a development research programme

'*Things can be other than they are.*' Understanding the limitations of current management thinking and knowledge practice for work in the development sector

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Australia

About IKM Emergent

In April 2007, a five-year research programme was approved for funding by the Directorate General for International Cooperation (DGIS), part of the Dutch Ministry of Foreign Affairs. The programme, Emergent Issues in Information and Knowledge Management (IKM) and International Development, will be known as the IKM Emergent Research Programme.

The objective of the programme is to improve development practice by promoting change in the way the development sector approaches the selection, management and use of knowledge in the formation and implementation of its policies and programmes. It aims to achieve this by:

- raising awareness of the importance of knowledge to development work and its contested nature;
- promoting investment in and use of Southern knowledge production of all types and origins;
- creating an environment for innovation, supported by research on existing and emergent practice, for people working in the development sector to raise and discuss means of addressing these issues; and
- finding, creating, testing and documenting ideas for processes and tools which will illustrate the range of issues which affect how knowledge is used in development work and stimulate thought around possible solutions.

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About the author

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Abstract

Underlying the approaches to management which have dominated thinking in the West for the last 200 years is a knowledge 'system', a web of assumptions, processes, behaviours and outputs shaped by a particular view of the world that emerged in the context of the intellectual and economic environment of the nineteenth century. While this 'analytical' knowledge system has played a significant role in providing a solid basis for the technological advancement, the expansion of commerce and the management of both government and organisations within Western culture, there are nonetheless distinct limits on both the type of problems it can useful be applied to and the outcomes it can achieve. As we move into the twenty-first century, we are confronted with a very different set of 'wicked' problems, which the analytical thinking toolkit is ill-equipped to address. To thrive in a knowledge economy, and in contexts of significant sociocultural diversity and complexity, a very different thinking toolkit is required. Drawing on the proposition that development work is a knowledge industry, I argue that an alternative knowledge system based in the ancient art of rhetoric provides a different set of tools for creating and communicating information, one that is far better aligned with the organisational contexts and real-world situations of those working in the development sector.

Key words

Knowledge system, management theory, analytics, rhetoric, wicked problems, conversation, visualisation, heuristics, development sector.

Introduction: our knowledge system is broken

In his 2006 article "Which Knowledge? Whose Reality?", Mike Powell challenged the approach that is frequently taken to knowledge and information gathering in the development sector, by questioning the widespread privileging of Northern assumptions about the nature of knowledge and the forms in which it is useful.[1] In his view, this strong tendency is often at odds with the needs of those working on the ground for development agencies, and fails to recognize or value the diverse and divergent paradigms of knowledge, language and culture that exist in the developing countries of the South.

In this article, I want to extend this critique from a different perspective – not based on the concerns frequently raised in the context of postmodern, post-colonial discourse, but informed instead along some much more ancient lines of thought about the nature of knowledge and the way it is applied to problems in the world. The stance for my critique is situated much more from within the dominant knowledge paradigm of Western/Northern society, and in particular how it is expressed in the context of contemporary management thinking and practice, rather than from without. The need for this critique arises from the strong and probably increasing tendency to subject development agencies to an ill-fitting straitjacket of information practices and reporting requirements, without sufficient understanding on the part of the relevant stakeholders about the strengths and weaknesses of these approaches to managing knowledge. In the process, I hope to provide further insight into one of Powell's most important propositions, that development work is fundamentally a knowledge industry rather than a service industry, as well as opening up new horizons for exploring the role of knowledge in the development sector and the processes by which it may be created.

Over the last 20-30 years, the development sector has been affected by three key trends which have had a broad impact on all sectors of the economy – the increasing scope, diversity and global scale of operations, the exponential rise in our capacity to collect, store, manipulate and distribute information thanks to the power of the modern computer, and the growing demands for strong evidence of accountability and transparency in the way that organizations operate, both from those with a direct financial interest and the wider community. The confluence of these three trends has created significant pressures on both the supply side and the demand side of the knowledge creation process. There is more information that can be collected and stored than ever before, across a diverse range of geographies, programs and topic areas, and there are also more demands being made for information, both from within and without the organization. The net result is a dramatic expansion in the range of information that organizations, and the individuals who manage them, are expected to process and produce.

Implicit in this flood of information is an unspoken but powerful assumption – that having access to all this information will make us smarter, enable us to be more productive, and ensure better outcomes from our work. Yet the actual experience of many people across all sectors is just the opposite – that the volume of information is overwhelming, that the effort of producing it is onerous, and that the dividends generated in terms of creating useful knowledge, better decisions and more effective outcomes fall far short of what we would desire. If nothing else, the global financial crisis has

highlighted the huge gulf between the amount of information we have at our disposal, and our capacity to make good and wise decisions for our own self-interest, let alone the good of society in general.

In short, the current 'system' that we have created for ourselves regarding knowledge and information is highly inefficient and not fit for purpose. By 'system' I mean the whole interconnected web of assumptions, processes, behaviours and outputs that we bring to the table in the way we approach the task of creating and managing knowledge. Not only does it consume a lot of energy to maintain this system, but ironically it achieves the opposite effect to what is intended, as Nobel Prize-winning economist and cognitive psychologist Herb Simon highlights: "What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention."[2] One might well add that information also consumes the energy of those who have to create it, which is a major source of frustration for the many people working in organizations who bear the brunt of demands for information without the benefit of a commensurate belief in the value or usefulness of what they are creating.

In the face of these issues, it is easy to adopt a fatalistic attitude, and assume that the system we work within regarding knowledge and information is somehow an inevitable stage in our pathway of cultural development and organizational life. To be sure, there might be other pathways in other cultural settings, but within Western/Northern culture, the die has long since been cast. But as monolithic as this prevailing 'knowledge system' is, it is by no means unchallengeable or unchangeable. Like any human system, the way we engage with information and seek to create knowledge is the result of specific choices that have been made at certain historical points; other pathways could have been chosen, and options still exist for us to change the knowledge system and design a better informational reality for ourselves.

The origins of the knowledge system underlying modern Western management culture

To make this point, it is necessary to provide a very brief account of some significant choices that have led to the creation and dominance of the present knowledge system within Western/Northern culture. Perhaps the last major point at which there was a major choice to be made between competing knowledge systems was in the early 1800s, when the newly dominant commitment to Rationalism, riding on the back of both the Scientific Revolution and the social and political philosophies of the Enlightenment, was briefly challenged by Romanticism, with its much more organic and emotion-led ways of knowing. The history and outcomes of this struggle are well-known; Romanticism quickly burned itself out, both on the unsustainable excess of its own passions, and in the face of the combined juggernaut of modern science and industrialization.

What is far less well known is that another decisive choice was being made at around the same time about the knowledge system that would rule our lives, in a single institution far from the intellectual salons of Europe – West Point Military Academy. Under the superintendency of Sylvanus Thayer (1818-1833), a new approach to managing organizations using information was inculcated into the

hearts and minds of a generation of students, based on the relentless numerical measurement of academic performance, combined with the use of written reports passed up a chain of command.[3] This approach in itself was an expression of a key knowledge choice that was cemented into the Western/Northern psyche during the Scientific Revolution – the belief that numbers provide the purest and most objective representation of reality, the one reliable pathway to true knowledge.

