

Conference Paper

The Auditing of Agile Capability Revisiting CENTRIM's Agile Wheel Model

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Abstract

In the 1980s a profound shift occurred in U.S. military operations as Units began to be tested on their capacity to respond with speed, efficiency and effectiveness to a wide variety of threats, some of which had not been predicted. A hindering factor was a generic inability by American industry to support unpredicted military engagements and the U.S. Department of Defense funded studies that led to the development of a new business excellence model, the Agile Paradigm. The Agile Wheel, a method, developed in the late 1990s for helping companies to adopt the Agile Paradigm is explained and the findings of research undertaken by the Agile Manufacturing Research Group are presented. Recent research on the same topic is presented and a revised version of the Agile Wheel is presented.

Paper

One of the first research groups in Europe that was formed to investigate organisational agility was Agile Manufacturing Research Group (AMRG) at the Centre for Research in Innovation Management (CENTRIM) (University of Brighton). From 1997-1999¹, the AMRG team, under the direction of Professor John Bessant, used action research methods (Coghlan 2011) to study how case-study companies progressed on their individual journeys to adopt and use the Agile Paradigm (Bessant et al. 2002). The term 'agility' was defined by the AMRG team as an "organization's capacity to gain competitive advantage by intelligently, rapidly and proactively seizing opportunities and reacting to threats" (Bessant et al. 2001, p.487).²The term 'Agile Paradigm' will be defined later in this paper.

In addition to deepening understanding of the managerial challenges faced by managers as they sought to adopt the Agile Paradigm, the AMAG's investigation contributed to innovation studies, as it provided insight into the requirements for absorptive capacity related to innovation in paradigm (Francis & Bessant 2005). The broader academic implications of the AMAG's research study will be presented in a later paper.

Twelve companies became active members of the AMRG study. Each was selected because their top management team considered that the Agile Paradigm would be relevant to their own organisation's further development. All case study companies agreed to have a film made of their existing operations before members of the AMRG team worked, using engaged

¹ Funded by the UK's Engineering and Physical Sciences Research Council (EPSRC).

² A recent NATO study "Agility is the capability to successfully effect, cope with and/or exploit changes in circumstances" (55)

scholarship methods (Van de Ven 2007), as Change Agents (Beckhard 1997). The key task of the AMRG change agents was to facilitate absorption of the Agile Paradigm, which involved explaining concepts, selecting relevant areas, establishing change programmes and supporting change initiatives (Zahra & George 2002). After 18 months of interventions, a second film was made of the operations of the case study companies so a longitudinal comparative study could be undertaken (Meredith & Francis 2000).

As members of the AMRG team began to undertake their interventions in the case study companies the same question was asked many times: “what do we need to be good at doing if we are to be an agile enterprise?” In response, the AMRG team examined available literature, especially case studies (for example, the ‘Teradyne: Managing Strategic Change’ case (Bower 1997), and produced a draft Business Excellence Reference Model based on the principles of the Agile Paradigm that defined the required organisational capabilities. This model became known as the ‘Agile Wheel’.

The Agile Wheel model was refined, and elaborated, during action research programme and it became the most significant deliverable from the AMRG study. It specified 16 organisational attributes that were needed for an organisation to be capable of being agile. The model was presented at the World Innovation and Strategy Conference in Sydney in 1998 (Meredith & Francis 1998). Subsequently, the Agile Wheel, and a then newly developed methodology for assessing the degree to which an organisation possessed required capabilities, were used for agile-orientated organisation development in more than 50 companies (Meredith & Francis 2000). In addition, a book (Francis & Woodcock 1999) provided tools for developing agile capabilities, based on the components of the wheel model. At the time of writing this article, it is 20 years since the Agile Wheel model was developed and much has changed in industry and society. It is timely to reflect on the relevance of the model in today’s organisational landscape, to review it against scholars’ recent work and to explore how the construct of agility has evolved over the past two decades.

There is another reason why a retrospective review of the Agile Wheel model could be informative. It is that the adoption of the agile paradigm as an overarching philosophy for organisation development seems to have lost momentum. A search in Google Scholar of the terms ‘Agile’ or ‘Agility’ in the title of articles published in 2016 yielded 1,990 hits of which about a third relate to the agility of marathon runners and the like. We selected 100 articles at random from the 1408 that remained and categorised them. The largest number of hits (29) related to the use of agility for managing software development projects, followed by agility in supply chain management (14) and then studies of agile information systems (12). Only 9 of the 100 articles related to the management of agile organisations holistically and just 2 were specifically concerned with Agile Manufacturing. An additional search for the term ‘Agile Paradigm’ in the titles of articles for 2016 returned only two articles, both related to methods of software development. This raises the question: ‘what happened to the widespread enthusiasm for promoting organisational agility that was so influential in the 1990s?’

