

# The Psychology of Managing Complexity

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## INTRODUCTION

*"The general who wins a battle makes many calculations in his temple 'ere the battle is fought. The general who loses the battle makes but few calculations beforehand. Thus do many calculations lead to victory and few calculations to defeat: how much more no calculations at all! It is by attention to this point that I can foresee who is likely to win or lose."* So said Sun Tzu, a Chinese military strategist, in *The Art of War* written around the 6th century BC. We can substitute 'calculations' for 'complexity'. The inference is clear; those leaders who can manage complexity effectively will prevail over those who cannot.

The issue of managing complexity was brought into sharp focus during the recent banking crisis. Some boards took decisions to enter markets with financial products that they did not fully understand. How many investment bank directors could have adequately defined what was meant by Collateralised Debt Obligations and the financial risks associated with them? Beyond the banking sector commentators noted that large and complex organisations were more likely to fail. We can see evidence of this in recent turbulent events both at BP and Toyota where complexity obscured the recognition and understanding of corporate risk.

How should organisations best manage complexity? It is a subtle but important distinction that those organisations that absorb complexity tend to perform more effectively than those that seek to reduce it. Research suggests that more effective leaders work with complexity rather than seek to manage or constrain it in some way, as it is often the case that complexity is a source of competitive advantage. For example, Amazon has further differentiated its product offering through the launch of the Kindle Cloud Reader, a browser-based application that enables customers both to buy and read Kindle ebooks on the cloud via a web browser.

## THE ROLE OF ORGANISATIONAL FACTORS IN MANAGING COMPLEXITY

There are five principal ways to manage complexity more effectively; first is to examine organisational structure. For many industries, the trend is to move away from functional and structural designs (that emphasise routine tasks and encourage short time horizons) towards more flexible and adaptive models, as these types of organisation fare better when confronted with turbulent commercial circumstances. For example, Toyota found that its centralised and engineering-focused communication protocols militated against the early identification of quality defects – that eventually led to numerous recalls of cars, culminating in worldwide losses in excess of US\$2 billion in output and sales.

Second, organisations only thrive and adapt if they have access to new information both from internal and external environments. Proactive exchange of information is vital to managing complexity effectively. This is especially important when seeking to partner with other organisations to exploit

differing market opportunities. For example, American Express is expanding its partnership with Foursquare across the United States, which allows users to link an American Express card with their Foursquare account. This partnership leverages social networking and consumer spending data enabling American Express to target a younger demographic who traditionally have used Foursquare.

Third, complexity is managed better if jobs are designed to organise people, systems, and processes with clear responsibilities and accountabilities. Role clarity (i.e. understanding others' expectations and arriving at an agreement about the tasks that constitute a particular role) is critical in this respect. Conversely, lack of clarity about a role, and its relative accountabilities, leads to strained and unsatisfactory interpersonal relationships and to further, unnecessary complexity.

Fourth, organisational design should reflect the culture that the leaders wish to create, because a strategically appropriate corporate culture, where values and behaviour are shared, is frequently an enabler of superior performance. Those organisational cultures that prioritise flexibility and fluidity (e.g. gaming and digital companies) manage complexity better than those with more robust structures (e.g. those in safety critical industries). It may be that the former cultures are adopting a complexity absorption process and the latter a complexity reduction process, which would suggest that the management of complexity is, in part, culturally determined.

## THE ROLE OF INTELLIGENCE IN MANAGING COMPLEXITY

Finally, managing complexity is a function of intelligence, and intelligence is the best predictor of effectiveness in senior management roles. Indeed, research is clear that even allowing for differences in jobs and organisations, these findings remain robust across both samples and settings. As the world of work moves inexorably towards a knowledge economy, so the complexity of senior management work increases and thus the premium on intellectual skills becomes more paramount. Put simply: brighter people do better.

So what is intelligence in the world of work and how do we measure it? One theory suggests that there are two forms of intelligence. Crystallised intelligence is the ability to solve problems using prior knowledge. For example, contestants on popular general knowledge quizzes display crystallised intelligence as they recall facts and data quickly and accurately. An accountant reading a balance sheet will similarly be using crystallised knowledge.

Fluid intelligence is the intellectual ability to reason and think abstractly and to see patterns of relationships (rather than the data *per se*) without recourse to prior knowledge or experience. It is a higher order intellectual ability that allows managers to make sense of new or novel data, to deal effectively with ambiguity and fuzziness in data and to both make and take effective decisions with partial information sets.

Interest in this specific aspect of intelligence has heightened recently as the volume of differing data, driven through advances in information technology, has further increased the comparative complexity of roles and the problems now encountered by leaders become much less structured and well defined. Thus, past problem-solving strategies do not work anymore.

A further theory suggests that crystallised intelligence is just knowledge acquired through experience and formal training, which is why most commentators agree that, for senior roles at least, the value of crystallised intelligence is falling away. The relentless advance of IT renders the acquisition and accumulation of knowledge less critical than before. In contrast, the increasing complexity of work today suggests a stronger focus on the need for fluid intelligence skills.

### DEVELOPING FLUID INTELLIGENCE

Given that the value of fluid intelligence is so important, how can this be enhanced? The routes to the development of this skill include generating hypotheses around the outcomes and consequences of one's decisions; and, critically, understanding what strategies not to employ through a focus on errors so that managers recognise when these are happening and how to both prevent and recover from them. The pedagogy of such learning and development is in its infancy but initial research suggests positive outcomes in enhancing fluid intelligence thinking skills.

### CONCLUSION

Our world of work will remain an increasingly complex environment. Therefore, the management of complexity is a strategic issue that needs an appropriate response. It is clear that, at an individual level, the acquisition and development of fluid intelligence is a significant determinant in senior managers' ability to manage complexity effectively, and thus its measurement should form part of every senior management assessment process. At an organisational level, the key lies in the identification and fostering of constructive complexity (that delivers competitive advantage) while simultaneously locating and removing unnecessary complexity that hinders the execution of the business strategy.

## 10 top tips for managing complexity

- Ensure that all board members understand fully the complexities of the business model and the products that it generates
- Recognise that for some organisations, complexity delivers competitive advantage
- Recognise that the management of complexity is culturally specific
- Design flexible and adaptable organisational systems that encourage swift information exchange and processing
- Ensure role clarity and consensus on accountabilities throughout the organisation
- Minimise role ambiguity through clear expectations and performance measurement criteria
- Encourage senior managers to work with complexity rather than suppress it
- Invest in the development of fluid intellectual thinking skills – these are not an immutable genetic 'given'
- Select senior executives who have sound levels of fluid intellectual ability
- The evidence is clear that, across many roles and in different settings, brighter people do better.

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## ABOUT THE AUTHOR



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