Interestingly, West Point was the site of the first School of Engineering in the United States, and since the major new industries which thrived in the second part of the nineteenth century had strong links to engineering (most notably, the railroads), Thayer's students were in demand as key figures in the major businesses and organizations that were to form the backbone of America's thriving industrial economy. In this way, the knowledge system that had been pioneered in European educational institutions and imported to America by Thayer made a crucial leap from the academy to the world of business and into the heart of the emerging industrial economy.[4]

The engineering mindset developed at West Point was perfectly suited to the new manufacturing industries, not only in terms of improving the efficiency of production, but also for managing the increasingly extensive supply chains required to move raw materials to factories and then out to the consumer. However, it was the style of management that these graduates of West Point brought with them, based on performance measurement and quantitative analysis, which has produced their most significant legacy. While Thayer's method may not have created the role of managers in the modern organization, it has certainly played a significant part in defining the nature of their work and the way they use knowledge and information as part of the management process. Rather than exercising a role as leaders or entrepreneurs, they have been turned in many cases into bureaucrats, managing operations through an endless cycle of measurement and reporting, with little time left for truly strategic or innovative thinking.

It is worth exploring a little further why the management style developed by Thayer at West Point was so well suited to a manufacturing or product-based economy. The secret of success in this type of economy is in *efficiency* and *control* – in finding the most efficient process for creating reliable products that perform consistently well, by reducing production time, minimizing costs, and eliminating wastage of labour or materials. Innovations from the Spinning Jenny to the conveyor belt to the McDonalds Procedures Manual all have this as their guiding imperative; Japan's post-War economic miracle was built almost entirely on it. Much of the focus has been on mechanization and process improvement, and this has spawned a number of management fads such as Total Quality Management, Process Engineering and Six Sigma, based on a dogma of rigorous measurement and variation control. Underlying this mindset is the belief that context is irrelevant, that rigorous application of a uniform and proven process is the key to success. Thus the McDonalds production system remains largely the same anywhere in the world.

Applying the analytical approach to management to service industries

Of course, times have changed significantly since Thayer's day and, in most developed countries, manufacturing has given way to service delivery as the backbone of the economy. Yet for many organizations, the shift to providing services has required no great shift in the underlying knowledge system and management. Even though services may not be as tangible as physical products, the same need for efficiency and quality control remains. Franchises based on a standardized procedural template are just as prevalent in service industries as they are in product-based industries, and logistics and supply chains are just as important for service-delivery organizations such as Amazon and FedEx. Organizations that deliver IT-based services are often obsessed with measuring performance and efficiency, under the relentless weight of the dual imperatives of speed and reliability of service. And large corporations are just as likely to move key parts of their service delivery operations, such as call centres, to remote locations in Asia, say, as they are their manufacturing plants.

If the engineering-based mindset to service delivery dominates the private sector, then it is also widely prevalent in the public sector. One can easily see how seductive the approach to management pioneered by Thayer at West Point is for government, with its natural inclinations towards hierarchy, bureaucracy and measurement of performance. One might complain that government departments are often not very good at delivering services efficiently; nonetheless, they still adopt the same mindsets and measurement behaviours as those used in the private sector. Trends towards amalgamating health services into large, corporatized bureaucracies, centralizing procurement functions and measuring and reporting publicly on the performance of schools are all indications of how this mode of management strongly influences a good deal of government activity.

Importantly for those working in the development sector, though, this approach extends not only to the services that the government actually runs, but also to those that they fund. The twin poles of efficiency and control are applied to the governance of the wide range of programs they sponsor, to try and ensure an appropriate degree of quality control over both the programs themselves and the suppliers who provide them. Given the growing clamour from the wider community for accountability in the way that governments manage the public purse, and the supposed objectivity and rigour that can be created by making decisions based on numerical evidence and comparability of measures, there is an ever-increasing demand on service providers to provide detailed data and reporting on their performance. One small educational institution I know of that gained access to government funding had to employ additional administrative staff just to process the accompanying requirements

for compliance data, thus reducing the value of the additional funds, while also having a significant organizational and cultural impact.

Governments are not the only ones pushing this agenda – other stakeholders such as donors, regulatory authorities and - in the private sector - investors and shareholders, are also demanding evidence of results and accountability regarding performance, across an increasingly broad spectrum of performance areas. The push for better governance has created a significant expansion in the scope of organizational reporting, with new concepts such as triple bottom line reporting, balanced scorecards and corporate social responsibility reports all adding to the administrative load.

While the effort to recognize that organizational health is based on far more than just financial performance is a welcome one, at the same time, it also has resulted in the expansion of the 'West Point' management mindset to more and more parts of the organization.

The need for a new knowledge system for the twenty-first century knowledge economy

As we move into the twenty-first century, however, it is time to consider whether this underlying 'knowledge system' of measurement and quantitative analysis is still serving us well. The economic and social environment that we are operating in has changed dramatically since the nineteenth century, and the last twenty years has seen the emergence of a paradigm-shifting change in the modes of production and global communication associated with the rise of the internet. There is already good evidence that the balance of power has shifted, that efficiency and quality are necessary, but not sufficient or primary elements for business or organizational success. Today's killer products, such as Apple's iPod and iPhone, have achieved their cult status because of their capacity to connect with the zeitgeist, create a strong, design-oriented brand and engender remarkable levels of customer loyalty – capabilities which have more to do with emotional responses and subjective experience than with objective measurement and analysis. Equally, the recent fall from grace of the iconic paragon of the old paradigm of efficiency and quality, Toyota, has highlighted the fact that world class engineering processes can be undermined by relatively intangible and hard to measure social and cultural issues.[5]

If efficiency and consistent quality are losing their *cachet* in product-based industries, then there is even more reason to think that they are unlikely to maintain their hold as key elements of success in service-based industries. The assumption that service-based industries could be operated on a model of mechanistic efficiency divorced from context was always a suspect one; anyone who has felt frustrated by talking to a call centre operator based on another continent, or upset at having to procure a service from a central supplier in preference to using someone from the local community, will understand why this approach does not create a positive experience, why it feels like an offence to both our common sense and to a more intangible notion of human dignity.

As we move further towards a knowledge economy, there is likely to be a growing sense of unease that the old models we have for managing organizations and using knowledge are out of date, and that there is no longer a good alignment between the type of problems we are trying to solve and the

knowledge toolkit that we have at our disposal. A few examples from my own work as a consultant and from recent events in Australia illustrate some symptoms of this fundamental issue:

- Boards being swamped with documentation of risk processes, but having no visibility of real and present dangers.
- Technical experts who are deep in the detail of major projects, but unable to communicate key strategic messages to internal management.
- Different business units of the same company being unable to work together towards a common strategic goal.
- An ignominious series of costly failures on large infrastructure projects involving public and private sector partnerships (PPPs).
- An iconic Australian company trashing its own brand by focusing more on legal avenues to avoid liabilities than providing care for thousands of victims of its asbestos products.
- Threats of boycotts from teachers in response to the government making public comparative data about the performance of schools on literacy and numeracy tests.
- Hospitals making decisions that potentially compromise patient safety and sound medical practice in order to meet externally-imposed performance (KPI) requirements.