This Paper begins by outlining the construct of agility as it developed from the late 1980s and summarising the construct of the Agile Paradigm. Then the dimensions of the AMRG Agile Wheel model will be explained and recent evidence either supporting its definitions or challenging them will be presented. Lastly, the need for a new research emphasis on agility will be discussed.

THE AGILE PARADIGM

Thomas Kuhn's book *The Structure of Scientific Revolutions*, published in 1962 is credited with bringing the notion of 'paradigms' into widespread use. Kuhn wrote later (1974) that, "it is their possession of a common paradigm that constitutes a scientific community of a group of otherwise disparate men" (p. 460). For Kuhn, a paradigm was a coherent, shared body of knowledge, that became a largely unquestioned collective perceptual lens through which the world was interpreted. Kuhn used the term paradigm to describe a social fact that had the function of providing an elaborate set of integrated givens that became the intellectual infrastructure by which phenomena were named, categorised and ascribed meaning. There are links with the construct of groupthink, that Janis (1971) explained as: "a quick and easy way to refer to the mode of thinking that persons engage in when *concurrency-seeking* becomes so dominant in a cohesive in-group that it tends to override realistic appraisal of alternative courses of action" (p. 84, author's italics).

Students of military operations have long recognised the importance of agility (Hou et al. 1991). In the 1980s the US Army sought to develop agile capabilities, which required changing the paradigm of military training to one that "emphasized the attainment of standards rather than simply putting in time" (Jacobi 2004, p.16). In 1988 a US Department of Defense document published 'Train the Force' (Government Document Anon 1988) and this institutionalised the construct of the Mission Essential Task List (METL) that Jacobi explained would enable "commanders to achieve a successful unit training program by consciously narrowing the focus to a reduced number of vital tasks that are essential to mission accomplishment" (p.17). The METL construct provided a means of managing agility. Once a METL had been prepared then army units could be tested on their ability to perform specific mission-essential tasks. In effect, the level of organisational agility could be evaluated, which meant that it could be managed.

Military operations depend on civilian suppliers. In the late 1980s U.S. military analysts came to a considered view that Western companies, including big American suppliers could not meet the requirements of many of their conflict scenarios. Sihn (1998) characterised the dominant paradigm of manufacturing in the 1980s as: "there are definite, clear-cut tasks and that a need exists for authorities who issue instructions on a rigid structure scale. A company develops in a linear fashion, and the economic and arithmetic models are static" (p. 133). This paradigm of organisation excellence, frequently described as Fordism-Taylorism, (Bartezzaghi 1999), prioritised efficiency, size and scale but this resulted in companies that were slow to innovate, slow to act, slow to change and slow to grasp opportunities.

Military strategists realised that naval, army and air force operations were likely to be constrained or rendered impossible because a host of rigidities in the military-industrial complex (Hughes 2000). In response, in 1990, the USA's Department of Defense funded the Iacocca Institute of Lehigh University to develop a specification of an industrial paradigm that would enable enterprises to be fast to innovate, fast to act, fast to change and fast to grasp opportunities: thereby becoming competition-ready in a changing World and able to meet the needs of a wide variety of military scenarios (Kidd 1995).

The term 'Agile' was coined by the Lehigh team to capture the essence of a needed revolution. A two-volume work entitled '21st Century Manufacturing Enterprise Strategy Report: An Industry-Led View' (Nagel 1992) provided a clear presentation of the argument for a fundamental change, as is shown in the following quotation:

