Adams, 1995: 128). It then is decided to build the Earth as the next generation supercomputer to find that Ultimate Question.

Later in the book it becomes clear that the Ultimate Question is 'six by nine' (Adams, 1995: 305). At least, in base thirteen. All is contextual, you see.

## **2 Are organisations systems or processes?**

The complexity sciences have emerged mainly from the natural sciences like physics, chemistry and biology. It has shown tremendous power in helping these sciences forward and explaining complex phenomena that previously could not be described adequately. These were those situations where the sheer number of interactions between particles or smaller units (the 'local') led to unpredictable behaviour on a global level. The complexity sciences were able to convincingly explain why simple global patterns emerge out of complex local interactions.

Because of these successes, and the many complex issues that human organisations, and particularly business organisations, face complexity theory has often been used successfully as a metaphor to help organisations forward (see for instance Zimmerman, Lindberg & Plsek, 1998: 4-18).

Understandably. Human organisations consist of many 'agents' interacting and display very complex and unpredictable behaviour. So much is not disputed. In order to be able to describe many of the observed behaviour people resorted to complexity theory.

In natural systems, a very useful idea has been the definition of these bounded systems as 'complex adaptive systems' or CAS. The theory being that because of the complex interactions the system is 'coupled' to the external environment (perhaps via semi-permeable boundaries) so that they 'adapt' to it. Thus viewed, each system is 'nested' in a larger ('higher') system.

Therefore it is a small step to then see human organisations as systems and consequently as complex adaptive systems, in parallel with the natural sciences. This view then logically leads to teams, departments, organisations, etc., being seen as 'nested systems' (Kelly & Allison, 1999: 12-13, 19). The next step is to realise that human organisations may not simply 'adapt' to the environment. Perhaps what they do is co-evolve in that environment. We may see them as Complex Evolving Systems, or CES. (See for instance Heylighen, 1997).

These metaphors are powerful ways to look at human organisations. The principles of self-organisations, emergence, 'edge of chaos', etc., from the complexity sciences can provide interesting new insights in issues that organisations face. Given the constant struggle in business organisations to find ways to 'cope' with the inherent uncertainty they face, these relatively new theories help to make sense.

But, as with all metaphors, there is a risk that we take them too far. People started to have conversations on whether or not organisations *are* a CAS or CES.

Then, by inference, we start to say that organisations *therefore* must comply with this and that observation for a CAS.

An interesting example, for instance, is the debate between organisational professionals whether or not 'therefore' (sic!) 'human systems' emerge from 'simple rules'. This, in turn, is inferred from simple computer based systems in which 'boids', having been programmed with three 'simple rules' start displaying behaviour that has been characterised as 'flocking', very much like a 2D projection of flocks of birds. But please note that in reality, these boids are just computer blips on a screen. The 'simple rules' can adequately describe the behaviour of those 'blips' on the screen. But that is all they can do! They cannot describe any real life flocking behaviour at all. Let alone describe how birds reproduce or multiply. Hardly a rich description of something as complex as a living creature.

But, since the observed 'flocks' were so convincing, it has been assumed most complex systems are somehow emerging from simple rules.

Since a CAS can emerge from simple rules, so must human organisations, so people claim. That is why some people with some (but no more) notion of complexity theory state that what we have to do is 'just find the simple rules'. These often are typified as 'values'. Stating the simple rules then becomes 'defining the values' of the organisation.

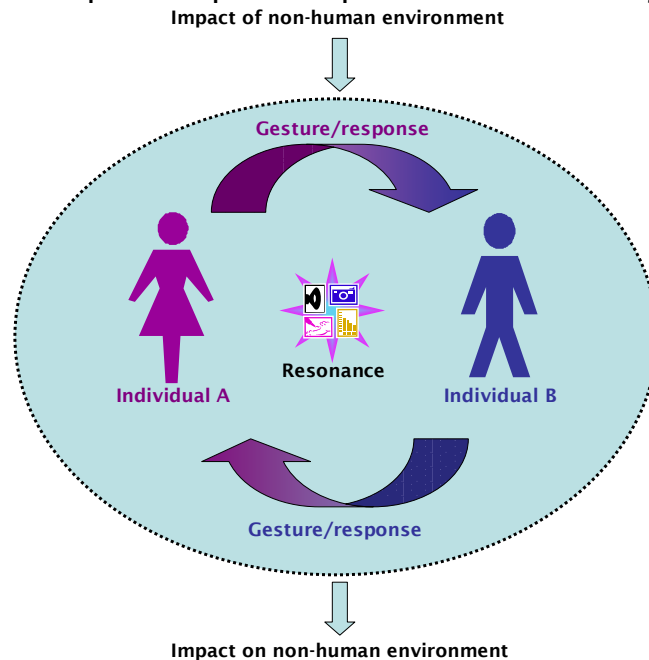
This is reverse logic. An Organisation *is* not a CAS. It may be modelled as a CAS, and as a metaphor that can give really powerful insights.