In each of these situations, the root of the problem is not in the absence of information; indeed, in most cases, people are drowning in it. The issues relate much more to not having the right information; not being able to communicate the right information in a meaningful way; being concerned that the information being measured does not give a true picture of the situation; looking at too narrow a range of information; and failing to understand how the act of measurement can actually distort the way a system operates.

We would be naive to think that these sorts of problems can eventually be resolved by just improving the way we collect, communicate and apply information. There is something much more fundamental going on, a significant limitation in the underlying knowledge system.

Tame and wicked problems

One helpful clue as to the nature of the knowledge challenge that we are encountering emanates from the German social scientist Horst Rittel, who articulated an important difference between two types of problem – tame and wicked problems.[6] In Rittel's terms, a tame problem involves a situation where the essence of the thinking process is a linear sequence of steps towards a clearly-defined and stable goal. There are objective laws or principles that govern the nature of the problem space and the causal relationships within it, and progress towards achieving that goal can be measured against quantifiable parameters. The product assembly line is a classic example of a solution to a tame problem – what is the most efficient way to assemble a car, say, to achieve a fixed goal in terms of time and quality.

We should not be misled by Rittel's use of the word 'tame' into believing that these problems are trivial; they can be highly complicated and require great technical capability. For example, solving the

problem of how to send a space rocket to the moon, or how to perform a heart transplant, would be classified as 'tame' problems in Rittel's schema. While they might be very difficult, and indeed for centuries were regarded as deep and perhaps unresolvable mysteries, nonetheless, with sufficient perseverance and technical know-how, it was possible to provide viable answers to these problems that achieved the desired goal.[7]

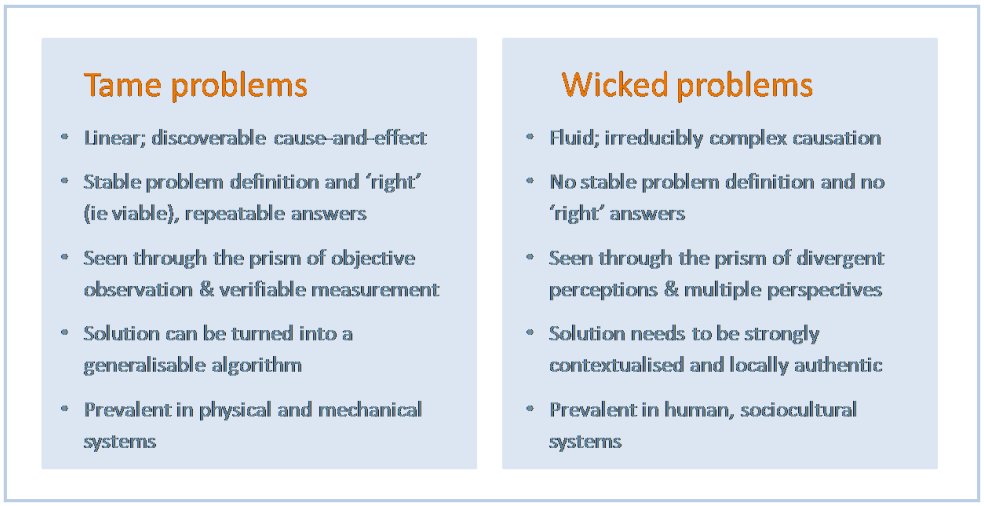
Importantly, one can recognize a tame problem because the solution is repeatable; once a viable process has been invented, the same pathway can be used again and again. Over time, this can be documented and turned into a standard operating procedure – a process that Roger Martin describes as one of turning a mystery into an algorithm.[8] Thereafter, the challenge is to keep working on refining parts of the process or improving the algorithm to become more and more efficient and reliable. This is exactly the space that Total Quality Management, Process Engineering and Six Sigma inhabit.

Equally, the solution to a tame problem is not context-specific. Once a process has been established, it can be used everywhere. The process for heart transplant surgery that Dr Christiaan Barnard pioneered in South Africa can be used just as effectively anywhere in the world where there is sufficient technical expertise and adequate facilities. The recent trend in medical research to try to patent specific types of procedures is a tacit recognition of the fact that there is nothing unique about this sort of knowledge once it is publicly known, and that it has no great value as intellectual capital unless it can be protected in some way.

It should be reasonably evident by now that it is exactly in these 'tame' problem spaces that a mental framework and knowledge process based in engineering flourishes; the whole scientific method and its application to seeking technological solutions to problems is ideally suited to working in this space. The huge growth in human capability that has been experienced in the developed world over the last 300-400 years rests on the strength of this thinking toolkit and its natural fit with solving many of the problems that confront us in mastering and manipulating our physical environment. The fact that the modern corporation and the practice of management both came into being at the crest of this wave explains why we have appropriated this thinking toolkit as our organizational *modus operandi*, and embedded it deeply into our systems and processes.

But what about Rittel's other category, which he has provocatively called 'wicked problems'? These problems are of an entirely different order. Rather than involving a linear pathway of reasoning from a current state to a defined and stable outcome, a 'wicked' problem is characteristically fluid and unstable. There is no one way of articulating what the problem is; indeed, there are usually multiple perspectives on both what the starting point is and what the end point should be, not to mention widespread disagreement as to its causal roots. There is no 'right' answer to a wicked problem, in the sense of being able to determine a viable solution based on objective measurement and testable hypotheses; there are only competing ideas and arguments about possible courses of action that may lead to better or worse outcomes. Moreover, once an action has been taken, the parameters of the problems shift; you can't step into the same 'river' twice.

Unlike 'tame' problems, any specific intervention that one might undertake in response to a wicked problem space is unlikely to be repeatable elsewhere. The immediate, local context is highly relevant, and taking any course of action without specific knowledge of that context is very likely to lead to failure. Just ask the American forces which invaded Iraq. Following in the West Point tradition, the US army was able to undertake a massive logistical exercise to achieve its rapid advance on Baghdad, demonstrating its highly sophisticated technological prowess in the process. Winning the war was a relatively 'tame' problem based on an intricate but linear series of co-ordinated actions. However, winning the peace has been a totally different story, with no clear plan of attack, parameters that shift with each new intervention, and a litany of mistakes arising from a lack of contextual sensitivity. Nor can one just assume that the interventions used in Iraq will be repeatable in Afghanistan. Some of the principles or insights gained in Iraq may be transferable, but the process of implementing them will have to be designed all over again, with due consideration of the distinctive elements of the local environment, and significant effort put into creating authentic local expressions of the general principles.



The guiding imperatives of 'tame' problems – efficiency and control – are largely irrelevant and meaningless in the context of wicked problems. Rather than being reducible to hard data and discernible cause-and-effect relationships, wicked problems are steeped in fluid perceptions and subjective interpretations, in the subtle complexities of human and cultural interrelationships. Responding to a wicked problem is likely to be a highly inefficient process (at least as measured by the traditional approaches), requiring a lot of patience, communication and careful engagement with a diverse range of stakeholders. Any sense of control is likely to be an illusion; not only is the situation likely to be too complex to readily recognize all the variables and interrelationships, but mostly you have to work indirectly, influencing others to follow your lead and work together towards a common goal. In these circumstances, emotional intelligence, as expressed in qualities such as empathy, integrity and authenticity, is far more important than rational intellect, while local knowledge and the capacity to adapt one's approaches to accommodate diverse cultural situations and end-users are also essential attributes for success.

