CENTRE FOR EXCELLENCE IN STRATEGIC TALENT MANAGEMENT

AGILITY IN TODAY’S DYNAMIC BUSINESS ENVIRONMENT

PART 1
AGILITY: IN SEARCH OF THE ORIGIN AND CONCEPTUAL CLARITY

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1 Introduction

Today, agility is an emerging key dimension of business excellence, whether companies deal with change and uncertainty in a reactive or proactive manner (Sushil, 2014). Besides the fact that agility allows companies to survive and extend their lifecycle, it is also a new weapon in the fight for the customer as it enables companies to quickly respond to new and constantly changing customer demands. However, the idea of being quick, moveable and flexible is not as new as it might seem. In fact, we encounter this word way back in history.

This paper aims to explore the theoretical and historical background of agility. First we will explain why there is this sudden urge for agility, followed by an extended overview of the history. Furthermore, we will briefly focus on organisational agility with its different perspectives and research dimensions in order to fully understand its relevance for Human Resources. In the final chapter, related terms to agility will be discussed, thereby making a distinction between terms denoting the environment and terms denoting methods to deal with it.

Important to note is that this paper is part of a series of whitepapers tackling the topic of agility in today’s business environment. Whereas this paper (Part 1: Agility: In search of the origin and conceptual clarity) discusses the historical background of the concept, the following papers will focus on organisational agility in specific, thereby explaining agility from an HR perspective.

2 Why this sudden urge for agility?

A globalising economy, expanding market share, change in customer demands and new technologies have changed the external business context significantly. Today’s business landscape is now characterised by constant change, complexity and dynamism, forcing organisations to respond with flexibility and speed. The sudden interest in agility derives from the belief that successful organisations in fast-paced business environments move very quickly in order to identify new opportunities and avoid destruction (McCann, 2004). Those unable to keep up with the changing environment are doomed to fail. Think about Kodak, Saab and Free Record Shop. Whereas companies, established in the fifties of the
previous century, had a lifecycle of about 45 years, this is currently reduced to 15 years due to the turbulent environment (van Leeuwen, 2016). Becoming more agile is a must for organisations in order to survive.

Within this paper, *agility* will be treated as an adaptive capacity, meaning “the amount and variety of resources and skills possessed and available for maintaining viability and growth relative to the requirements posed by the environment” (McCann, Selsky & Lee, 2009, p.4). In other words, agility is seen as a possible method to deal with the rapidly changing environment. The final chapter of this paper will further discuss related terms to agility, thereby focussing on both terms that are being used to denote the rapidly changing world causing the need for agility (§ 5.1 environmental turbulence) as well as terms indicating a way to deal with it (§ 5.2 adaptive capacity).

3 Theoretical foundation: where does agility find its roots?

In order to discuss the contemporary interpretation of agility in our dynamic business environment, one needs to carefully analyse the theoretical foundation of the concept. Where do the adjective *agile* and its variant mass noun *agility* find their roots? A detailed analysis of the topic itself and the study of its origin is frequently the subject of neglect. This chapter will briefly discuss the etymological meaning as well as the historical background of the concept.

3.1 Etymological meaning

From the etymological perspective, *agile* finds its roots in Late Middle English via the 14th century Late Middle French word *agile* and derives directly from *agilis* in Latin, meaning “nimble1 and quick”. Looking for the word in the Oxford English Dictionary (OED) leads up to two possible definitions. The first one is “able to move quickly and easily” from which the subdefinition of “able to think and understand quickly” is derived. The second definition goes as follows: “Relating to or denoting

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1 Definition of nimble in the Oxford English Dictionary: "Quick and light in movement or action; Agile". Subdefinition: "(of the mind) able to think and understand quickly".
a method of project management, used especially for software development, that is characterised by the division of tasks into short phases of work and frequent reassessment and adaptation of plans” (OED). The latter definition is frequently contrasted with *waterfall*, which denotes “a method of project management that is characterised by sequential stages and a fixed plan of work” (OED). The difference between waterfall and agile will be discussed in chapter 3.2.3.

### 3.2 The rise of agility in a globalising world

A broader search for the concept yields results of agility in the context of software development, supply chain and project management, which aligns with the second definition of agility mentioned in chapter 3.1. Within these domains, agility denominates the implementation of a variety of methods such as for example SCRUM, probably the most well-known agile framework to address complexity. However, the main question remains as to how the concept ended up in the literature on software development in the first place. In what follows we will briefly discuss the historical stages of agility.

#### 3.2.1 The Cold War

*Agility* popped up as a topic in the American army at the moment of the cold war, when every citizen wondered who would win the battle in the air. The Russians chose for speed and firepower which resulted in the creation of the MIG. The Americans, on the other hand, developed the F15 and F16 which were much more superior in the air due to agility. Military strategist John Boyd established a new decision methodology based on the following steps: observe, orient, decide and act (van Leeuwen, 2016). This OODA-circle (Figure 1) suggested that flexibility and agility were more important that pure power. This theory was later also adopted by scholars who developed theories on new work- and learn processes.
3.2.2 The Asian tigers pose a threat

Having found its roots in the military literature, agility was adopted in 1985 by scholars in the manufacturing domain. From that year onwards, a large part of America’s electronics manufacturing industry moved to Japan, Taiwan and South-Korea due to their lean production (efficient and flexible production). These countries, also known as the ‘Asian Tigers’, formed a huge threat for Western manufacturers because of their cheap resources. A huge amount of electrornical parts produced in Asia were of mayor importance for the United States’ defence systems. Since these manufacturing countries consisted of potential enemies to the USA, the situation alarmed the United States Department of Defence (DoD) as they feared that their weapon systems would become largely dependent on these countries (Chalmet, 2013).

