



WATERTON MANAGEMENT CHALLENGE

- 2006 -

INTERACTIVE SURVEY

DECEMBER 2006



1. Executive Summary

1.1 PROJECT OVERVIEW

The vast majority of management theory echoing through consultant processes, academic literature and management theory is grounded on the view that organisations are seen as controllable, mechanistic, process driven, hierarchal, structured and knowable.

However many managers and academics alike, are embracing a comprehensive understanding of the framework of human complexity to achieve greater understanding of the human aspects of organisations and their leadership (Thomas 2005). Simple observation of how employees behave within the system (or organisation) will convince even the most sceptic that there is a need for a new and evolving perspective.

With this in mind, a question and answer (Q & A) sessions was used at the first 'Waterton Management Challenge' (WMC) to help us evaluate the position in what has been described as the 'creation of new order' in the Welsh economy.

1.2 RESEARCH INSIGHTS

The key DNA Wales insights derived from the 2006 Waterton Management Challenge 'Interactive Survey' and presented in this report are as follows:

- **Sustainability:** Continual organisational evolution is based on knowledge sharing, innovation, creativity and risk. The development and value of people within organisations is required for future sustainability of the Welsh economy.
- **Leadership:** Leadership and creativity co-evolve within an organisation, amongst employees facilitated by an environment of trust, self-organisation, self-management and autonomy.
- **Uncertainty & Anxiety:** To accept uncertainty and anxiety evolving managerial philosophy places increased focus on the key elements of "influence, trust and added value", replacing outdated and damaging elements of "power, status and control".
- **Trust:** Trust within an organization is very important given growing conditions of constant change, uncertainty and anxiety. However, trust is very fragile and built through open and honest human interaction, feedback and manager-employee relationships.
- **Managerial Myths:** Evolving managerial philosophy places focus on an adaptive and dynamic 'inside-outside' perspective of organisational strategy, moving away from the key myths of strategic planning as trying to know, plan and predict an organisations current and future position within the environment within which it competes.
- **Market Demand & Control:** Organisations are driven by market demand and customer needs and expectations, placing emphasis on a pull-strategy (over push-strategy) for organisational sustainability. However inherent managerial structures still place the focus of control and authority with line managers, senior management and CEO's, ignoring direct customer and market insights derived at the front-line.
- **Adaptability:** Adaptability is the catalyst that can propel an organisation forward and by placing focus on those agents (people) in the system that can be *proactive in reactivity* provides a new source of competitive advantage.
- **Risk:** An organisations attitude towards risk is very important. A healthy attitude toward risk sees it as an important and useful phenomena required for generating innovation, creativity and radical market responses.
- **Fun:** Fun in the workplace is an important facilitator of increased productivity, employee morale and decreased staff turnover.

- **Managerial Skills:** The ability to listen within social interaction and two-way communication is regarded as an essential managerial skill within organisations that seek to enhance and share knowledge at all levels.
- **Organisational Evolution:** Organisational evolution requires the unlearning of traditional management beliefs of command and control; and the learning of complex adaptive systems (CAS) to create systems that are continually self-organising through the interminable process of emergence and open feedback.
- **Personal Values:** Personal values are at the core of any professional company, and professionalism is a virtue of any sustainable organisation within the Welsh economy.
- **Individual Skills:** Open-mindedness, creativity and motivation are key individual skills and regarded as core to the future success of individual organisations and the collective Welsh economy.

1.3 PROJECT IMPLEMENTATION

The first Waterton Management Challenge (WMC) series was held in the winter of 2006 at the Waterton Technology Centre in Bridgend, South Wales. The WMC is an annual series to help managers to develop criticality and gain insight into 'new and evolving' perspectives about their organisations and managerial philosophy and practice. The DNA Wales Network and the Welsh Assembly Government's Department for Enterprise, Innovation and Networks worked in partnership on this programme.

A question and answer (Q & A) session was conducted to capture event attendee responses to a number of key indicators about evolving managerial and organisational practice and the perceptions, beliefs and attitudes of managers in Wales. Over 70 managers from differing organisations and sectors in Wales participated in the sessions. Interactive software was used to collect audience responses to 15 key questions throughout the event.

This report is a brief summary of the analysis of the responses collected.

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3. DNA Wales

3.1 ABOUT DNA WALES

“DNA is an acronym for deoxyribonucleic acid, a nucleic acid that contains the genetic instructions for the development and function of living organisms”.

The DNA Wales Network is a research and education network with the purpose to change the genetic makeup of Welsh Managers enabling the evolution of attitudes to ensure a sustainable competitive advantage in an increasingly competitive environment. Collaborating with key economy enhancing organisations, DNA Wales aim is to question current management practice, think the unthinkable and improve performance by ‘not managing’. Avoiding the conventional stranglehold of tight forecasts and rigid control DNA Wales intent is to provide managers with key insights to an alternative managerial perspective.

Recognising the challenges facing firms are looking to survive in an increasingly competitive and dynamic environment is aligned with the Welsh Assembly’s Department for Enterprise, Innovation and Networks (DEIN). The Assembly’s economic agenda set out in “Wales: a vibrant economy” created a path for organisations to follow and emphasised knowledge as a pre-requisite for an organisation successfully competing in the global business environment. To this end, the network’s long term objectives of creating and perpetuating a knowledge economy will provide a solid foundation for sustainable development in Wales.

The DNA appellation was also purposely used as a direct link to Ricardo Semler’s DNA Brazil thinking group.

3.2 RESERCH & ADVISORY SERVICES

DNA Wales supports Welsh based businesses with developing globally competitive leadership skills through:

- Guidance - applied research, bespoke support and useful resources
- Education - training opportunities and management qualifications
- Networking - with like minded practicing managers at businesses orientated events

3.3 PARTNERS & UNIVERSITY COLLABORATORS

The DNA Wales Network involves the business school at the University of Glamorgan (UoG) and Cardiff Business School (CARBS) at Cardiff University.



3.4 LOCATION & FACILITIES

DNA Wales is located at the Waterton Technology Centre in Bridgend located in close proximity to world-class businesses. The Waterton Centre plays host to a network of key economy enhancing organisations representing various industries particularly within the manufacturing sector.

4. Introduction

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However many managers and academics alike, are embracing a comprehensive understanding of the framework of human complexity to achieve greater understanding of the human aspects of organisations and their leadership (Thomas 2005). Simple observation of how employees behave within the system (or organisation) will convince even the most sceptic that there is a need for a new and evolving perspective.