But what *are* organisations, really?

It may be helpful to start by what we know 'for sure' about human organisations. They consist of people interacting in their daily (working) practices. Therefore for the purpose of this paper we will start with that: the interaction between people in organisation that we will call 'the social'. My claim in this paper is that a metaphor different from a 'system' may be more helpful to describe (the evolution of) organisational knowledge.

The recent thinking from Ralph Stacey on complex responsive processes sees organisations not as systems, but rather chooses to pay attention to the interaction between people (Stacey, 2000). This view emphasises that

organisations are not systems as such but looks as them as processes of people interacting. For the purpose of this paper I see this as a very helpful approach. These processes consist of 'the narrative-like sequences of gesture and response between human bodies' (Stacey, 2000: 146-148). In these interactions people continuously reinterpret their own experiences ('past') in order to act ('gesture') to achieve some future expected state. This expectation, in turn, feeds back on the interpretation of the past experiences. Each gesture triggers a similar process in other people who then 'respond' with a new gesture. With many interactions this is a highly complex process (hence the term 'complex responsive processes of relating'). See Figure 1.



Based on Stacey, 2000: 97

**Figure 1 - Gesture / Response between human bodies**

With continued interaction, as is happening in organisations some 'themes' will emerge. These themes emerge because of some common intention of the future, real and existing *differences* in experience and intentions and real and existing issues that exist in order to achieve this desired future. This emergence is self-organising in nature. This is where insights from complexity theory are very helpful indeed.

For the purpose of this paper I will call this process of emerging themes 'patterning' of the interaction between people.

There are a few implications that are paramount in this process.

For one, we need to realise that not all participants of this process are equally 'autonomous'. Crucial, as pointed out also by Stacey c.s. (Stacey, 2000: 213-4),

are the power relations that exist in all interactions. 'Some people are more autonomous than others'.

Secondly, all action is action that is interpreted by each individual differently. There is no 'knowable truth' other than what *resonates* with each individual's past experiences (sic!) and their individual intentions (sic!). Since all individual past experiences as well as their individual intentions are different, so is each individual's 'truth'.

Also, importantly, there is no guarantee that people will speak 'the truth'. All people will 'gesture' as to achieve their own desired future. In many organisations not open and honestly sharing information is the norm rather than the exception. Often, this is due to expected repercussions if the truth be spoken. This means that conversations, as we can observe in all organisations, are in fact the *continuous negotiation* of each person's 'intention' and 'expectations'. Thus, other people's intentions become 'enabling constraints' (Stacey, 2000: 151-3) for these negotiations.

Richard Knowles (2002) has developed structured ways to examine the processes of interaction and the emergent patterns. The combination of Stacey's complex responsive processes theory with Knowles' self-organising leadership theories could form a sound basis for studying knowledge processes.

### **3 What is knowledge?**

This is a paper about knowledge processes in organisations. We looked at organisations as processes above.

I would like to use a definition from Dee Hock (1999), emeritus-CEO of VISA for 'knowledge' and the hierarchy he puts in it.