A parliamentary committee sought to find out why it was no longer possible to manufacture electronic parts in their own country in the first place. Professors Goldman, Preiss and Nagel, working at the American Lehigh University in Pennsylvania, conducted the research but wanted to tackle the problem in a
broader way: they wanted to analyse the competitiveness of all American manufacturing companies (Chalmet, 2013).

Making American manufacturing companies competitive appeared to be a process of many years. They assumed it would take ten to twenty years to implement a change process. As a solution to the problem, Goldman, Preiss and Nagel proposed the ‘Agile manufacturing strategy’. Their research was first published by the Iacocca Institute in 1991 as the 21st Century Manufacturing Enterprise Strategy: An Industry Led View of Agile Manufacturing. It was in this report that the concept of agility was officially introduced for the first time. The report calls for a new strategy of ‘Agile Manufacturing’ to help the USA industry become world-class manufacturing competitors in the 21st century:

“Agile manufacturing provides U.S. industry with an opportunity to enter the next phase of development of the world-wide manufacturing industry in stride with the Japanese and with certain advantages rooted in our entrepreneurial culture. The term "Agile Manufacturing” describes a manufacturing system with extraordinary capability to meet the rapidly changing needs of the marketplace, a system that can shift quickly among product models or between product lines, ideally in real-time response to customer demands.” (Nagel & Dove, 1991, p.1)

Goldman, Preiss and Nagel appeared to be visionaries. The widespread use of the internet and mobile telephony were yet to be explored, but these scholars already predicted a globalising world economy with accelerated competitive pressure and very short product life-cycles. The publication of their report forced western manufacturers to re-think their entire system. Trying to win back their lost territory was hence done by making their processes more agile.

The importance of their theory gained more and more attention. Agility has been a theme in Command and Control Research Program publications for more than a decade. In Command Arrangements for Peace Operations (Alberts & Hayes, 1995), it was even noted that a lack of agility threatened mission success.
3.2.3 Agile software development

The research report by Goldman, Preiss and Nagel led to a next important step in the world of agility. Representatives from Extreme Programming, Adaptive Software Development, Feature-Driven Development, Pragmatic Programming, and others who felt the need for an alternative to documentation driven, heavyweight software development processes convened (Highsmith, 2001). 17 individuals collaborated on the publication of the *2001 Manifesto for Agile Software Development*. The document discusses principles on how to better develop new software as a reaction to the so-called waterfall methods, which are typically characterised by a step-by-step development process which consists of long analyses and design phases. Agile software development, on the other hand, tries to split one big project into smaller pieces, which leads to a quicker solution for a small part of the problem (see figure 2 and 3).

*Figure 2: Principles of the Manifest for agile software development published in 2001*

<table>
<thead>
<tr>
<th>WATERFALL</th>
<th>AGILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processes and tools</td>
<td>Individuals and interaction</td>
</tr>
<tr>
<td>Comprehensive documentation</td>
<td>Working software</td>
</tr>
<tr>
<td>Contract negotiation</td>
<td>Customer collaboration</td>
</tr>
<tr>
<td>Following a plan</td>
<td>Responding to change</td>
</tr>
</tbody>
</table>
These methods replace “the time-consuming detailed management of scope creep with an understanding that user requirements will change as the project progresses” (Cooke, 2012, p. 12). This allows quick adjustments to changing needs and reduces the risk that a new product would not be accepted. In *Information Age Transformation* (Alberts, 2002), agility was defined as a key characteristic and “of paramount importance in an uncertain world” (p. 82). Agile methodologies within the IT world have proven to minimise the countless hours that IT staff members spend on creating project plans, accommodating user requirements and solving production software problems (Cooke, 2012). In addition, these agile frameworks help companies accelerate time to market, increase productivity and quickly respond to chances. (Scrum Alliance, 2016).

*Figure 3: Waterfall versus agile*

A well-known example of such an agile methodology is SCRUM, created by Jeff Sutherland in 1993. Sutherland was also one of the authors of the Agile Manifesto in 2001, which strongly influenced their SCRUM development afterwards. The term was borrowed from an analogy which was put forward in a 1986 study by Takeuchi and Nonaka, published in the Harvard Business Review. Their research compared high-performing and cross-functional teams to the scrum formation of Rugby teams. The idea behind SCRUM is similar: multidisciplinary teams work in very short time cycles (ranging from one to four weeks) in order to yield (software) products (Sutherland, 2014). Nowadays, SCRUM is known around the world as a leading agile development methodology.
3.2.4 Organisational agility in the 21\textsuperscript{st} Century

*Agile* became a philosophy which was rapidly expanding outside IT environments. Its practice is applicable to all management processes and hence also to several domains within the organisation.