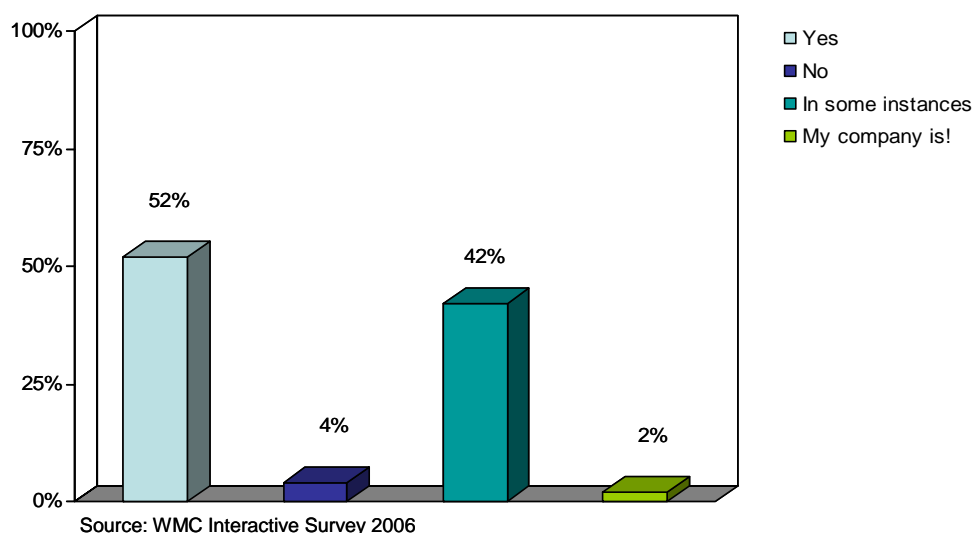
With this in mind, the question and answer sessions used at the 'Waterton Management Challenge' (WMC) help us evaluate the position in what has been described as the 'creation of new order' in the Welsh economy. The WMC 2006 is a forum to help managers gain insight into this 'new' perspective of their organisations and management.

5. Manufacturing in Wales

5.1 ARE WE GOOD AT MANUFACTURING?

Of the attendees at the 2006 Waterton Management Challenge, 52% were of the belief that Wales was “good at manufacturing” with a further 42% considering Welsh businesses were only “good in some instances”.

Figure 1: Manufacturing in Wales



The Welsh economy owes a great deal to Manufacturing since the industrial decline of the late 1970's. However, with the rise of Eastern Europe and the Tiger economies where production costs are considerably lower, Wales must find an alternative competitive advantage to low production and labour costs.

DNA Wales suggests that to survive and thrive in the global market, a business needs to constantly explore its “space of possibilities” and generate variety through innovation, risk and creativity and through people within the organisation. This would allow manufacturing organisations to respond more quickly to market needs and market demand, whilst reducing costs.

Furthermore, manufacturing organisations in Wales need to be constantly scanning their landscape in search of new and innovative strategies. Hopefully, through the sharing of knowledge and insight via collaborative networks such as DNA Wales Welsh businesses can develop further confidence required to achieve this.

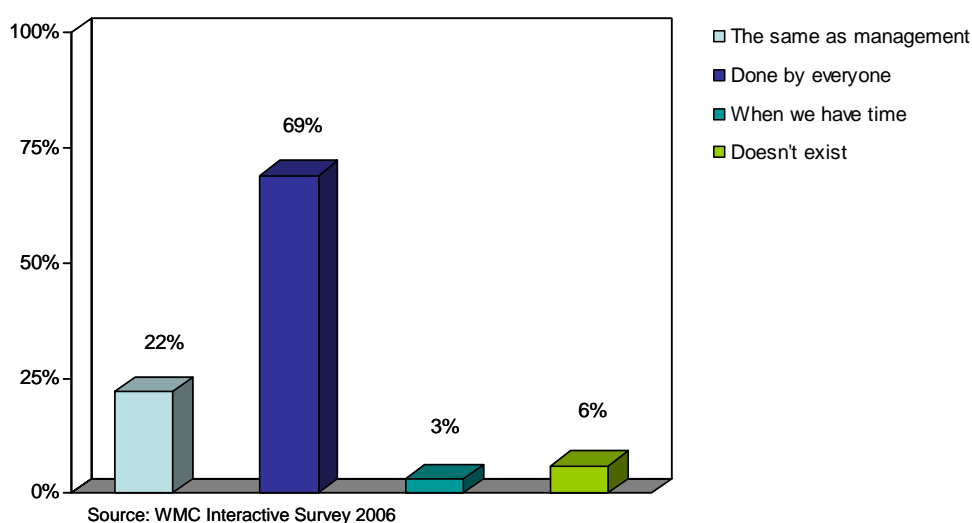
DNA Wales Insight: Continual evolution of the manufacturing sector in Wales, based on knowledge sharing, innovation, creativity and risk and the development and value of people within organisations is required for future sustainability.

6. Role of Leadership

6.1 LEADERS & LEADERSHIP IN THE 21ST CENTURY

Almost three quarters (69%) of the management audiences stated that everyone within their firm should function as leaders and that leadership should be “conducted by everyone”.

Figure 2: Leadership in Wales



This insight demonstrates changing attitudes amongst the management community that has evolved over the last ten years from a very contrasting belief of what leaders and leadership was within an organisation. The Maslowian Hierarchy is still used as a skeleton in almost all FTSE 100 companies and their competitor's have followed suit.

However, successful companies such as that of SEMCO, Gore, BP, GSK, and Rolls Royce have paved the way for a new of thinking about leadership within the organisation. The non-leadership style of Ricardo Semler (who visited the Waterton Centre during September 2006 to share his experiences with managers) has further emphasised the need for “self-organisation” within a group of employees.

The term self-organisation is in reference to the employee's ability to successfully allocate his/her own role within a group situation. It is here that Ricardo Semler offers a unique insight of a successful competitive organisation in Brazil which encourages employees to become their own leaders, to self-manage and thus have increased autonomy and influence over their working and private lives. Ricardo Semler claims that: *“increased trust and changes in the ‘traditional structures’ induces creativity and effectiveness within a group and their outputs”*.

This is indeed a vital pre-requisite for an organisation operating in the current climate of the Welsh economy.

DNA Wales Insight: Leadership and creativity co-evolve within an organisation, amongst employees facilitated by an environment of trust, self-organisation, self-management and autonomy.

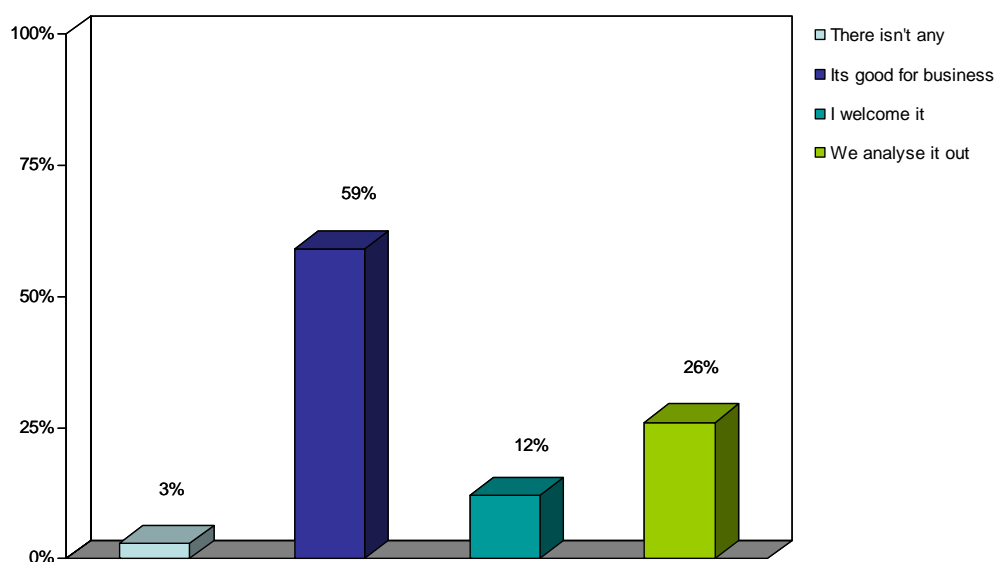
7. Uncertainty, Anxiety & Trust

7.1 DEALING WITH UNCERTAINTY & ANXIETY

59% of managers who participated in the Q&A sessions believed that small doses of uncertainty and anxiety were healthy within an organisation and “good for business”.