If tame problems tend to be those that arise in relation to our interaction with physical and technological environments, then wicked problems are much more commonly found in the human realm of communities and societies. Addressing problems of poverty, disadvantage and prejudice

generally demonstrate a high level of wickedness, but so do other problems that may have their roots in the way we interact with the physical environment or technology, but which also have a strong social or political dimension. Creating a sustainable transport system can have significant levels of wickedness, because of the multiple layers of social interaction and impact that need to be considered, the competing values and the diversity of community interests that are involved. Figuring out how to produce an efficient, cost-effective electric car, set up a brand new network of recharging stations or finance a major infrastructure project may involve major technical headaches, but they are all tame problems compared to the issue of persuading commuters to readjust their lives and lifestyles to accommodate public transport, or balancing up the competing needs of different constituencies across a major urban area.

The need for a paradigm shift in our knowledge system

This extended comparison of the differences between tame problems and wicked problems is important, because it highlights the scale of the disjunction that must be understood and traversed, the transformational shift in paradigms and assumptions that is required in order to be able to operate effectively in a wicked problem space. It is precisely this shift, in my view, that is at the heart of Mike Powell's proposition that development work is a knowledge industry, not a service industry. The primary problems that development workers routinely encounter are wicked ones; there may be elements of their work that require solutions to more linear problems, such as shipping materials to remote and inaccessible corners of the world, but the challenges that are going to be most significant in terms of the long term impact of their work are likely to be wicked ones.

This brings us to perhaps the key thesis of my paper, a fundamental knowledge problem that confronts us broadly in the Western/Northern areas of the world, and which is also critical for those engaged in development work. Two hundred years ago there was a strong alignment between our dominant modes of production and economic activity on the one hand, and the dominant knowledge paradigm and thinking toolkit on the other. The move from a product-based economy to a service-based economy did not create a sea-change in this regard, because the same knowledge paradigm could still be applied to managing many service industries (albeit at the cost, perhaps, of overlooking much of the

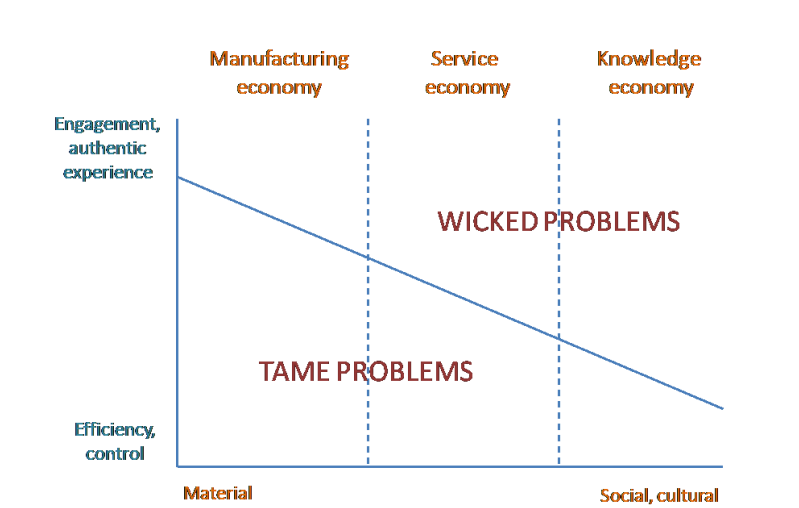


Fig 1: The Change in Problem Spaces in Moving from a Manufacturing Economy to a Knowledge Economy

underlying wickedness of the problem spaces in areas such as health, transport, welfare and education).

Now however, as we move forward into the 21st century, when we have solved many of the tame problems that drove our strong focus on scientific and technological advancement, met the most pressing material needs of our societies, and created a decent standard of living for many, we are left with the more intractable, the more wicked problems to try and resolve. To be sure, there will always be new scientific and technological frontiers to conquer, and there will always be a base level of manufacturing and service provision that will need to be maintained, hopefully with an increasing level of efficiency and sustainability. But more and more of our economies are moving into areas where the creation, dissemination and effective application of contextual knowledge into different forms and local expressions will be the order of the day, where the success of our attempts to solve problems will rest more on our capacity to negotiate fluid problem spaces and complex social and political interrelationships with empathy and flexibility, than it will on our ability to measure the hard objective data of performance and engineer for efficiency.

In short, we have now reached a point where the knowledge paradigm and thinking toolkit which we have relied on for our material advancement over the last 200 years are no longer aligned with the types of problems we are facing; where there is a significant disjunction between the challenges we are grappling with and the types and formats of information we are producing (or being asked to produce by external stakeholders); where the management practices and organizational structures that we are using are no longer effective for the complex and rapidly-changing environments in which we operate. To be successful, organizations can no longer rely simply on delivering good quality products and services efficiently, and almost independently of the wider social or cultural context. Rather, they will need to be able to engage with much more complex systemic issues.

Unfortunately, though, contemporary management theory based on analytical approaches seems unable to provide answers to these new types of problems with their inherent levels of wickedness. The world has moved on, but management theory has remained static, with little in the way of innovative ideas, certainly nothing on a scale that it is significant enough to match the revolutionary changes in the economy that have been occurred in the last 20 years.[9] Equally, decades of concerted effort to apply the existing management methodologies and knowledge paradigms to the many difficult problems that we confront in society seems to have come to naught, for all the billions of dollars of investment and the whole forests of plans, operational reports and policy reviews that have been dedicated to the challenge. The regular chorus of calls for greater accountability in public spending, and extra layers of bureaucracy that emerge in response, are well-meaning but ultimately futile attempts to bring about change and produce better outcomes; in the end they only perpetuate the issues and slow down the system even more, because there is no change in the underlying knowledge paradigm.

Ironically, it is at just this point in our cultural history when development organizations are moving to adopt the long-established analytical management style and information practices of the wider corporate world, in an effort to demonstrate greater accountability and control. While this new yoke may chafe somewhat, it is seen as a necessary evil by organizations that may be aware that they need new and better ways of managing their knowledge, or feel a need to match the supposed professionalism and rigour of the private sector. Whether this path is self-selected, or enforced upon them by governments, donors or regulators, they are nonetheless implementing these management practices, often at great cost in terms of time and effectiveness for those in the field who must compile the data and complete the reports. Sadly, though, they are making these decisions without understanding the limitations of this management approach, without being able to assess whether the underlying knowledge system is well-aligned to the sort of problems they are facing, and without any awareness that there might be other knowledge systems available.

An ancient alternative to the analytical knowledge system

To find an alternative pathway to the dominant analytical knowledge system, we need to look much further back into our cultural history, to another period rich in insight into the nature of the world and the possible ways to engage with it, and in particular to the thought of the great philosopher, Aristotle. Aristotle has rightly earned a place in the pantheon as one of the fathers of the modern analytical mindset that underpins both science and management thinking, but he had a far more sophisticated understanding of its usefulness and limitations than most of its practitioners today. In particular, he understood enough about the nature of different problem spaces to recognize that one knowledge system alone would be inadequate to equip us to address the range of issues confronting us.