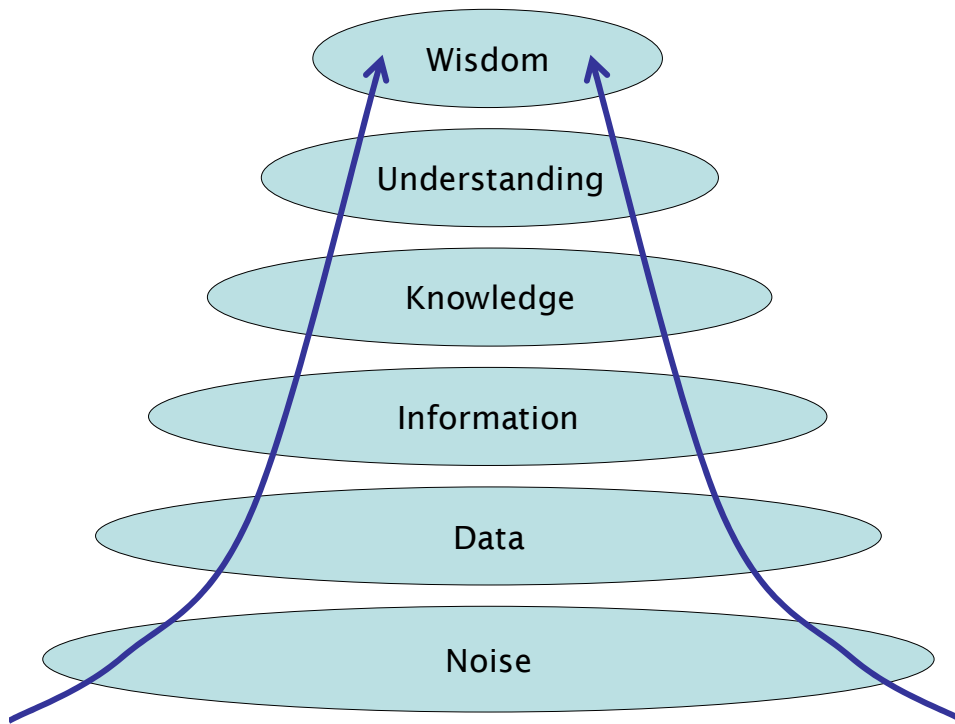


Figure 2 - From Noise to Wisdom (source: Dee Hock, *Birth of the Chaordic Age*, 1999)

- 🌀 **Noise** is the undifferentiated stuff happening all around us;
- 🌀 **Data** is the first level of organisation of the noise. It can be discerned and differentiated by the human mind
- 🌀 **Information** is the next level of organisation of the data. Patterns and relationships are starting to add meaning (Bateson's 'difference that makes a difference')
- 🌀 **Knowledge** is the organisation of the information in a way that in the right context it becomes useful to act, decide or create new knowledge.
- 🌀 **Understanding** is organisation of knowledge by individuals in a manner useful for conceiving, anticipating, evaluating and judging. This is a unique, personal experience.
- 🌀 **Wisdom** is achieved when the understanding is informed by intention, ethics, principle, memory of the past and projection into the future.

Science, including organisational science, has traditionally focused on data, information and knowledge and has largely ignored Understanding and Wisdom. In the context of this paper I would like to maintain that Knowledge without Understanding is not useful for the sustainability of organisations. In the context of complex responsive processes a deep understanding, as wisdom in the above definitions, is paramount.

For long term survival and health of organisations knowledge processes should recognise the need for understanding and wisdom.

This is an important statement.  
If we analyse it a few things jump out:

- ④ Information as such is *not* knowledge; just having information is not enough. 'Just a book' is not enough. That is 'just' information;
- ④ Knowledge is where pieces of information have been integrated; knowledge, in that sense, has the potential to be novel. It also says that more than one piece of information is required. This means at least a form of diversity;
- ④ This combination has to happen in 'the right context'. So, without the combination happening in the real world (context) there is no knowledge just pieces of information;
- ④ This knowledge must be applied. Crucial. If we cannot use the combined pieces of information to act it is -by definition- useless;
- ④ This knowledge in itself can then act as a new piece of information to create new knowledge. This is the 'recursiveness' in this definition.
- ④ Understanding happens when individuals are able to project and apply
- ④ Seeing the importance of understanding, thus paying attention to intention, ethics and principles, will lead to 'organisational wisdom' that is seated in the individuals!