With greater uncertainty and anxiety brought about by increasing change and competitive pressures in the 21st century comes the need for organisations to continually adapt through learning, unlearning and relearning in order to survive.

Figure 3: Uncertainty & Anxiety



Source: WMC Interactive Survey 2006

However with the growing need to adapt and accept uncertainty and constant change comes further insight into changing managerial philosophies in the 21st century. Evolving within organisations is the growing awareness of the limitations of outdated and unrealistic strategic management tools such as SWOT and PEST analyses. These tools were created and propagated in the early 1990's as attempts to 'control and predict' in vain attempts to plan and forecast market conditions and organisational responses.

However, organisations are increasingly finding in today's environment that nearly everything they do and everything they believe is full of uncertainty, anxiety and in constant change. Thus futile are structured attempts to 'control, plan, and predict', with new sources of competitive advantage through system adaptation, constant learning and organisational evolution of primary importance.

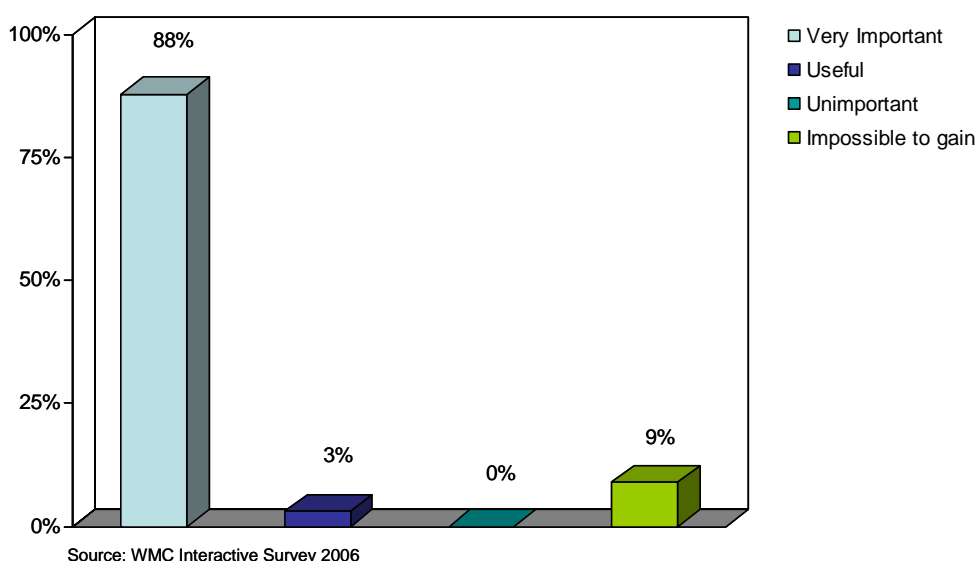
DNA Wales Insight: To accept uncertainty and anxiety evolving managerial philosophy places increased focus on the key elements of "influence, trust and added value", replacing outdated and damaging elements of "power, status and control".

7.2 TRUST BETWEEN MANAGEMENT & EMPLOYEES

The vast majority of economic, business and management theory and practice rest upon the central tenet of trust. Consistent with this, 88% of the interactive survey participants deemed trust between management and employees as “very important” within the organisation.

Managers increasingly understand that the optimum analysis and insight about the environment within which one competes comes from front-line employees (i.e. those in direct contact with the customer). It is therefore essential that managers can trust and gain honest feedback from the all employees within the organisation. In turn however, it is even more essential that employees can trust and have faith in management and the organisation within which they work.

Figure 4: Trust



However, does trust within an organisation require a “Big Brother” scenario of managerial control and monitoring? Or should managers look to build value and honest relationships with and within their workforce? Event attendees noted the importance of building trust through an honest and open manger-employee relationship.

This embraces the tenet that trust is essential for the evolution towards a new sustainable, organic and innovative organisational design as trust is the foundation of self-organisation and the creation of positive feedback loops within the business and between external stakeholders.

Of importance, here however is the insight of John Seddon and Paul Thomas, who forewarn that management need to embrace the understanding that “*trust is derived from actions by managers and staff. It is not a direct quest, objective or process to be undertaken or achieved.*” As such, it is extremely fragile, with actions, comments and non-action affecting the daily appreciation of building, maintaining and embracing trust.

DNA Wales Insight: Trust within an organisation is very important given growing conditions of constant change, uncertainty and anxiety. However, trust is very fragile and built through open and honest human interaction, feedback and manager-employee relationships.

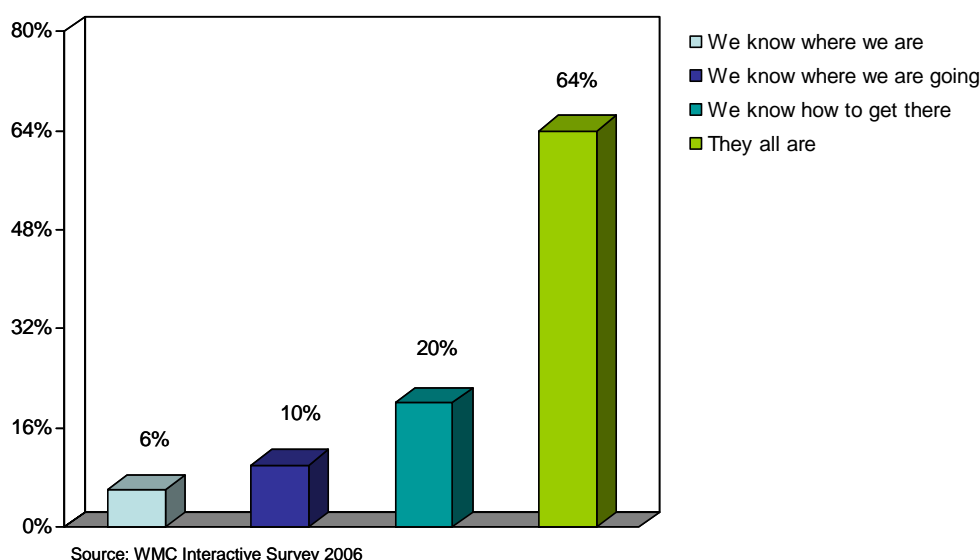
8. Organisational Myths

8.1 WHICH ONE IS A MYTH?

Managers that participated in the Q&A sessions provided insight as to the lessons they have learnt from the time, money and experience they have spent in trying to plan and predict their way through the environment of the current Welsh economy.