Aristotle understood that the value of any knowledge system is contingent upon its suitability for the type of problem being addressed. Like Rittel so much later, he distinguished between two types of problem space.[10] The first, which he defined as situations where 'things cannot be other than they are', equates to Rittel's concept of 'tame' problems. The typical problems that are addressed in this context are those of the physical world, where there are fixed and objectively observable parameters that can be measured, cause-and-effect analysed, and conclusions drawn that can be applied generally. It also applies to the realm of recent history, to the forensic investigation of past performance, with a view to creating greater future efficiency or quality. It is clearly the realm for which modern management thinking and knowledge practices have been designed.

The second problem space that Aristotle identified involved those situations where 'things can be other than they are', where there are no fixed parameters to measure, no clear cause-and-effect relationships, no universally applicable conclusions that can be rationally deducted. It is the realm of future possibility, of multiple perspectives and options, of unpredictable outcomes – in short, of the types of problems that Rittel designated 'wicked'. At their most extreme, the type of problems we might encounter in this realm are the seemingly intractable problems that afflict many societies across the globe; but equally, you can encounter this category of problems in any situation where there is a community of people, an organization, or a set of relationships between stakeholders. In terms of

management, very familiar topic spaces such as strategy, innovation, organizational culture, employee engagement, customer experience and stakeholder relationships all fit within this category.

The art of rhetoric

Aristotle clearly understood that analytics was not the right thinking toolkit for wicked problem spaces, much as he valued analytical approaches to problems in the natural world. Fortunately, there was a second thinking toolkit readily at hand, the now almost forgotten art of rhetoric. Rhetoric was the main subject of the education system in Classical times and right through to the Renaissance, before falling victim to the sweeping successes of the analytical paradigm at the time of the Scientific Revolution and the subsequent transition into the modern industrial world.[11]

At its root, rhetoric is the art of making a persuasive argument, and as such, is the core skill of great leaders and reformers. As a master practitioner like Barack Obama demonstrates, great rhetoricians combine a rigorous intellectual argument with a deep empathy for the audience and a capacity to speak in language that captures their hearts and minds. They have a clear view of the big picture and of key universal themes, but they can also locate a broad issue in a very specific local context, and express it in a way that has strong existential authenticity and emotional resonance.

But for all its roots in oratory, rhetoric should not be limited in its scope to persuasive speech-making, or worse, derided as a shallow and potentially manipulative approach to swaying an audience (as enshrined in the modern phrase "empty rhetoric"). This is far too narrow a view of its potential, for rhetoric is also the art of making a persuasive argument *together*.

At its heart, rhetoric is a social process that enables groups to think well together. It is an art rooted in story, in human experience, in real people creating useful knowledge and collaborating to solve communal problems together. For all that, rhetoric is a leadership art, it is also very democratic, because every person has a perspective and a story, and the most promising pathways emerge out of a rich immersion in the local context and experience, not on generalized knowledge imported from elsewhere. No attempt is made to break the complexity and ambiguity of the world down into lots of discrete parts and linear connections; instead the focus is on synthesis, on creating an integrated picture of the whole. This makes rhetoric also a very inclusive art, because all the voices need to be included to create a picture of the whole, and have an equal value in contributing knowledge of the lived experience.

The fundamental orientation of rhetoric is forward-looking, and involves imagining future possibilities that are very different to the current reality, in contrast to analytics, which relies on measuring past performance to achieve improvements to existing systems and structures. Rhetoric is thus the natural toolkit for strategy and innovation, for transformative shifts in paradigms and practices, whereas analytics deals most effectively with achieving ongoing operational efficiency. Rhetoric is also the natural toolkit for addressing wicked problems, where the essence of success cannot be reduced to mathematical formulas or technological solutions, but to engaging a diverse group of stakeholders and enabling them to work together effectively to construct their own authentic arguments as to the future they want to create. In short, rhetoric provides a powerful alternative thinking toolkit which is far more aligned with the challenges and objectives of operating in a twenty-first century knowledge industry than the analytical, engineering-based knowledge system that was so well suited to the industrial economy of the nineteenth century.

Moreover, rhetoric directly addresses and offers new ways forward for addressing many of the knowledge issues for development work raised by Mike Powell in *Which Knowledge? Whose Reality?*. It is entirely comfortable working across multiple knowledges, different conceptual languages and divergent worldviews. Its intent is on building bridges between these different perspectives, rather than imposing one knowledge system or type of expertise as the most reliable source of objective truth. It seeks to establish a shared language and meaningful communication between different knowledge systems and cultural groups, and to shift people's perspectives, prejudices and unhelpful mental constructs on the problem at hand. Above all, it proceeds not from a stance of objective proof (since it is not possible to measure the validity of an as yet hypothetical future) as much as from one of subjective empathy, from an emerging confidence and existential conviction that the direction being taken will create a better environment for all concerned.

Equally, rhetoric addresses the concerns often expressed within the development sector in relation to unequal power relationships. Rhetoric subverts the normal power relationships, placing the power in the hands of the end-user, the person on the ground who will be most affected by whatever new direction is chosen, rather than the person with positional authority or with educational or economic advantage. If rhetoric is biased in any direction, it is towards the lived experience of the end-user, as opposed to any particular sort of technical expertise. Technical expertise is placed at the service of improving the lived experience of the end-user, rather than the end-user having to try to adapt themselves to the information demands and forms of knowing imposed by external technical expertise.

If the processes for creating knowledge and engaging with problems are very much centred on humans and in social processes, then the outcomes arising from a rhetorical thinking process are very much embodied in actual practice, in useful outcomes, rather than in bureaucratic processes divorced from the actual reality. In the development context, it is tempting to point to those in the field as being the main victims of the bureaucratic processes that are so often put in place to gather knowledge, but in an ironic way, the final recipients of that information, such as organizational Board

members located in a developed nation, are also often victims of the same bureaucracy, because they end up being overwhelmed by detailed operational data that is of little strategic value.[12] In short, whatever knowledge creation and communication processes are put in place, they need to be designed to deliver useful knowledge in a practical and accessible way for all stakeholders in the process.

Applying the rhetorical toolkit

How does a rhetorical approach work in practice? The consulting firm I work for, Second Road, has built up a substantial body of experience in applying a rhetorical approach to wicked problem spaces. The key elements of this toolkit are conversation, visualization, synthesis, heuristics, stakeholder research and prototyping.

1) Conversation

By conversation we don't just mean a talkfest or a chat; rather, we see conversation as a well-structured, but highly flexible, thinking process that enables groups of people to cohere around a problem and create a shared vision of a way forward. To be effective, a conversation needs to engage three different 'voices' – the 'Voice of Intent'™, someone who 'owns' the problem and is authorized to act upon the outcomes of the conversation; the 'Voice of Design'™, people with creative ideas about how to find a way through the problem, and crucially, the 'Voice of Experience'™, people who understand the practical realities of the problem space and can provide deep, qualitative insights into the issues and opportunities. Importantly, a true conversation can only occur where there is genuine openness to create something new; if all the decisions have already been made (usually by senior management), then we are not dealing with conversation, but simply notification, no matter how 'conversational' the approach is to imparting those decisions.[13]

Fig 2: Group participation during a Strategic Conversation

We use conversation as a thinking process most commonly in leading high-level strategy discussions, but it can be used at any level of an organization. One project which is currently underway involves taking conversational skills and processes right down to the frontline workers in a South African based, globally operating, gold mining company, as a new approach to building a culture of safety. The old approach relied on traditional analytical methods and process controls, accompanied by vast amounts of documentation, but the management team we are working with, though engineers themselves, have recognized both that the issues associated with safety are as much socio-cultural as technical, and that the traditional approach has not been effective in really engaging the hearts and minds of their workers. They are embracing conversation as a way to enable workers to become more

proactive 'authors' of their own safety in the very challenging and unique contexts in which they work, rather than just implementers of generalised safety principles and procedures devised a long way from the goldface.