Thus phrased, 'knowledge' is continuously emerging where the context requires the combination of pieces of available information in order to 'act'. In this definition knowledge is not something tangible. It can not be codified or taken away. Information can. We can store information in databases. Knowledge has to be contextual. Since the context exists only where and when people apply the knowledge it can not be codified.

So, books or papers or databases are ways of codifying information. By reading we start 'contextualising' this information in our heads. In this process we start to create our own interpretation of this information. This interpretation is dependent on our own personal past experiences and our own individual expectations of the future. It either 'resonates' with our experience or it does not. The information distilled from a book or paper or any other source will -by default- always be different for the reader than from the writer. Meaning, thus, is being created by the 'responder' not by the 'gesturer'. Reading it a second time around will again give different interpretations and -hence- different pieces of information. Even the writer will interpret his/her own writings differently a next time round.

This has as an implication that each piece of information will, by default, already have in it a level of diversity if more than one person at any one time is interacting around this piece of information. Stacey (2000: 202-6) quite convincingly points out that it is this very diversity that makes that 'novelty' can

emerge out of the interactions. Without it, no novelty can occur. Put in a more lyrical way, some one on his/her own in some remote and isolated desert can acquire a massive amount of information (from books, etc.), without interaction (diversity) true novelty will not occur.

If people interact they do that in a certain context. They will 'be' at a certain time and at a certain place. People's individual experiences are continuously being recreated in that context. This context is the perceived (!) issue around which people may interact. Hence the pieces of information will continuously change. Therefore, reflecting the ideas of complex responsive processes of relating in organisations, their gestures and responses will continuously change.

This is another way of saying that each action people make, decisions they take, information they create will change in each different circumstance.

| Knowledge emerges in the gesture/response process as a social act.

Since these gestures and responses are the complex result of the many individual's past experiences and future expectations, so will the knowledge be emerging out of those past experiences and future expectations in the context of the perceived issue at hand.

Referring to paragraph 2 above, with continued interaction the expectations and experiences will start to display complex themes or 'patterns'.

Knowledge can thus be seen as a pattern that emerges out of these interactions.

People's actions are, in turn, governed by the emerging pattern thus closing the loop. This loop helps us understand knowledge processes in organisations.

## **4 How organisations learn...**

What we can learn from the paragraph 3 is that organisations don't learn. People as individuals learn.

Organisations are forums for people to interact. Organisations have been given some form of intention by the people that work in/for them.

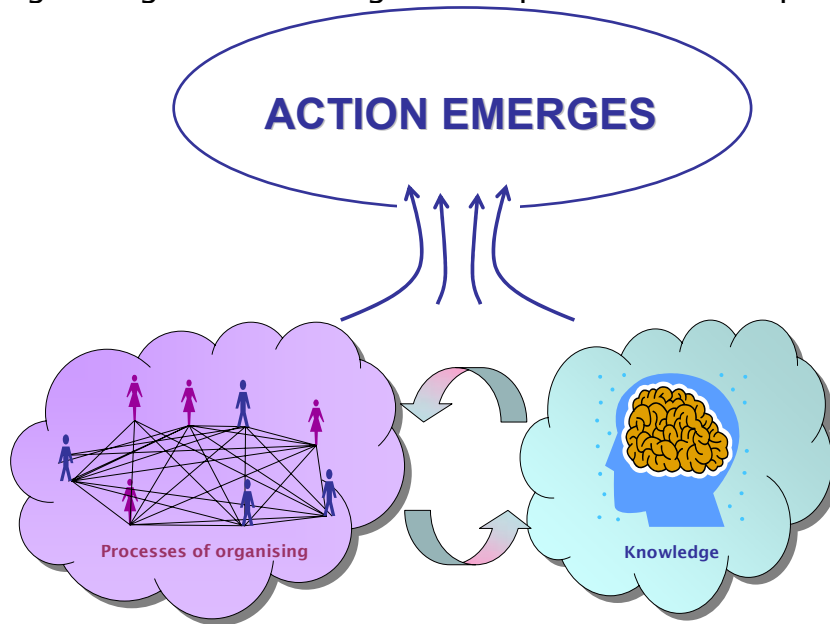
These people, though, are not isolated from the rest of their lives and context outside of the organisation. If we mention a person's individual past experiences we mean all their individual experiences, in the business organisation, at home, at their sports clubs, universities, on holiday, etc.