64% of attendees indicated that “knowing where they are”, “knowing where they were going” and “knowing how they will get their” were all myths about the process of strategic management planning and management knowledge.

Figure 5: Management Myths



Organisations are dying, growing and recreating at an unprecedented pace, which means simply that organisations are constantly changing who or what they are. Nothing remains constant, static or basically the same as before in the evolving and developing natural and social world. Organisations will therefore suffer the illicit anxiety and uncertainty that accompanies a dynamic and turbulent economic climate. With this in mind, managers are seeing the need to retire from trying to plan, predict and establish their position within the market, pertaining that “this knowledge is a myth”.

Managerial practice and developing philosophy is in contrast embracing adaptive and dynamic strategy that emerges from the group or the system as opposed to a planned and coordinated business plan. This approach sees strategy as generated from an “inside-outside” perspective, considering the environment as secondary to that of the organisation.

DNA Wales Insight: Evolving managerial philosophy places focus on an adaptive and dynamic ‘inside-outside’ perspective of organisational strategy, moving away from the key myths of strategic planning as trying to know, plan and predict an organisations current and future position within the environment within which it competes.

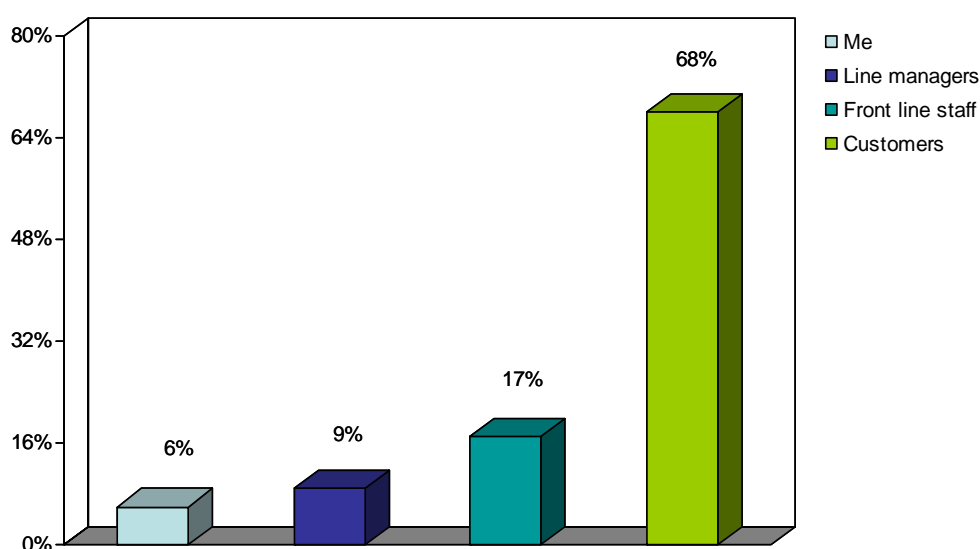
9. Organisational Control

9.1 WHO IS IN CONTROL?

Many organisations in Wales still follow the business prophecy that a satisfied customer is vital to long term profitability. In fact, 68% of management attendees stated that customers (consumer) were in control of the organisations' direction, and of the belief that customers (consumers) were of greater importance than line managers, front line staff and the organisations' senior management.

It was further claimed that the subject of consumer and customer behaviour often dominates internal meetings and leadership gatherings and is always a key subject at sales meetings. Focus is such of how the business can better address, meet and exceed customer needs and expectations.

Figure 6: Organisational Control



Source: WMC Interactive Survey 2006

Of further interest here, is not just the above claim about the focus and importance of customer and consumers. But that in contrast to this strongly held, promoted and discussed perspective, that attendees during the Waterton Management Challenge further espoused that despite this belief, the focus of control was still firmly and inherently with line managers and CEO's.

Geoff Burch and Paul Thomas provided insight to this contradictory belief-action dichotomy espousing how control within an organisation was notional and situational with influence through values as the best way of achieving staff motivation and interest and meeting or exceeding customer needs and expectations.

DNA Wales Insight: Organisations are driven by market demand and customer needs and expectations, placing emphasis on a pull-strategy (over push-strategy) for organisational sustainability. However, inherent managerial structures still place the focus of control and authority with line managers, senior management and CEO's, ignoring direct customer and market insights derived at the front-line.

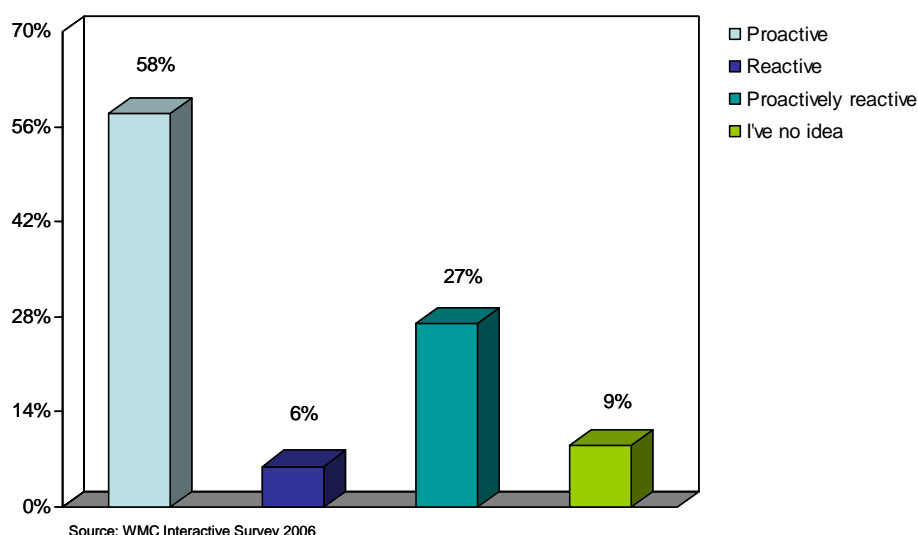
10. Adjusting to Change

10.1 ADAPTABILITY

58% of event attendees rated a 'good organisation' as being proactive to changing market conditions, with a further 27% considering a combination of both reactive and proactive responses. This considers the importance of business resiliency.

Business resiliency is "an organisations ability to adjust easily to change", its adaptability. Resilience is different to recovery and continuity as it means being flexible enough to adapt to both positive and negative influences. These influences or changes, whether caused by economic factors, natural disasters, governmental decisions or other sources, are thus seen as constant. In other words, we are always in a state of 'constant change'. The key to resilience rests in maximising the ability of organisational systems and processes to effectively support a business under any adverse, fast changing, or unexpected conditions.