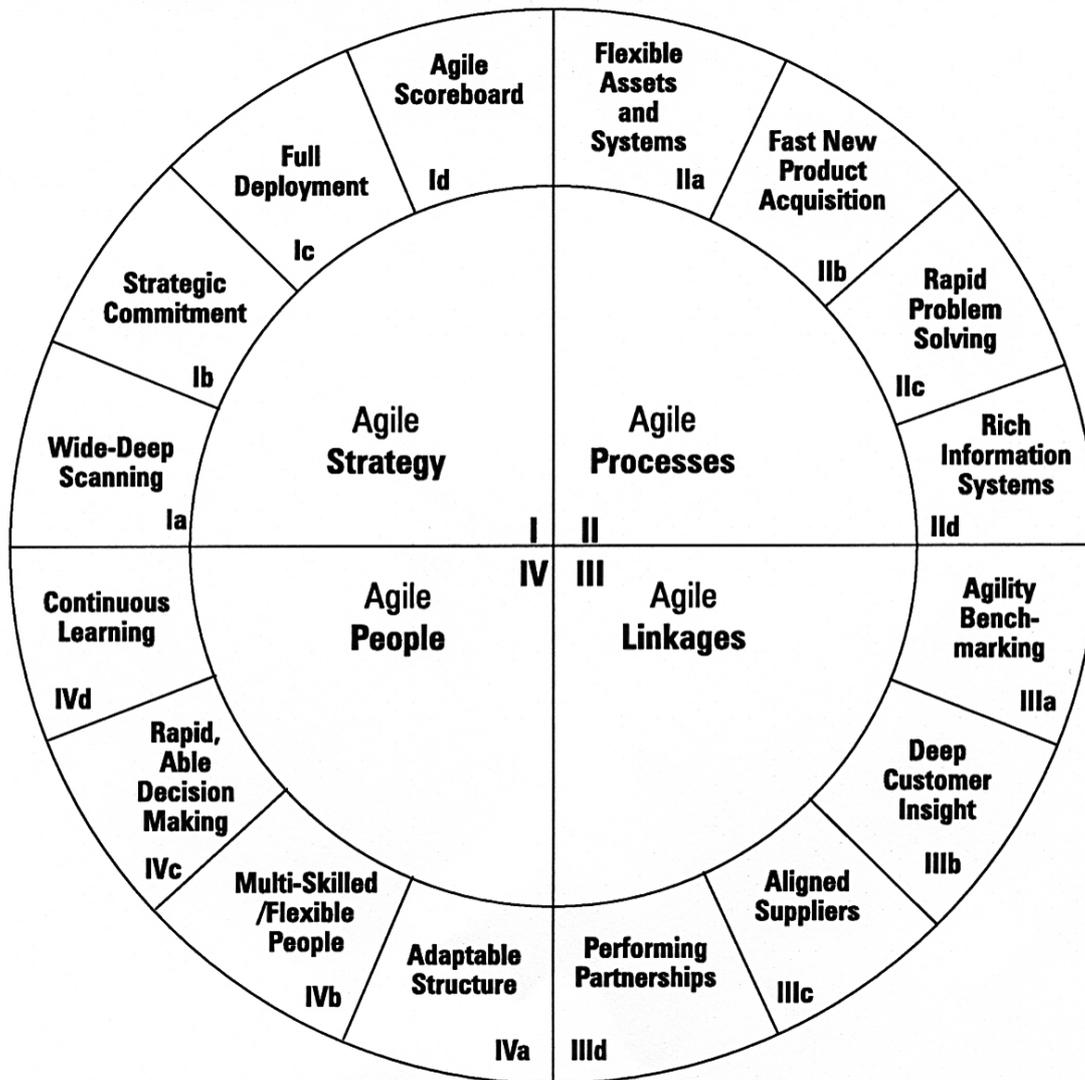
“The industrial era, dominated by mass production manufacturing, is drawing to a close. It is giving way to a new era, to be dominated by agile manufacturing enterprises. The emergence of agile manufacturing simultaneously presents U.S. industry with an opportunity to regain world manufacturing leadership and with a threat of dramatic competitive decline if the opportunity is not seized. With agile manufacturing, competitive advantage will be determined by new criteria of quality and customer satisfaction. Highly competitive firms will develop: (1) products that are custom-designed and configured at the time of order (2) products that can be reconfigured and upgraded to meet evolving requirements, extending product life and reducing the value of distinct product generations (3) long-term relationships with customers who are committed to the evolving products they use, and to the companies that maintain the currency of those products. Rapid product creation, development and modification in an agile manufacturing enterprise is made possible by: (1) the routine formation of inter-disciplinary project teams, able to develop product designs and manufacturing process specifications concurrently (2) extending the concept of design to the entire projected life cycle of a product, from initial specifications to its eventual disposal” (p.7).

The Lehigh team, supported by a high-level special interest group known as the ‘Agility Forum’, constructed the scaffolding of a profoundly different Business Excellence Model that became known as ‘the Agile Paradigm’. Quickly, interest grew internationally and funding became available for research studies, one of which was the AMRG.

THE DEVELOPMENT OF THE AGILE WHEEL MODEL

The AMRG team investigated organisation development challenges in implementing the Agile Paradigm; a task that involved investigating a large-scale strategy deployment initiative that required a complex change programme resulting in comprehensive paradigm innovation (Patten 2015). Almost of the managers of the 12 case study companies saw potential benefits in adopting the principles outlined in the 21st Century Manufacturing Enterprise Strategy Report but were unclear about what this would mean in practice. For example, the Managing Director of one case study companies asked: “I find the agile idea intriguing but what do we do? What comes first? What will be difficult? How can we get the right things done? What tools will we need? How will I, personally, need to change?”