2) Visualization

One of the major challenges in contexts where the subject matter is very abstract or technical is to ensure that people have a shared understanding of the systems, programs or problem spaces they are grappling with. So much of the information we typically generate is either word- or number-heavy, when in reality a significant portion of the population are visual learners, and even those who do process verbally or numerically often gain real benefits when they have access to a compelling visual representation of the situation. At Second Road, we employ graphic designers to develop elegant visual representations of abstract problem spaces, to represent complex numerical information in forms that readily engage the audience and highlight the key messages, or to create interesting far more interesting ways of experiencing information (for example, posters, walk-through galleries) than the traditional lengthy report or Powerpoint pack. The underlying rhetorical principle here is that information should be designed to meet the cognitive needs of the audience, and help them form intelligent arguments, rather than just satisfying an expert's requirements for objective data or technical accuracy.

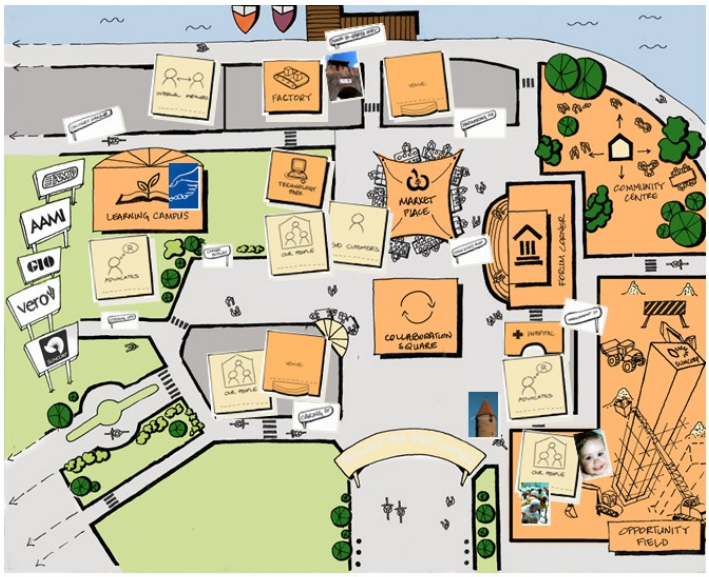


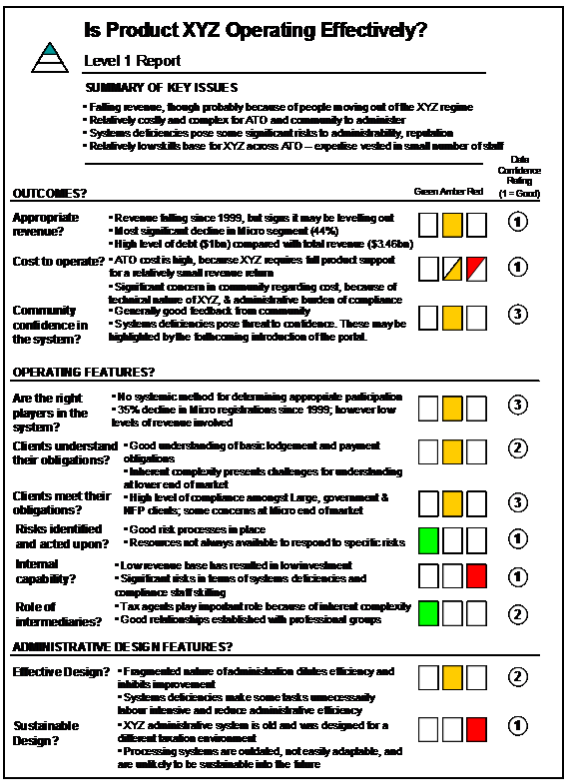
Fig 3: Visualisation of an new organisational 'community' resulting from a merger

Equally, though, visualization can be used not just to communicate known information more effectively, but it can also be used as part of a generative process of creative thinking, without any requirements for expert skills in graphics. Second Road has recently helped facilitate a Strategic Conversation in a developing country amongst a population who have endured years of heavy-handed rule from a distant government and within a nation that has a very different ethnic base. The goal of the Strategic Conversation was to create a more sustainable future for the local population, by helping them look beyond their difficult political and economic circumstances, and cultivating a new spirit of enterprise and opportunity. While exploring the question of what sort of future these people wanted to create for themselves, we encouraged each group to create a picture that encapsulated the desires of their hearts and their vision for what could be achieved. The result was a rich tapestry of ideas woven into a picture that told a compelling story of the hopes and dreams of these underprivileged people, in a mode which was not only entirely authentic to their own history and identity, but which they also felt a strong sense of ownership over.

3) Synthesis

One of the great problems of the information age – and the analytical toolkit – is that it generates a great deal of detailed, often highly technical information. The natural tendency of the analytical mindset is to break big systems down into their component parts, or processes down to their individual steps, and to measure specific details of performance. This makes sense when you are trying to evaluate and improve a mechanical process, trace an individual fault or monitor line items in a budget. But it is the wrong sort of information entirely for senior managers and Boards, for instance, who have to be able to take in the 'big picture' of an organization, not get caught in the minutiae, who have to understand the strategic issues and the qualitative outcomes, not just the data points.

One of the most important capabilities required for effectively managing information in the Knowledge Economy is the art of synthesis, of being able to draw together many different strands of information and diverse dimensions of an organizational system into some sort of coherent and accessible whole. At one level, this can be an exercise in intelligent structure, in enabling disparate information to be brought together in a way that enables the reader to 'see' the whole; but it is also an activity of knowledge creation, of recognizing patterns and making connections, of sensing trends and of creating a shared language and perspective from many different voices.



Is Product XYZ Operating Effectively?

Level 1 Report

SUMMARY OF KEY ISSUES

- Falling revenue, though probably because of people moving out of the XYZ regime
- Relatively costly and complex for ATO and community to administer
- Systems deficiencies pose some significant risks to administrability, reputation
- Relatively low skills base for XYZ across ATO – expertise vested in small number of staff