Figure 7: Adjusting to Change



The insight here is the belief by DNA Wales that adaptability is a catalyst that can propel an organisation forward while your competition sits still. However, it requires the organisation to be proactive in their re-activeness to business strategy as they continue to remain an active agent in the system. Many complexity theorists employ the proverb: "equilibrium is death" to the inactive organisation.

However being 100% 'proactive' is impossible in business terms as the organisation cannot do all things before change or influences occur. As such, there must be information and consideration, before organisational action. So the organisation needs to foster the ability to react quicker than others, 'to be proactive in reactivity'. For example, allowing employees on the frontline to implement what is necessary to meet customer expectations provides a new source of competitive advantage: adaptability.

DNA Wales Insight: Adaptability is the catalyst that can propel an organisation forward and by placing focus on those agents in the system that can be proactive in reactivity provides a new source of competitive advantage.

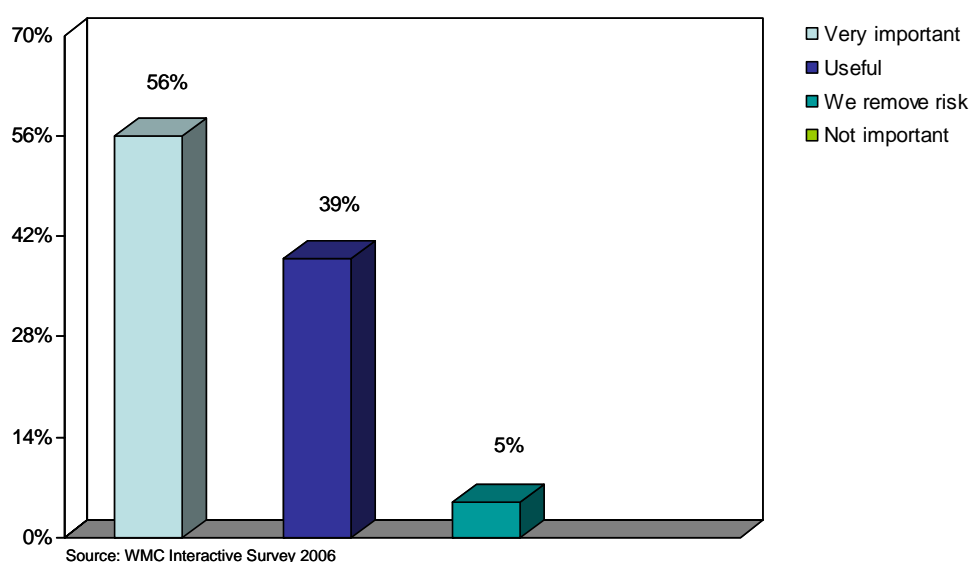
11. Risk & Fun in the Workplace

11.1 THE IMPORTANCE OF RISK

Many managers believe the essence of overcoming risk is within the organisations' "attitude to risk". The results here portray a healthy attitude towards risk with 56% of event attendees rating risk in the workplace as "very important" and a further 39% seeing it as "useful".

To elaborate, when an organisation is in crisis and the risk of negative business performance is high, employees are prepared to engage in radical actions as the risks involved are considerably less than the demise of the organisation. Furthermore, enhanced creativity and innovative ideas often compliment 'radical' behaviour.

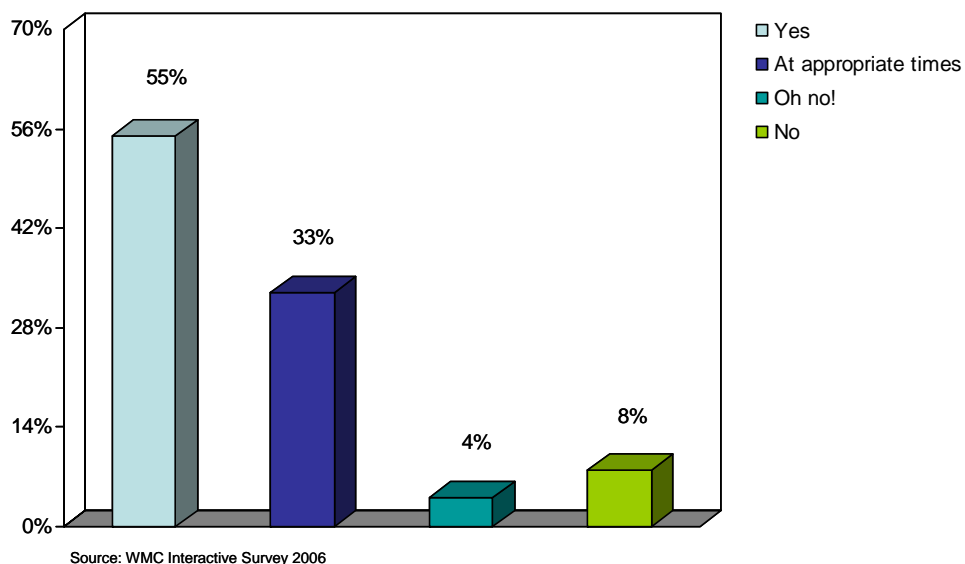
Figure 8: Risk in the Workplace



DNA Wales Insight: An organisations' attitude towards risk and how risk is considered within the organisation is very important. A healthy attitude toward risk sees risk as an important and useful phenomena require for generating innovation, creativity and radical market responses.

11.2 THE IMPORTANCE OF FUN

The issue of fun within the workplace divided the event audience as one of the most contentious issues raised. 55% of the management attendees viewed fun as an important part of management within an organisation, with a further 33% seeing it as important "only at appropriate times".

Figure 9: Fun in the Workplace

An insight from DNA Wales considers how sporting or performance types of fun fit well within the workplace where employers generally want employees to have energy, drive, talent, determination, competitive spirit, and to be goal orientated. As such, DNA Wales firmly believes that fun at work can translate into increased productivity, increased employee morale, and decreased staff turnover.

DNA Wales Insight: Fun in the workplace is an important facilitator of increased productivity, employee morale and decreased staff turnover.