Members of the AMRG team needed to have answers to these questions in order to perform their role as change agents. The METL approach, explained above, had demonstrated that levels of agility could be evaluated but a way of assessing generic underlying capabilities was required. A reference model, the Agile Wheel (shown below), was developed to identify key manageable components of organisational agility (i.e. topics that could be addressed as specific targets for managerial initiatives. For an explanation of the importance of carefully targeting organisation development initiatives see Woodcock & Francis (1990)).



The reference model was drawn in the shape of a wheel to demonstrate that its components are interdependent. There are four quadrants:

- QI concerns strategic issues; principally those related to corporate identity, shared values, core capabilities and success measures.
- QII concerns processes; their efficiency, effectiveness, responsiveness and capacity to add value to an agile enterprise.
- QIII concerns linkages; that connect the organisation to supportive ecosystems and provide opportunities to gain customer intimacy (for an explanation of customer intimacy in this context see Treacy & Wiersema (1993)).
- QIV concerns people or human capital; specifically, the willingness and ability of people to enable the organisation to thrive in a permanent process of becoming more fit-for-purpose.

A wheel will be weak if any spoke is absent, broken or fragile. The AMRG argued that it is the same with agility: if any of the components are under-developed then a firm's agile capability is weakened.

The 16 components of the Agile Wheel reference model are outlined in the table below.

Component		Brief Description	Illustrative Organisation Development Tools (current)
Ia	Wide-Deep Scanning	Comprehensive searching for signals to open opportunities or detect threats.	Competitor analysis; Technology Forecasting; Tracking Market Changes.
Ib	Strategic Commitment	Top management team adopts agile policies and consistently promotes agile working.	KPIs prioritise agile capability; Agility prominent in Vision, Mission and Values; Mass customisation.
Ic	Full Deployment	All employees know importance of agility and how they can help.	Hoshin Kanri; Continuous Improvement.
Id	Agile Scoreboard	Indicators showing degree of agility achieved are closely watched.	Customised balanced scorecard with agile criteria; customised performance management system; Audit Tools.
IIa	Flexible Assets and Systems	Flexibility in systems, buildings, services, layout, technologies, IT, control systems etc.	Radical reduction of change-over times, fast prototyping; purchase of multiple-use equipment; adoption of Lean methods.
IIb	Fast New Product Acquisition	Rapid development of new or improved products / services or fast acquisition from others.	Life cycle analysis; Product Variety Mapping; Lead User collaboration; SCRUM; Rapid prototyping.
IIc	Rapid Problem-Solving	Fast finding and effective solving of problems becomes a way of life.	Early detection of potential problems, use of systematic problem-solving processes.
IId	Rich Information Systems	State-of-the-art methods to collect information, extract meaning and take it to decision-making nodes.	Data capture; use of sensors; information management systems; systems integration software.
IIIa	Agility Benchmarking	Provides data to compare performance with rivals and best-in-class enterprises.	Multi-level benchmarking (strategic, performance, functional, product and process). Frequent upgrades.
IIIb	Deep Customer Insight	Deep understanding of customers, and potential customers.	Customer demand modelling; Anthropological insights; Big Data analysis; Co-development of solutions.
IIIc	Aligned Suppliers	Supplier innovation and responsiveness adds to agile capability.	Goals sharing, Long-term partnerships; Just in time deliveries; Short-lead times; High reliability of supply; Sustained high quality; Accurate exchange of information.
IIId	Performing Partnerships	Partnerships deliver new capabilities through networks or temporary organisations.	Strategic alliances; Cooperation agreements; Virtual organisations
IVa	Adaptable Structure	Organisational structure changes to fit current requirements and provide resources for development.	Project based organisation; Modular organisational form; Built-in flexibility; Effective integrating mechanisms.
IVb	Multi-skilled, Flexible People	Capable, involved, committed and empowered people skilled in adapting to new requirements.	Selection, Training, Team-Building.
IVc	Able Decision-Making	Decision-making close to action by informed able and people.	Organisation design supports distributed decision-making; Use of decision analysis tools; Checks and balances built-in.
IVd	Rapid and Continuous Learning	Capturing and exploiting knowledge for effectiveness and renewal.	High absorptive capacity, Communities of Practice; Knowledge management portals.