The processes of organising are these processes of interaction that we called complex responsive processes of relating.

In the previous paragraph we described that 'knowledge' is one of the emerging patterns in that process of organising.

But, at the same time, this patterning forms the process of interaction! Action emerges out of the interactions whilst using the knowledge that emerges out of that very action!

Cohen and Stewart (1997: 414-22) call such a relationship as here between organising and knowledge a 'complicit' relationship.



**Figure 3 - Action emerges, complicitly, out of organising and knowledge processes**

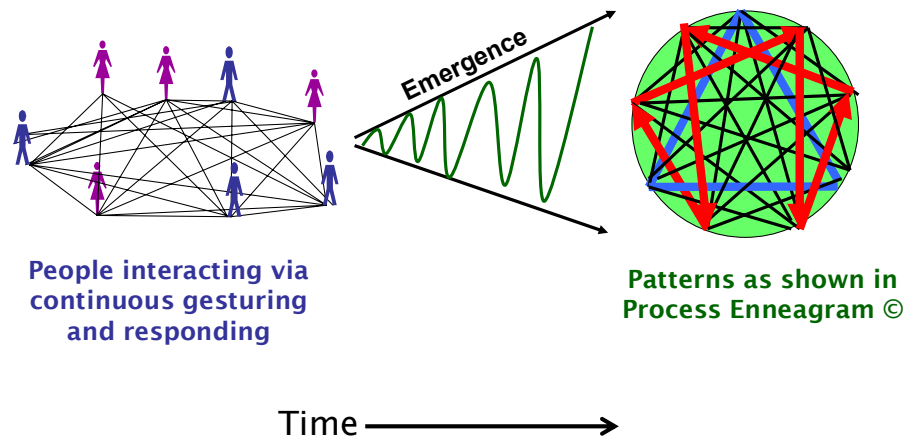
Action emerges out of the coevolving relationship between knowledge and organising. It is therefore *inherently impossible* to decouple knowledge from the organising process. Since the entity of an organisation emerges out of this complicit relationship, the complicit knowledge and organising processes *are* 'the organisation'.

This has some major consequences for how we see organisational learning. We can describe the learning in organisations as the continuous patterning that is happening in the process of interactions.

Knowles (2002: 107-23) introduces the model of the Process Enneagram™. This model is a way to show the perspectives of the interactions as process patterns. It does that via multiple (nine, 'ennea' (εννεα) is 'nine' in Greek) unique perspectives.

In the interactions, people go through all perspectives all at the same time. This is not a linear process at all. All nine elements are connected, but some connections between elements will be stronger than others. That depends on which people are interacting where and at what time. Thus, these patterns reflect the collective histories of the interacting people, often organisations. By paying attention to those connections we can see the patterns emerge. People in organisations are thus given an insight in those patterns that they can

then internalise and use as pieces of information for their gestures and responses.



**Figure 4 - Making emerging patterns visible**

They will only 'internalise' those patterns if they see that these patterns sufficiently resonate with their individual experience and intention. In other words, the issue at hand (context) must be compelling enough for individuals to want to engage in this way. Thus the interaction becomes the continuous negotiation of what is and what is not compelling for individuals.

It is a very important leadership skill to be able to act (gesture) in ways that will help people see the importance of the emerging theme. If the gesture is compelling, people *will* respond to it in ways coherent with the leader's intention. The mentioned power relations may distort this view, because people may act not because the issue is compelling, but because the potential consequence of not acting the way a leader wants is compelling enough. It is obvious that thus people do not internalise the emerging 'knowledge' pattern as part of their experience, but rather the 'fear' for repercussions. This in turn becomes part of the organising pattern and hence organisational 'action'!

It seems to me that this has significant implications for 'organisational learning'.

By internalising these emerging patterns as part of the interacting processes this internalisation *itself* will become part of the patterns thus potentially transforming the identity and intention of the interacting individuals. Their individual transformation means they will act differently to the contextual issues than they would have otherwise. Over time, we suggest that the individual and collective identity and intention will converge since more and more of the patterns will be internalised in each individual. They will *never* be the same because each individual will still have an individual past experience and future intention.