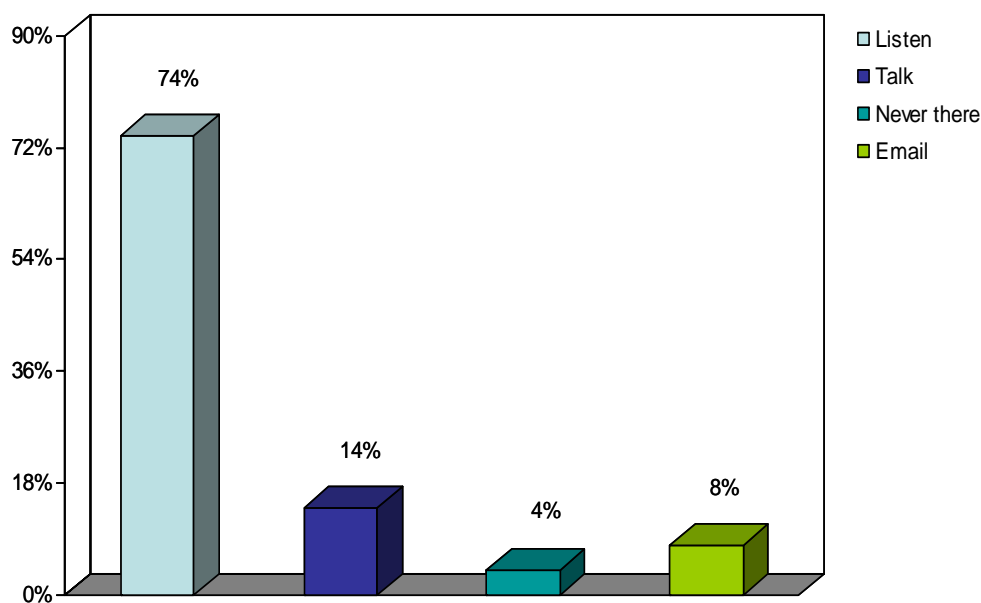
12. Management Behaviour

12.1 LISTENTING, TALKING & EMAIL

When considering the actions and behaviours of management, 74% of event attendees regarded “listening” as the most often undertaken management action, with a further 14% seeing “talking most of the time to let others know what’s going on” as the most often undertaken behaviour.

However even though most managers see listening as the main behaviour they undertake, how well do they actually listen? It was noted by complexity theorist Peter Senge that “*if managers look to improve their listening ability, they can greatly improve their management skills, particularly within an organisation that looks to enhance and share knowledge at all levels.*”

Figure 10: Management Behaviours



Source: WMC Interactive Survey 2006

Only 8% of event attendees rated the conduct of email communication as most often undertaken. However, as organisations become more de-centralised over subsequent years, it was discussed by managers that emailing would be the most advantageous form of communication. However, is the channel of email effective for two-way communication, listening and understanding the context, importance and relevance of the message being exchanged?

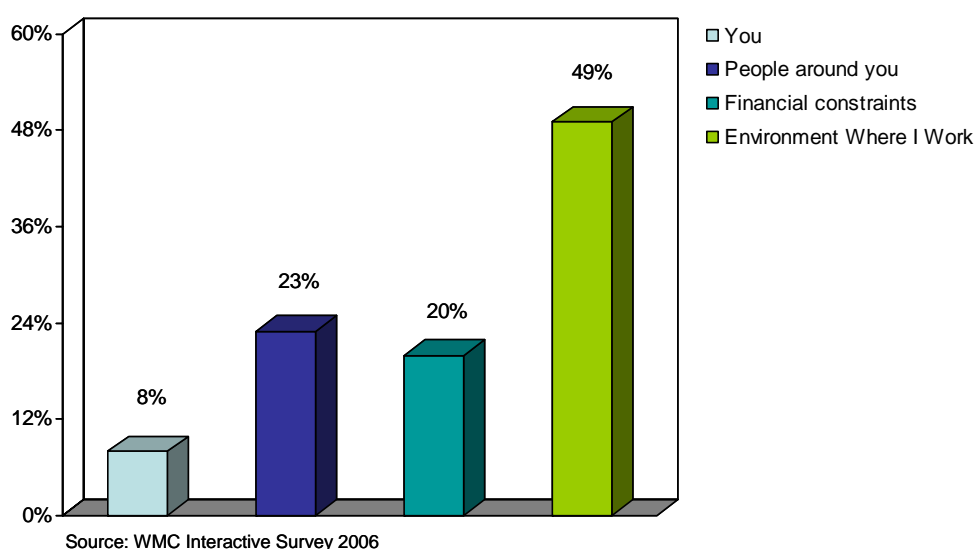
DNA Wales Insight: The ability to listen within social interaction and two-way communication is regarded as an essential managerial skill within organisations that seek to enhance and share knowledge at all levels.

13. Organisational Evolution

13.1 'ROAD BLOCKS' TO ORGANISATIONAL EVOLUTION

Like many of answers provided during the session, the following is a vivid example of how management thinking has evolved over recent years. 49% of event attendees rated the "environment where I work" as an obstacle to organisational evolution. This is in contrast to managerial beliefs over ten years ago where the environment was seen as being a "controllable challenge" for the organisation.

Figure 11: Organisational Evolution



Charles Handy (2004), a specialist in organisational behaviour and management practice refers to a "vision of self-organisation" that includes no hierarchy of command and control in an environment. This can be described further as a complex adaptive system (CAS) or simply "*human beings in an evolving system*".

There is no planning or managing, but there is a constant re-organising to find the best fit within and with the environment. This said for sustainability of Welsh organisations, increasingly organisations must unlearn traditional management beliefs of command and control and learn to create a system that is continually self-organising through the interminable process of emergence and open feedback.

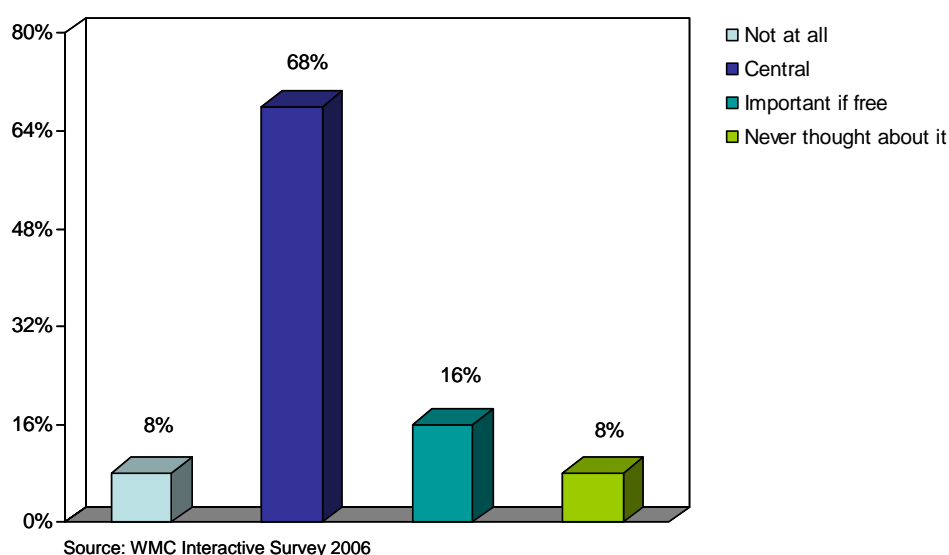
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14. Skills & Personal Values

14.1 PERSONAL VALUES

Event attendees were asked “How important are personal values in a professional environment?” As noted by the managers involved, the word ‘professional’ was key to the answers provided to this question. 68% of the managers declared that personal values are central to the success of any professional company in the Welsh economy.

Figure 12: Personal Values



DNA Wales Insight: Personal values are at the core of any professional company, and professionalism is a virtue of any sustainable organisation within the Welsh economy.