The components of the Agile Wheel provided, from the knowledge that was available at the time of writing, a comprehensive description of the key areas in which organisation development initiatives might be needed. As the case study companies used the model it became obvious that the organisational agenda for developing agility would be, except for advanced or small enterprises, extensive, multi-dimensional and extremely demanding, especially as some of the constructs required radically different mental maps (Huff & Jenkins

2002). Acquiring a high level of competence in just one of the sixteen components, could be a daunting task in itself. Taken together, for large organisations governed by a pre-agile paradigm, the AMRG concluded that becoming fully agile is the organisational equivalent of climbing Mount Kilimanjaro.

Each case study company was found to have a distinctive set of challenges. For example, smaller organisations had some advantages. They were mainly, in Mintzberg's (1979) terminology, simple structures that were organic and centralised, meaning that they had possessed an agile mind-set, at least to some extent. However, the required managerial tools, techniques and disciplines tended to be under-developed or absent, resources were constrained and there was an absence of specialist knowledge in many areas.

The AMRG undertook an extensive longitudinal analysis and the key findings of the investigation which were published by Bessant et al (2002). The major conclusions are summarised below:

1. Although the Agile Paradigm had been presented as a new organisation-wide Business Excellence Model, in the AMRG study it was more relevant to some streams of activities than others. All our companies had functions that benefited from striving to adopt agile principles and other functions that benefited from working to improve standardisation. An example makes the point. A swimming pool may have two large departments: one for maintaining the quality of the Pool and the other is marketing the Pool for parties, special events, club meetings, training sessions and the like. The Maintenance Department will be ruled by procedures, standards and reliability since safe operation requires strict adherence to pre-established protocols. The Marketing Department will have a much greater need for agility since opportunities for sales occur unexpectedly and many sales require creating one-off events. Further research is needed to understand the micro-level requirements for agility and their consequences. The imposition of agile mind-sets and/or work methods in standards-driven parts of the organisation can be dysfunctional, except in periods of change. We concluded that agility needs to be adopted differentially across an enterprise.
2. Adopting agility as a guiding organisational principle changes the risk-profile of an organisation. Some forms of risk are reduced as agile organisations move quickly to ameliorate threats. Other kinds of risk are increased as the organisation becomes involved in a greater number of novel activities that are not deeply understood. For example, some case study companies chose to move from owning resources to undertake specific tasks to outsourcing them, resulting in increased flexibility but less ability to control supplies and services. We concluded that agility increases the number and variety of risks and that the tools for auditing and managing new categories of risk were difficult to acquire.
3. The requirement for agility varies over time. For example, a case study company decided that their large warehouse should be fully computerised to shorten cycle times between orders being received and items delivered. The warehouse change programme required a period of intense agility but this diminished once the new systems were working as required. We concluded that agility needs to be adopted differentially over time.

4. Being agile changes the nature of managerial practice. The needed mind-sets and skills require entrepreneurship and intrapreneurship from leaders, managers, specialists and other key workers. In addition to adopting different behaviours there are emotional consequences. For some managers, acting to support agility is felt as a liberation, for others it is stressful and excessively demanding. We concluded that becoming an agile enterprise requires extensive personal development for many employees.
5. Agile organisations become project-based, forming temporary organisations that often have flexible membership. This increases complexity and requires an upscaling of skills in project management and project membership. There is an underlying trend to standardise routine tasks and delegate these to automated systems, some of which enhance agility. The work that is left for people is completed using programme and project management that benefits from adopting agile principles. We concluded that becoming agile enterprise are never organised, they are always in the process of organising.
6. Agile organisations require more management, not only from the top but from all of those who manage functions, processes, specialisms and tasks. Overall being agile increases the quantity of decisions made, some of which will be unfamiliar, complex and/or affect several stakeholders. An increase in intensity and reduced cycle time in processes for making commitment decisions was seen in all cases, including tasks associated with preparing to take evidence-based decisions, decision-making itself and managing coordinated implementation. Invariably this resulted in greater involvement of junior members of staff. We concluded that agile enterprises need to develop capabilities for wise, informed and decisive ‘do better’ and ‘do different’ decision-making.
7. Agile organisations require different forms of measurement. In our case study companies, financial audits were historically orientated and performance management addressed short-term individual targets. Agile organisations need to be capability focused, as finding and responding to opportunities is a core requirement. Standards of measurement needed to be re-examined as agile capabilities can be assessed but not measured with precision. In addition, new targets for measurement are needed. We concluded that agile enterprises need to metrics that help them to be effectively agile.
8. Agile organisations require high levels of discipline, reliability and predictability. In our case study companies, the initial reaction of senior managers to the Agile Paradigm was that ‘this requires great flexibility’. As agile principles were adopted by them, the importance of being able to rely on progressive deliverables from different contributors became widely understood. As one manager said: “you cannot get new things done unless all of those involved are able and willing to play their part effectively and take responsibility for the whole as well as their part”. We concluded that agile enterprises can only be built on a foundation of strong craft disciplines.
9. Agile organisations need aligned and mutually supportive silos. In our case companies there was a need for specialist expertise in several areas, hence knowledge specialisation was essential and silos formed. Specialist areas had to develop an identity that defined the company as their prime customer and then dedicate themselves to cooperatively and adaptively contributing to its agile mission. This