		Green Amber Red	Data Confidence Rating (1 = Good)
OUTCOMES?			
Appropriate revenue?	• Revenue falling since 1999, but signs it may be levelling out • Most significant decline in Micro segment (44%) • High level of debt ($1bn) compared with total revenue ($3.46bn)		1
Cost to operate?	• ATO cost is high, because XYZ requires full product support for a relatively small revenue return • Significant concern in community regarding cost, because of technical nature of XYZ, & administrative burden of compliance		1
Community confidence in the system?	• Generally good feedback from community • Systems deficiencies pose threat to confidence. These may be highlighted by the forthcoming introduction of the portal.		3
OPERATING FEATURES?			
Are the right players in the system?	• No systemic method for determining appropriate participation • 35% decline in Micro registrations since 1999; however low levels of revenue involved		3
Clients understand their obligations?	• Good understanding of basic lodgement and payment obligations • Inherent complexity presents challenges for understanding at lower end of market		2
Clients meet their obligations?	• High level of compliance amongst Large, government & NFP clients; some concerns at Micro end of market		3
Risks identified and acted upon?	• Good risk processes in place • Resources not always available to respond to specific risks		1
Internal capability?	• Low revenue base has resulted in low investment • Significant risks in terms of systems deficiencies and compliance staff skilling		1
Role of intermediaries?	• Tax agents play important role because of inherent complexity • Good relationships established with professional groups		2
ADMINISTRATIVE DESIGN FEATURES?			
Effective Design?	• Fragmented nature of administration dilutes efficiency and inhibits improvement • Systems deficiencies make some tasks unnecessarily labour intensive and reduce administrative efficiency		2
Sustainable Design?	• XYZ administrative system is old and was designed for a different taxation environment • Processing systems are outdated, not easily adaptable, and are unlikely to be sustainable into the future		1

Fig 4: Example of a user-friendly report format

These two key attributes are both vital elements in the approach we have taken to Strategic Reporting within organizations. All too often, internal reporting to senior management teams and Boards is a confusing mess of numbers, tables, and descriptions of mundane activities, 'transactional' information that seems mostly to be intended as a justification of how busy the organization has been. This mess is compounded in large organizations; not only are there as many reporting formats as there are business units, but the amount of material generated becomes entirely overwhelming.

In response to these issues, we have created concise, highly accessible reports that enable information to be successfully rolled up from operational areas into an overall view that focuses more on the strategic issues rather than the operational details. Not only do the readers of these reports not have to wade through masses of extraneous detail or negotiate multiple formats, but they can quickly identify the priority areas for discussion, and if desired, drill down further into them without getting lost in the detail. Drawing on our rhetorical mindset, we aim to design reports which are highly responsive to the needs of the end-users (both in terms of content and format), that help the end-user

have a sense of the whole, that highlight the key strategic questions that the organization should be focusing on (not the day-to-day activities), and that actually enable and empower meaningful discussion to take place.[14]

4) Heuristics

One of the challenges of working in wicked problem spaces is that the desire of the rational analytical mind for objective evidence and clear cause-and-effect relationships simply cannot be met. Decisions have to be made over contexts where it is very difficult to collect precise data, where what data there is appears confusing or contradictory, or where there are no possibilities for measuring the likely impact of the course of action. One of the ironies of the widespread emphasis amongst many key stakeholders such as government agencies, and in many sectors such as health, on 'evidence-based decision-making', is that when you are working on a wicked problem, or developing an innovative new approach, there is simply no way of producing quantifiable evidence in advance of the decision.

In these circumstances, one has to fall back on another key element of the rhetorical toolkit, heuristics. Heuristics are patterns, stories or rules of thumb that help you to organize information in your mind, locate yourself within a problem space, recognize a significant juxtaposition of information and feel your way through a fluid environment. A heuristic is a thinking device, broadly applicable to a wide variety of circumstances, but also open to a significant degree of individual interpretation and context-specific application. They are generally content neutral, providing instead a simple mental framework within which content can be positioned. In short, heuristics are vital tools for agile and flexible thinking, for finding a way where there are no obvious signposts, for removing significant areas of confusion from a complex problem space or social interaction.

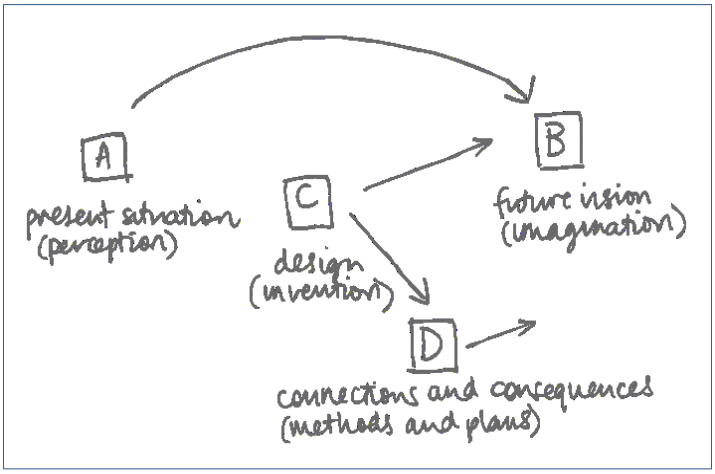


Fig 5: The AcbB Heuristic

The Ancient Greek rhetoricians used just these sorts of mental short-cuts or organising devices to help them develop rich arguments and explore multiple perspectives. The word they used for this was "topoi", or places – which refers both to the different positions or stances that one could adopt on any given 'topic' (note the etymology), as well as suggesting devices that enable you to create a mental 'topography" of a subject matter. Appropriately, then, some of their most widely used heuristics are based on what we would think of today as prepositions of time and place (from/to, inside/outside, before/after, [zoom] in/out). I would surmise that many non-Western cultures, particularly those with strong oral traditions, probably already have a similar store of heuristics to draw on in interpreting their experiences and social relationships.

Heuristics are an integral part of our thinking processes at Second Road, both individually and in group situations. One of our core heuristics, AcbB™, encapsulates the strategic thinking journey in a simple four letter acronym, representing four "places" of thought, which rapidly becomes part of the shared vocabulary of the group. For example, we might talk in terms of "moving from an A-space discussion into the B-space" as a way of describing the transition from reviewing the challenges of our current situation (the A-space) to imagining the future possibilities (the B-space); or politely hold people back from jumping to solutions to quickly by saying "that's a C-space idea; for the moment, we are wanting to focus on the 'B'."[15]

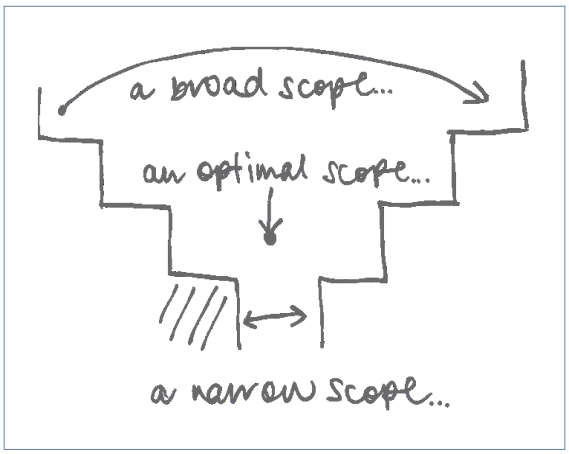


Fig 6: The Funnel of Scope ™

Another frequently-used heuristic, which we call the 'Funnel of Scope'™, helps groups to determine the appropriate level and scope of the problem they are tackling. Using a simple stepped funnel shape, we can help groups think about which 'sandpit' they are playing in, and to define an appropriate level or scope for the conversation relative to other relevant problem spaces that may be either too broad or too narrow in scope.