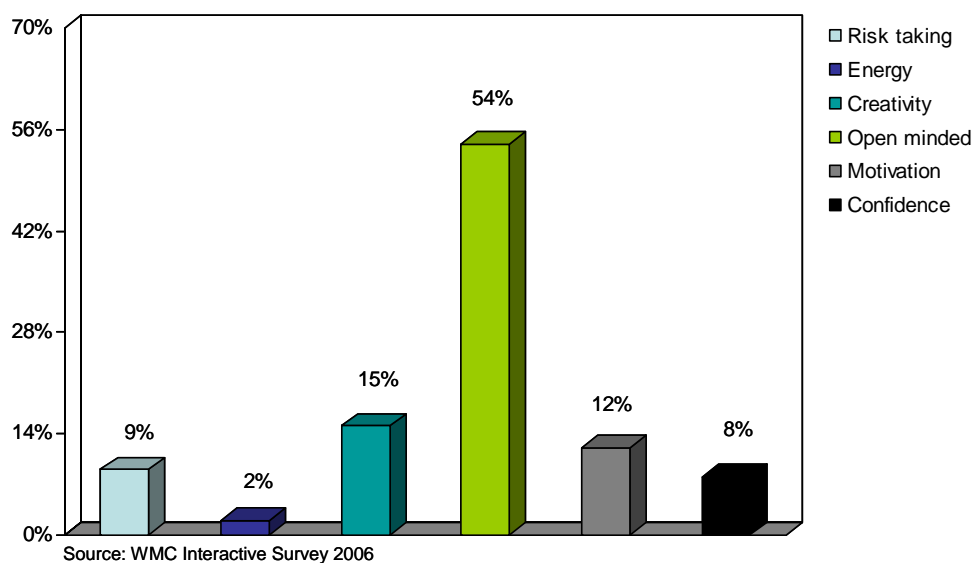
14.2 INDIVIDUAL SKILLS

More than half the management attendees (54%) rated that an employee having an open mind was at the core of the future success of their individual organisation and the collective Welsh economy. Creativity (15%) and motivation (12%) were the other important individual skills rated.

This was one of the more subjective questions asked in the session as many managers had divergent views as to what an “Open mind was?” Furthermore, how much freedom is required for an employee to have an open mind? Bound to the open mind of the employee is encouragement from the manager where the organisation adopts a trial and error philosophy to feedback and research.

DNA Wales Insight: Open-minded, creativity and motivation are the key individual skills regarding as core to the future success of individual organisation and the collective Welsh economy.

Figure 13: Individual Skills



15. Conclusion

15.1 DNA WALES RESEARCH INSIGHTS

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- **Individual Skills:** Open-minded, creativity and motivation are the key individual skills regarding as core to the future success of individual organisation and the collective Welsh economy.

15.2 EVOLVING MANAGERIAL PHILOSOPHY

The key insight from DNA Wales research and others in the field of Complexity Adaptive Systems (CAS) and managerial philosophy and practice is that a clear dichotomy of thinking is apparent.

At one end of the spectrum, we see traditional or mechanistic management thinking which places at its core the action of design, control, planning and certainty. Forming and reforming the notions of objectivity and reality. This massification of managerialism has elevated the 'professional manager' within organisations to an elitist and powered position and a position of expectation that is, purported as wholly unreasonable both organisationally and personally. As Knights & Willmott (2000:26) comment:

"textbooks and gurus guides [in management which] tend to invite, endorse and reproduce a detached, instrumental and closed attitude to work" continue to add "appeal to managers as a way of managing through minimalist techniques or use of effort, brainpower and time....which can be counterproductive".

DNA Wales sits at the polar opposite of the spectrum, positioning humans as key agents within the organisation and considers organisations as *"living systems interacting with each other in non linear processes, within larger living systems which can be described as an 'ecosystem"*. Organisations are therefore characterised by dynamic patterns of human behaviour, which cannot be reduced or compartmentalised into any simple form without destroying the holistic nature of the system itself (Bourdieu 1998).

DNA Wales therefore argues that those individual agents (people) self-organise and co-evolve through connections and inter-connectivity (social trust networks) which consequently minimises the possibility of prediction and control. Organisations are by its very nature, complex and human that to date, has not responded well to the traditional management paradigm. Managerialism and its innate attempt to objectively and rationally control the organisation by 'simplistic', mechanistic, and directive methods will not confront or deal with, the complexity of the interactive processes and intricate social relationships (Davies, 2005).

Human interaction in organisations is dynamic and a living process, in which order and control in effect is created through meaningful interaction and feedback rather than by formal processes (Haynes, 2003). Attempts to direct the behaviour of organisations will be limited and at times futile. Behaviour within any human active system is far more complex for emergent phenomenon to be managed in a traditional deterministic fashion.

As managerialism and the pursuit of control aims to normalise power through directive authority, structure and hierarchy, one might debate further as a result of these findings whether, through its processes of regulation and process, it is counterintuitive to the 'creative, dynamic organisation ethos' and therefore the sustainability of Welsh organisations.

Only further critical debate, research insight and action by the DNA Wales Network will help us decide if this is so....

Source Material

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WATERTON MANAGEMENT CHALLENGE (WMC) 2006: SPEAKERS

- John Seddon
- Geoff Burch
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- Paul Thomas

Appendix A: DNA Wales: Critical Management Architects

HUMAN, COMPLEX AND ORGANIC SYSTEMS: Developing Critical Management Insight

The organisation has been historically treated as a mechanistic system of procedure, policy, regulation and control. Inherent in this is the view of strategic management planning for prediction, of linear supply chains and the controlled and monitored employee. While useful for academic analysis, this view is well recognised as being unrepresentative of the true operating environment of many organisations. The reality requires organisations to function effectively within a structure better described as a dynamic, random network built on relationships. However, mechanical metaphors (e.g., Six Sigma) and rules, procedures and regulations (e.g., ISO9000) continue to be used by managers to monitor and control staff and fluid interaction, limiting the organisations ability to evolve and remain 'fit and healthy' for continually changing market expectations. Just like we are unable to predict the path of a raindrop moving downwards on a pane of glass, we are unable to predict the interactions and responses in a human-market system essential for organisational success.

Developing management thinking and practice, however is evolving in its regard and importance of organic management practice and the view of the organisation as a complex, organic human system. Furthermore, the environment within which organisations operate is inherently multifarious and the most effective approach to managing such an organisation is to accept this dynamic impact and allow the people within the system to evolve the next product, service or market innovation. In brief, the organisation is a human system, not a mechanistic system; the organisation is an interactive network not a linear system; the organisation is a complex system and therefore not controllable: with the product or service involving daily as the market grows ever less predictable.

Human beings are the complex individuals in a complex system, the organisation. In fact, humans are significantly more complex than those systems usually placed forward by complexity thinking, such as the interactive systems of atoms, bacteria, and viruses. Complexity thinking is a simple architecture for seeing and understanding how natural, human systems operate while recognising system uncertainty. It helps 'managers' to understand that the behaviour of the people within the organisation impact the design and direction of the whole organisation. An example is culture. Culture, albeit an interesting and pervasive property, is a property of (human) organisations that emerge as a result of the interactions between people throughout the system. Utilising Complex Adaptive Systems (CAS) thinking, we are able to propose a different perspective of the uncertainty within human-interactive systems such as an organisation and provide critical management insight into how to embrace CAS for effective management and competitive advantage. This is shown by the adoption of complexity thinking by industry leaders at the forefront of advanced critical management, such as BP, Shell, GSK and smaller firms such as W. Gore Assoc.