could not be done by direction from above. We concluded that agile enterprises require proactive alignment from contributing silos, including external partners.

10. People in agile organisations are hunters for opportunity. The top management teams realised that evolution and revolution in the landscape of opportunities and threats needed to be understood and insights could come from many sources, many of which were not obvious. Those that made agility the cornerstone of the organisation development strategy supported openness, outward-looking and proactive searching. We concluded that agile enterprises require a culture of being ‘open to the World’.

LATER DEVELOPMENTS

By the time that the AMRG completed its investigation there had been considerable development in exploring and adopting the Agile Paradigm and momentum was growing. The original source of the conceptualisation, the Agility Forum, was closed in 1998 with the phrase: ‘Mission Accomplished!’ Shortly afterwards Gunasekaran (1999) could write: “businesses are restructuring and re-engineering themselves in response to the challenges and demands of 21st century... Agility addresses new ways of running companies to meet these challenges. Agility is about casting of those old ways of doing things that are no longer appropriate, changing the pattern of traditional operations” (p. 87). Note that Gunasekaran claimed that ‘agility addresses new ways of running companies’. The construct of agility had grown in scope. A set of constructs that were intended to rejuvenate manufacturing companies had been redefined into a total organisation development requirement.

Since then we have expanded the definition of agility beyond manufacturing into many aspects of wider society, including service businesses, governmental operations, education provision and humanitarian initiatives. A trivial example makes the point. Twenty years ago, television broadcasts needed to be viewed or recorded at a predefined time. Today, it is possible to have access television programmes at the convenience of the viewer, with the broadcasting company making selections to suit the interests of individual viewers. Probably without knowing the word, providers of television programmes embraced the principles of the agile paradigm. Further examples can be found in sectors as diverse as medical practice, social media, humanitarian aid, bicycle manufacturing and bus travel.

Agility is now seen as being more, much more, than a list of the requirements for winning in a changed industrial context. It is the key to thriving when “flux, emergence and transformation as well as creativity, disruption, and indeterminism are key themes” (Schultz & Maguire 2013, pp.8–9). Agility renders an organisation more like an organism than a machine. In delivering this agency is an instrument³ through which proactive and innovative responsiveness is prioritised as an ‘must-win’ organisational requirement.

This viewpoint is deeply rooted in human history. Sun Tzu’s classic text, *The Art of War*, written around 320 B.C., was the first comprehensive study of the art and science of effective action. In it, Tzu wrote: “avail yourself of any helpful circumstances over and beyond the ordinary rules. According as circumstances are favourable, one should modify one’s plans.”

³ There are non-human instruments that can facilitate organisational agility, for example applications of Artificial Intelligence. For this reason, the sociological lens of Actor Network Theory is particularly helpful as “it is possible and desirable to talk of humans and non-humans in the same analytical terms” (Pollack et al. 2013, p.1120).

(quoted in McCreadie et al. 2009, p.39). We can describe Tzu's description of the capabilities required for effective action as being 'agile', defined as 'gaining advantage by possessing and mobilising the required capabilities to respond proactively to the circumstances of the moment and win, despite opposition and difficulty'.⁴

This definition of agility has several important components (Hou et al. 1991). By 'gaining advantage' Tzu recognises that there will be winners and losers but wise, timely action will change situational dynamics, thereby increasing the probability that the most agile players will win. By 'by possessing and mobilising the required capabilities' Tzu emphasises the importance of being able to execute decisions, which requires that resources can be made available and they can be deployed effectively and quickly. By 'respond proactively' Tzu recognises that it is necessary to understand, in depth, the logic of the current situation but not to be imprisoned by it, as effective action can exploit latent opportunities and reduce threats. By 'despite opposition and difficulty' Tzu recognised that it is rarely possible to be perfectly prepared but obstacles must become targets for action, not reasons for failure.