If the pattern that people make part of their individual identity and intention is around the issue at hand than the action that people will take is important for the organisation. People will have learned coherent action that will be 'helpful'. Applied to the issue this is knowledge creation in the definition above. Thus the process of learning is the process of *evolving new patterns*.

If, on the other hand, people internalise the 'fear' pattern, than the individual learning will be entirely different. There will be very little connection between the issue and people's actions and -hence- the knowledge pattern. Very little has been learned. Evolution is not linked to real life issues, but rather to people avoiding other people's actions (the boss's actions!). Our experience shows clearly that this happens in organisations.

We already established that the process of organising and knowledge creating are complicitly linked.

From the reasoning above we can see that organisational learning as emerging patterns of knowledge happens when people chose to interact around issues that are important to them as individuals. The process of organising, including the importance of power relations, can help or work against this process.

Leaders, therefore, have the choice how to 'gesture' in organisations realising that their gestures may carry more 'weight' than that of others.

Without leaders seeing the importance of truly involving their people by appreciating that their gestures somehow will have to resonate with people's authentic experience, very little knowledge creation will happen.

We have to think about how certain 'best practices', defined as actions that elsewhere have led to perceived positive (business) results, may or may not resonate with people's experience in the organisation where we work.

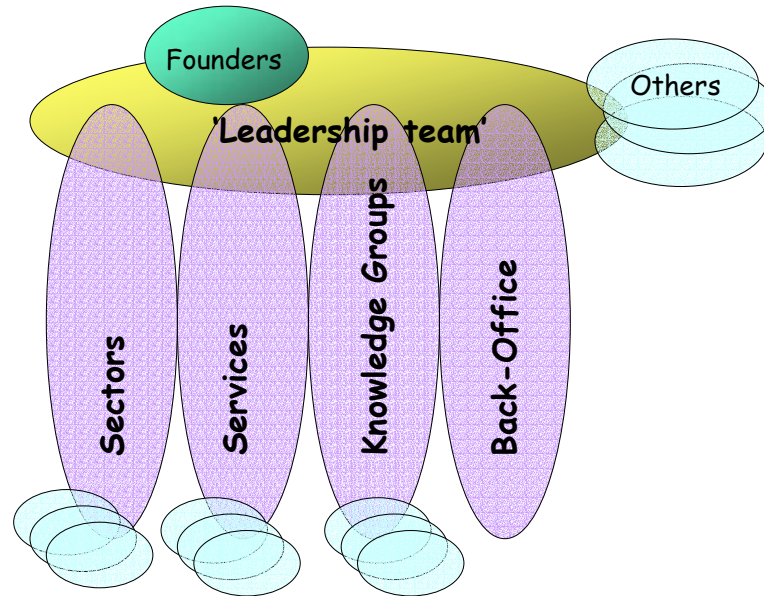
Actions, emerging from local interactions, are by definition local. 'Best Practices' are therefore global patterns from *specific* local interactions. There is little reason to see that they therefore will -automatically- resonate with other people interacting locally.

In the words from above, practices need to evolve as patterns in organisations. In the evolution metaphor, one can also not simply 'plant' a new species somewhere and expect it to flourish.

Evolution of knowledge happens complicitly with the evolution of the organising patterns. That is a major insight that surely must have major implication on how organisations treat 'managing knowledge' and looking at 'knowledge processes'.

## **5 A Story: 'Sphinx'**

We will now look at an example from all this in action. The particular story I will use is about a business change management company I used to work for. Let's call the company Sphinx for the purpose of this paper. It is not the real name.



**Figure 5 - Sphinx's emergent structure (2000)**

Sphinx has always been an organisation that relied on people organising themselves in helping its clients through complex change programmes. In order to do this, the creation of novel and creative ways to help the clients is of paramount importance. It is clear that the success of Sphinx's business is firmly based on knowledge (in the definition of this paper) and creativity. The way Sphinx was organised was truly an emergent effect of the interaction between people. In Figure 5 this is depicted as a series of 'cells'. Usually people were part of 2-3 cells at least. Some cells were permanent, others much more transient, depending on the nature of it.

The 'Knowledge groups' were groups of people coming together to share ideas and learning in areas that the people found important. The emergent nature of it was that knowledge was being created when needed as perceived by the group.