There are a number of key implications, however, which complexity thinking has for organisations and developing management practice. The first and most obvious is moving beyond the security of market prediction and suggestions of control, vision and mission statements created through strategic planning, most of which are consistently ignored by people within the organisation who simply don't 'buy into' its meaning. In strategic planning, the only certainty is in strategic plan development and not its accuracy, currency, implementation or outcome. One element to note, however, is that complexity thinking does not advocate that organisations cease to place emphasis on planning, for as a piece of ritual, the annual planning round has a significant part to play in organisational life. It is just that the fact that fully accurate prediction is impossible, however of increased importance and commonplace is a growing worry for businesses in Wales.

The second most crucial implication from complexity thinking, and to managers the most controversial, is the belief that it is impossible to control what happens within the organisation and the people within it. So much management thinking focuses on the role of the 'leader' as an enabler of change and that most leaders believe that they can 'make things happen'. This is at best sadly mistaken and at worst highly damaging for the organisation and the employees within. The architecture of complexity thinking will enable Welsh management to evolve and develop the confidence and insight to react more quickly to changing competitive and market pressures. However this is founded on the basis of managers in Wales to start to see their organisations as 'human', 'non-linear' and 'self-organising'. To do this increased critical management needs to be developed and the release of the attraction and comfort of power, status and control in exchange for evolving and organic patterns of 'trust, creativity, risk and influence' required.

DNA Wales, as a Critical Network seeks to help managers develop key organisational insights to avoid the stranglehold of tight forecasts and rigid control, which many organisations are finding are unrepresentative of how they actually operate. DNA Wales aims to bring insight to managers and discover ways in which natural systems, such as the organisation themselves and people within their organisation are the 'generators of influence' and not control. To reach this point the DNA Wales team are critically examining management, leadership, uncertainty, democracy, risk and agent connectivity in complex human systems and the ways in which organisations try to manage these inherent components within the organisation and throughout its associative networks. With the acceptance of risk and uncertainty the 'CEO of Critical Management' ('the gardener') is able to endure organisational momentum and change through flexible, responsive and evolving human networks.

It is the belief of DNA Wales that this organic approach to management practice can give us the best critical insight into the real nature and interaction of organisational behaviour and thus is the key to sustainable of industry in Wales.

In summary, DNA Wales is a collaborative network of critical management and leadership researchers from throughout Wales and the UK, whom are working to:

- **Offer** insights from working with Welsh businesses about the human, complex and organic systems within which they work;
- **Develop** critical managers and democratic thinkers in Wales from organisational system insights; and
- **Build** critical management architecture for Welsh businesses from organisational system insights
- **Allow** the people within the organisation to take control through democratic leadership
- **Create** a competitive advantage that encourages Welsh Business to compete with and through its people
- **Trust** from within a social network of buyers, consumers, customers and employees to ensure a transformational future

DNA Wales: Critical Management Architects

"asking the critical management questions for organisational insight"

Appendix B: Glossary of Terms

Complex Adaptive Systems (CAS) are all around us. Most things we take for granted are complex adaptive systems, and the agents in every system exist and behave in total ignorance of the concept but that does not impede their contribution to the system. Complex Adaptive Systems are a model for thinking about the world around us not a model for predicting what will happen. Complex Adaptive Systems have many properties. The most important are identified below.

EMERGENCE

Rather than being planned or controlled the agents in the system interact in apparently random ways. From all these interactions patterns emerge which informs the behaviour of the agents within the system and the behaviour of the system itself. For example a termite hill is a wondrous piece of architecture with a maze of interconnecting passages, large caverns, ventilation tunnels and much more. Yet there is no grand plan, the hill just emerges as a result of the termites following a few simple local rules.

CO-EVOLUTION

All systems exist within their own environment and they are also part of that environment. Therefore, as their environment changes they need to change to ensure best fit. But because they are part of their environment, when they change, they change their environment, and as it has changed they need to change again, and so it goes on as a constant process. (Perhaps it should have been Darwin's "Theory of Co-evolution"). Some people draw a distinction between complex adaptive systems and complex evolving systems. Where the former continuously adapt to the changes around them but do not learn from the process. And where the latter learn and evolve from each change enabling them to influence their environment, better predict likely changes in the future, and prepare for them accordingly.

SUB OPTIMAL

A complex adaptive systems does not have to be perfect in order for it to thrive within its environment. It only has to be slightly better than its competitors and any energy used on being better than that is wasted energy. A complex adaptive systems once it has reached the state of being good enough will trade off increased efficiency every time in favour of greater effectiveness.

REQUISITE VARIETY

The greater the variety within the system the stronger it is. In fact ambiguity and paradox abound in complex adaptive systems which use contradictions to create new possibilities to co-evolve with their environment. Democracy is a good example in that its strength is derived from its tolerance and even insistence in a variety of political perspectives.

CONNECTIVITY

The ways in which the agents in a system connect and relate to one another is critical to the survival of the system, because it is from these connections that the patterns are formed and the feedback disseminated. The relationships between the agents are generally more important than the agents themselves.

SIMPLE RULES

Complex adaptive systems are not complicated. The emerging patterns may have a rich variety, but like a kaleidoscope the rules governing the function of the system are quite simple. A classic example is that all the water systems in the world, all the streams, rivers, lakes, oceans, waterfalls etc with their infinite beauty, power and variety are governed by the simple principle that water finds its own level.

ITERATION

Small changes in the initial conditions of the system can have significant effects after they have passed through the emergence - feedback loop a few times (often referred to as the butterfly effect). A rolling snowball for example gains on each roll much more snow than it did on the previous roll and very soon a fist sized snowball becomes a giant one.

SELF ORGANISING

There is no hierarchy of command and control in a complex adaptive system. There is no planning or managing, but there is a constant re-organising to find the best fit with the environment. A classic example is that if one were to take any western town and add up all the food in the shops and divide by the number of people in the town there will be near enough two weeks supply of food, but there is no food plan, food manager or any other formal controlling process. The system is continually self organizing through the process of emergence and feedback.

EDGE OF CHAOS

Complexity theory is not the same as chaos theory, which is derived from mathematics. But chaos does have a place in complexity theory in that systems exist on a spectrum ranging from equilibrium to chaos. A system in equilibrium does not have the internal dynamics to enable it to respond to its environment and will slowly (or quickly) die. A system in chaos ceases to function as a system. The most productive state to be in is at the edge of chaos where there is maximum variety and creativity, leading to new possibilities.

NESTED SYSTEMS

Most systems are nested within other systems and many systems are systems of smaller systems. If we take the example in self organising above and consider a food shop. The shop is itself a system with its staff, customers, suppliers, and neighbours. It also belongs to the food system of that town and the larger food system of that country. It belongs to the retail system locally and nationally and the economy system locally and nationally, and probably many more. Therefore it is part of many different systems most of which are themselves part of other systems.



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