Today we can define agility as a construct located in the realisation that much of the world is, and will always be, ruled by Darwinian forces, meaning that harsh competition is the normal condition. But it is not inevitable that we will be passive victims of our situation. Wise, capable and timely action increases the chances that some will survive and thrive. But this is not easy, as 'only the paranoid survive' (Grove 1998). There can be no fixed formula that can be guaranteed to deliver success. Rather the best tactic for survival will be wholeheartedly embracing responsiveness and acquiring the skills of a hunter. At the organisational level this requires the acquisition of capabilities, including human capital, that can be readily reconfigured to seize short- and long-term opportunities and, a high degree of intelligence, willingness and boldness amongst decision-makers to take advantage of the circumstances of the moment whilst avoiding the pitfalls that often beset the hasty (Blodgett et al. 2008).

There is a consensus that the need for agile competences is growing as the forces that drive competition are becoming stronger, more formidable and increasingly disruptive (Routroy et al. 2015). This has been explained by Geoffrey Moore (2005): "free market economies operate by the same rules as organic systems in nature: (so that) competition for scarce resources of customer purchases creates hunger that stimulates innovation; customer preferences for one innovation over another create a form of natural selection that leads to survival-of-the-fittest outcomes; each new generation restarts the competition from a higher standard of competence than the prior generation (and) thus over time successful companies must evolve their competence or become marginalised" (xiiv-xiv).

THE LIMITATIONS OF AGILITY

An important paper by Teece, Peteraf & Sohvi (2016) states that: "Organizational agility is a much-touted attribute and usually considered virtuous. However, there are associated costs, and the existing literature does not explain when agility is desirable, the nature of its foundations, and how, if at all, it relates to strategy" (p. 31). Agility can be expensive, unnecessary and incurs significant new risks. From a strategic viewpoint, if Teece et al are correct, then a decision to adopt the agile paradigm is just one strategic option among many.

⁴ The term Agility has been defined in different ways. For example, in terms of cycle time, absorptive capacity, anticipating changes, of re-configurability of operations, micro-marketing capability and as an organisation development strategy. This paper will not examine the various definitions as this has been covered extensively in the literature.

When agility was launched it was heralded as *the* answer to a moribund and dysfunctional industrial structure. We have matured. Now agility can be seen as one of a set of business excellence models that can be applied flexibly and integrated creatively. In short, we have learned to apply the agile paradigm in an agile way!

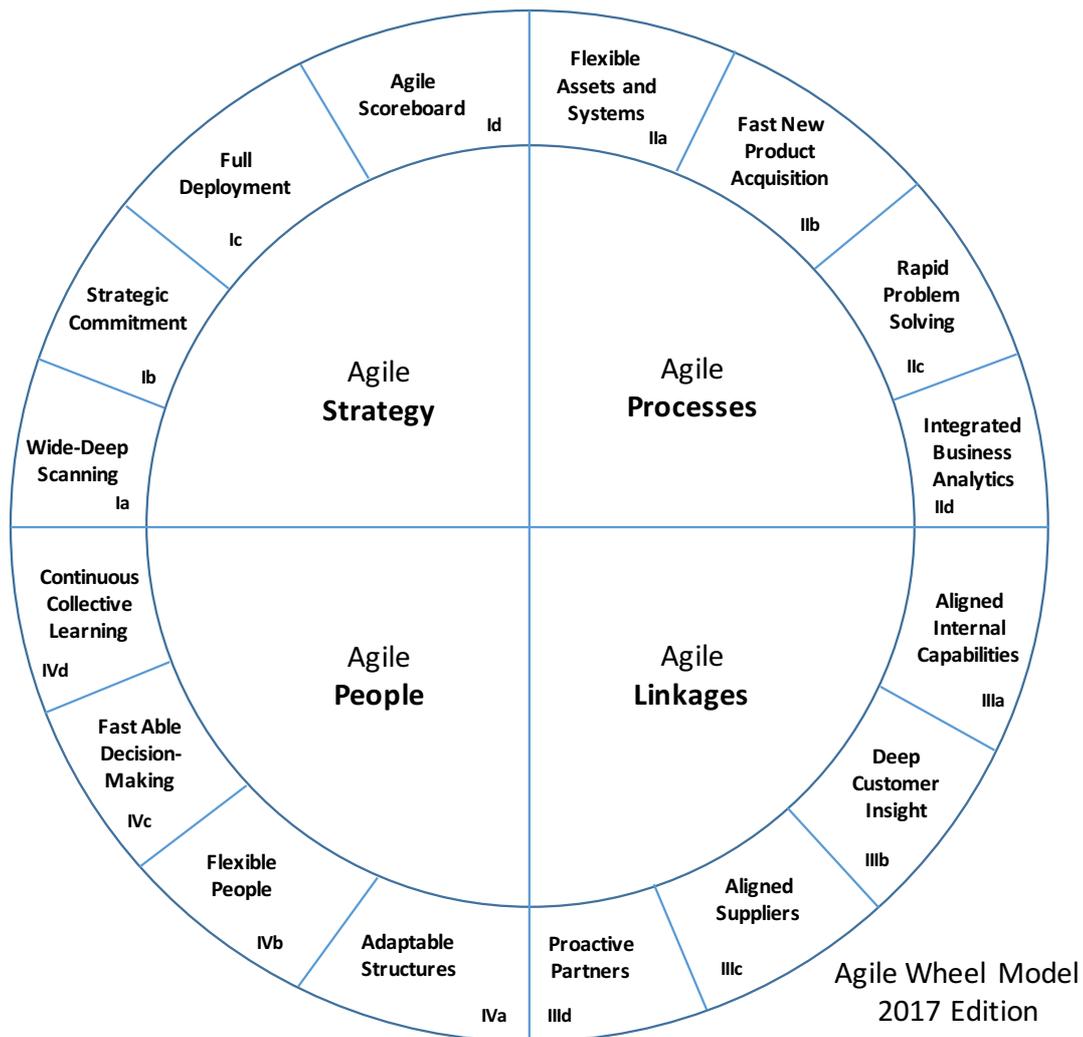
Military planners led the original thinking processes that resulted in the definition of the Agile Paradigm and they continue to make a major contribution. In a 200-page NATO report obscurely titled ‘SAS-085 Final Report on C2 Agility’ (Alberts et al. 2014) presents the results of research, including experimental findings, into the challenges of coordinating resources to counter known and unknown threats. The authors state that: “The logical response to high degrees of uncertainty and complexity is to improve Agility. Agility, like any other “good”, is not an end unto itself and thus simply seeking maximum Agility is not the answer.” (p. 48).