5) Stakeholder research

Whereas objective data and quantifiable measures are valuable tools in a mechanical system, they are often unhelpful or even downright misleading in a system primarily centred on human experiences and socio-cultural relationships. Whether we are working to develop a new organizational strategy, or helping to design a better process or mode of engagement at operational level, we always endeavour to go out and talk to key stakeholders, and above all, to end-users, to the people who are most directly affected on the ground. Our goal is not to gather data on their preferences (as market researchers might do), but to engage them in a qualitative exploration of their experiences, to listen to struggles and challenges, and to connect with the emotions and values that shape their sense of meaning and identity. We then take this research back into the relevant organization, immerse decision-makers in the real worlds of their clients, customers or broader community, to promote both empathy for the difficulties they face, and impetus to bring about positive change. Our approach is fundamentally 'outside-in', rather than 'inside-out', a vital shift in stance that not only moves the conversation beyond the existing modes of thinking and the powerful assumptions embedded within

Fig 7: Immersion workshop showcasing stakeholder research

the existing organizational culture, but also dramatically changes the balance of power, turning organizational decision-makers into learners rather than experts, and elevating the experience of the end-user both to a position of authority and to being a crucial catalyst for change.[16]

6) Prototyping

The scientific method prescribes a rigorous process of experimentation and measurement in a laboratory situation to test hypotheses before they are put into action in a real-world environment; but self-evidently, this is not possible in human socio-cultural problem spaces. The rhetorical equivalent of laboratory testing is rapid prototyping; a process which is fundamental to the art of design, but little known in the world of management.

Prototyping involves testing a hypothesis or idea in a real-world environment, but without significant upfront investment, by using simple techniques such as creating a rough paper representation of the finished product, building a low-tech model, walking people through a mock-up of a new process or experience, or by trialling a social interaction as a learning exercise before moving to implementation. It is an iterative process based to some degree on trial and error, on making educated guesses and then inviting the end-user to correct or improve your ideas, on building up a rich knowledge base on what will likely work and what will not. Prototyping does not always give you a statistically verifiable case to prove that the direction you are taking is the right one, but it certainly removes a lot of the risk of failure and increases the potential of creating an outcome that is not just effective, but also desirable for those who are intended to benefit from the new approach. It is a way of accelerating learning and selecting from different options early in the development process, before too much time and effort has been invested in a particular approach or solution.

Conclusion

Throughout this paper, I have argued that there are some distinct limitations to the primary knowledge 'system' that dominates modern management theory and which shapes many of the assumptions that we have in the Western/Northern world about the nature of information and how it should be used. Given their ready access to a diverse range of voices, cultures and knowledge paradigms from outside the Western/Northern world, development agencies should be well-equipped to critique the hegemony of the analytical mindset and its relentless quest for efficiency and control. However, they are often caught in a dialectical tension between the experiential understanding and know-how they develop in the field, and the demands of funding bodies in the Western/Northern world for information that demonstrates objective evidence of success – between the inherent wickedness of the problems they face, and the desire of remotely-based funding agencies for modes of information that presuppose 'tameness'. This is unlikely to change without the capacity to highlight the limitations of the analytical mindset from within the intellectual traditions of Western/Northern culture, rather than just from without.

Ironically, development agencies are feeling pressure to adopt the knowledge mindsets and information practices of Western/Northern management theory at a time when the failure of these

mindsets and practices to deliver on their promises of efficiency and control in the context of wicked problem spaces is becoming more and more evident. The shift in the economic means of production from manufacturing to service industries to knowledge industries has dramatically changed the nature of the problems we are dealing with, but the fundamental toolkit we are using to try to deal with those problems has not really changed in nearly 200 years.

The way forward for development agencies may well be to accept Mike Powell's proposition that development work is fundamentally a knowledge industry, to recognize how different a knowledge landscape this involves, and then to rediscover the ancient toolkit of rhetoric which I have argued is far better placed to lead the way in generating and communicating useful knowledge in a fluid, non-linear, culturally-diverse world. In my view, a rhetorical approach would not only lead to more effective information outcomes, but there is a far greater degree of natural compatibility between these modes of thinking and the socio-cultural assumptions and practices of the developing world. Adopting this alternative 'knowledge system' to play a leading role in shaping information practices in the development sector would create a genuine prospect of alleviating much of the dialectical tension that currently exists between work in the field and management practices in head office, and provide the opportunity for a more sustainable, more meaningful, more culturally-appropriate approach to achieving the objectives of development work.

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Endnotes

[1] Mike Powell, "Which knowledge? Whose reality?" An overview of knowledge used in the development sector", *Development in Practice*, 16:6 (2006), pp. 518-532.

[2] H.A. Simon, "Designing organizations for an information rich world", in Martin Greenberger, ed., *Computers, Communications and the Public Interest*, (Johns Hopkins Press, 1971), pp. 40-1.

[3] Keith Hoskin, Richard Macve, & John Stone. "Accounting and strategy: towards understanding the historical genesis of modern business and military strategy". In A. Bhimani (Ed.), Contemporary Issues in Management Accounting. London: OUP, 2006. pp. 168-179.

[4] Ibid, pp. 170-1.

[5] Bill Saporito, "Toyota's Blown Engine", *Time*, Feb 22, 2010, pp. 12-16.

[6] Horst Rittel. Dilemmas in a General Theory of Planning. *Policy Sciences*. Vol 4, 1973, pp. 155-169.

[7] In another well-known schema, such problems would be labelled 'complicated'. See D.J. Snowden & M. Boone, "A Leader's Framework for Decision Making". *Harvard Business Review*, November 2007, pp. 69–76; Frances Westley, Brenda Zimmermann and Michael Quinn Patton, *Getting to Maybe. How the World is Changed*, (Toronto: Vintage Canada, 2007), pp. 7-10.

[8] See Roger Martin, "The Design of Business", *Rotman Management*, Winter 2004, pp. 7-10.

[9] For an extended review of the limitations of current management theory centred on control and efficiency, and a call for a move towards adaptability and creativity, see Gary Hamel, *The Future of Management*, Boston: Harvard Business Review Press, 2007.

[10] Aristotle developed this argument in his *Rhetoric*, Book I. See Tony Golsby-Smith, Pursuing the Art of Strategic Conversation: an investigation into the role of the liberal arts of rhetoric and poetry in the business world, Unpublished doctoral dissertation, University of Western Sydney, 2001, p. 199.

[11] For an account of how rhetoric was understood amongst Ancient Greek philosophers, and how it was gradually superseded by logic as the main thinking toolkit within Western culture , see ibid, pp. 215-255.

[12] On the information challenges confronting senior managers and boards, see Julian Jenkins, "From Data and Measures to Meaningful Decisions: Designing Useful Information for Senior Managers and Boards", *Information Design Journal*, 17:3 (2009), pp. 188-201.

[13] I am indebted to David Kaufer from Carnegie Mellon University, Pittsburgh, for this distinction.

[14] For a case study on introducing this style of reporting into a large organisation, see Julian Jenkins "Information Design for Strategic Thinking: Health of the System Reports", *Design Issues*, 24:1, Winter 2008, pp. 68-77.

[15] The AcDB™ model was developed by Tony Golsby-Smith, as described in Pursuing the Art of Strategic Conversation, pp. 130-2.

[16] Stakeholder research and prototyping are both key steps that are typically undertaken as part of a design process. For a readily available resource that provides useful guidance on how to implement these sorts of approaches in a social development context, see IDEO's Human-Centred Design guide (http://www.ideo.com/work/item/human-centered-design-toolkit).