This is very consistent with the model described above, where the 'organising' process and the 'knowledge' process happen 'complicitly'. Effective action (i.e. helping the client) emerged. And, interestingly, there was no-one steering this. People's deliverables with clients were placed on a 'Knowledge Database', in the language of this paper containing Information and Data about work that people had done. In the Knowledge groups (either the more permanent ones or the ad hoc ones) people would then refer others to material on that database that seemed to fit into the emerging theme. These other could then 'contextualise' (read: create knowledge of these themes) in their own client environment.

The way of working was very successful and the company achieved very large organic growth percentages year on year. The latter was of course not just due to the way knowledge processes worked, but it certainly played a pivotal role.

Building on its success, the company decided on some aggressive growth plans. The growth plans unfortunately coincided with an unforeseen sharp down-turn in the consulting market in 2001-2. The company's 'management team' decided that more structure was needed and imposed (sic!) that structure based on its views. This happens in many organisations because often 'structure' is associated with 'control'. In my experience this is a flawed concept where, despite this flaw, many organisations are based on. It ignores the resonance with people other than the managers.

One of the structural components that were introduced was that a 'Sphinx Way' was developed. This meant to be an Approach (certainly not a detailed methodology) that all in Sphinx would use as part of their 'knowledge'. 'Knowledge Teams' were instated (as opposed to: 'encouraged to emerge') to cover the subsets of this Approach, enabling management to control where money would be spent on.

This had as a consequence that the Knowledge database was 'restructured' to reflect the new Approach and the new Knowledge Teams were set up to populate and maintain the database and proliferate the knowledge. Although there are apparent advantages in doing that (for instance: common language) the richness of the emergent knowledge groups was lost. More importantly, 'knowledge' was now reified and thought to be 'transferable'. This did not resonate with people's experience at all! The Knowledge Teams very much became mechanical groups and the Sphinx Way a management tool for budgeting purposes. The database was no longer a source for conversation but something that needed to be 'populated'. Much money was spent on people doing just that: populate it.

In the mean time, other changes happened and the company has since been shrinking significantly. This might well be worsened because the main asset, conversations that created novelty and new knowledge, was unwittingly inhibited.

## **6 Conclusion**

We cannot segregate the creation of knowledge from the organising processes that happen in organisations (as in the Sphinx story). A helpful way of looking at those organising processes is the relatively new idea of complex responsive processes of relating. Using principles from the complexity sciences we can see that out of the many complex interactions of gesture and response, patterns will emerge in a self-organised way.

These patterns are leadership themes, reconciled individual intentions, etc. The patterns make that people in organisation can act in a meaningful way.

If we define knowledge as integrated pieces of knowledge in the 'right' context, we can clearly see that knowledge can only be created in context. Without an appropriate shared view of the context in which individuals act, knowledge is not a meaningful concept since it cannot lead to effective action.

There is an all important leadership task to be able to help people see the issues at hand (context) in a way that is important enough for those people to choose to engage in the process of organising and –hence- in the process of knowledge creation.

If people see the context too differently, actions will be 'incoherent' and no positive knowledge creation and hence coherent action can happen.

The ideas of 'best practice' proliferation as ways to share information and 'manage' knowledge, has the potential of working counter productive if the context in which it is being applied varies significantly from the originating context. Chances are that they will be quite different on a global level. In that case the information does not resonate with people's experience and no positive action can emerge out of the organising processes. This may explain the difficulty in proliferating best practices in large organisations.

The codification of information (via databases, memos, books, procedures, etc.) surely is an important part of the knowledge processes in organisations. But without the facilitation of open and honest interaction between individuals in organisations and the presence of leadership skills to help people 'see' the emerging patterns and shared context there is very little knowledge creation happening.

Sadly, in many organisations the emphasis of knowledge processes is focused on capturing information, rather at this all important element of open, honest and direct interaction.

Our suggestion is that leaders use structured conversations, for instance as proposed by Knowles (2002) by using the Process Enneagram™. This model allows people to 'see' the emerging patterns as well as provides with a coherent forum ('map') for sharing context and learning.

(Frank Smits, © February 2003)

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