As the construct of agility matured we see that is a, not the only, pathway to business excellence. Darwinian forces are powerful they are not ubiquitous. Not all situations are equally win-lose (Lundin et al. 2015). Nevertheless, no organisation can afford to ignore agility and, looking ahead, to world dominated by an increasingly capable set of technological platforms we see that agility is an increasingly important organisational imperative (Doz & Mikko Kosonen 2008)

A REVISED AGILE WHEEL

As noted above, academic interest in agility has declined in recent years. It is interesting to speculate on the reasons why this may have occurred. It may be that the expansion of the concept means that it is too large to be a unit of analysis for researchers, so more limited studies are undertaken (e.g. agility in supply chains). Or perhaps, the Agility Forum’s closing statement ‘mission accomplished’ was correct and agility has been absorbed into practice of management and become an orthodoxy. Whatever reasons there may be there is evidence that agility is a profoundly important theme for business managers and we encourage researchers to reawaken academic interest in the many issues that would benefit from systematic investigation.

Throughout the AMRG’s work, and subsequent use of the Agile Wheel model as a diagnostic framework for organisation development, notes were made when the researchers found that model appeared to be inadequate. An updated version of the model (shown below) has been produced that addresses weaknesses in the original version.



In the 2017 version ten of the components are the same as the original model, five have been revised and one is new. The table below explains the rationale for the revised and new components.

	Component	Status	Rationale
Id	Agile Scoreboard	Revised	Now contains Agile benchmarking.
IIId	Integrated Business Analytics	Revised	Current information systems provide faster, intelligent data analyses.
IIIa	Aligned Internal Capabilities	New	Extensive cooperation between organisational units increases agile capability.
IIIId	Proactive Partnerships	Revised	Increased emphasis on partners actively collaborating in providing agility.
IVb	Flexible People	Revised	Simplified wording of title.
IVd	Continuous Collective Learning	Revised	Effective knowledge management increases agile capability.

The revised Agile Wheel Model should be considered as a consciousness raising instrument that helps managers to see where their organisations are relatively strong or weak in terms of agile capability. It can also serve as device for setting a research agenda, since some of the sixteen areas have been better explored than others. As mentioned above, agility has become

a pervasive and persuasive overarching set of constructs that shape many aspects of organisation development (Setili 2014; Doz & Mikko Kosonen 2008; Birkinshaw & Ridderstråle 2017) and neither researchers nor managers can afford not to understand its potential and limitations.

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