The growing interest for organisational agility resulted in various connotations of *agile* today. The study by Sushil (2014) provides us with a representative list of connotations, but this is unfortunately incomplete: “It implies openness in thinking, adaptiveness to environment, responsiveness to change, versatility of action, contingency, [...] agility in action, resilience in systems, elasticity, looseness, customized or tailor made solutions, and broadening of mind” (Sushil, 2014, p.4).

According to Donald Sull (2009), Professor Strategy and Entrepreneurship at London Business School, organisational agility “is the capacity to identify and capture opportunities more quickly than rivals do”. According to him, organisations can be agile on three levels: strategic agility, portfolio agility and operational agility. Strategic agility is all about game-changing opportunities. Examples can be found with Apple, Google, Fujifilm, who constantly invent new innovative products and services. Portfolio agility denotes the ability to quickly and efficiently redistribute and reallocate people, resources and money of less performing departments to product and market combinations that are far more attractive and offer various opportunities (van Leeuwen, 2016). Think for example about IBM, KPN and Unilever. Finally, operational agility refers to seize the right changes within a certain domain of the company (van Leeuwen, 2016). Within this level, we immediately think about organisations which are known for their operational excellence such as Zalando, Dell and Wehkamp.

3.2.5 Here and now: strategic agility

Not only organisations as such need to be agile but their entire strategy development process needs to quickly respond to changing circumstances too. A definition of strategic agility is offered by van Leeuwen (2016) who states that “a strategic agile company is able to change its strategic course quickly and
efficiently, thereby anticipating or reacting to opportunities and threats in its environment” (p. 49).

As mentioned above, strategic agility is seen as part of the organisational agility, besides portfolio- and operational agility by Sull (2009). Strategic agility means spotting and seizing opportunities in order to create significant value. Examples of golden opportunities include mergers and acquisitions, entering booming markets such as China or India, securing hard assets during crises or launching an innovative product (Sull, 2009). Two essential traits to seize these opportunities is patience to wait for that moment in time, as well as boldness in order to act when the time arises.

3.2.6 Conclusion

By means of a conclusion we can state that agility has found its roots in literature on military command and control in the middle of the 20th century. First during the cold war, when John Boyd’s OODA-circle was responsible for a flexible and agile military strategy that would excel pure power of the Russians. Secondly, agile methods safeguarded America’s computer security and cyberwarfare as the lean processes of the Asian Tigers challenged the United States’ Department of Defence. As of the beginning of the 21st century, agility quickly became key to tackle dynamic and complex environments, both on organisational and strategic level.

4 Current views on organisational agility and research dimension

Scholars as well as practitioners emphasise the urgent need for agility in dynamic business environments. Though, as shown by research conducted by Sushil (2014), various ideas exist about what agility within a business context actually means. Specifically, 7 dimensions of agility have been identified:

A first dimension of agility is ‘managing paradoxes’ and views agility as a “dynamic interplay and change across paradoxical options in any system such as:
centralization – decentralization; globalization – localization; continuity – change.” (Sushil, 2014 p. 10). The second view on agility is denominated as ‘ambidexterity’ and defines a characteristic of one organisation which captures opposite things at the same time. In this sense, companies for example such as Nokia, Oracle and Renault were able to deal with a confluence of two extremes, namely exploitation and exploration. According to these companies, one can only be successful when choosing for a confluence of the two, instead of dealing with only one extreme (i.e. exploitation or exploration). The third view gaining attention is the one of business agility supported by developments in information and communication technologies. These developments lead to IT agility which ultimately contributes to business agility. Another perspective is that the ultimate secret to an enduring great company is accomplished by the ability to manage continuity and change. Within this view, Mintzberg et al. (1998) claimed that companies need to achieve change when and where necessary while maintaining order. Furthermore, agility is seen as flexible work practices at operational level and other business operations such as financial flexibility, marketing flexibility, and service flexibility.

Apart from the perspective that views agility as an ability to be flexible in operations, agility is gaining more and more attention within the field of business excellence models. A review of existing business excellence models by Gupta and Nagpal (2011) showed us that there is a growing concern for including more agility constructs in it. Finally, ‘flexibility maturity’ is another dimension of agility since there is a need to define new maturity models for companies in order to assess their flexibility and risk-taking capabilities.

Based on these dimensions of agility, Sushil (2014) structured the different interpretations in a model which provides us with many options for research directions (Figure 4). This hierarchical structure of the above mentioned dimensions of flexibility and agility is based on TISM (Total interpretive structural modelling) which enables researchers to interpret both nodes and links in this structure (Sushil 2012b). The method has been applied by Nasim (2011) for e-government research as well as by Prasad and Suri (2011) for research in higher education.
Better handling of customer requirements

Ability to manage risk

Agility in business meets changing requirements faster

Adaptation and innovation increases performance outcomes

Supports flexible processes

Demands technological agility

Strategic flexibility provides environment for operational flexibility

Exploitation is continuity and exploration is change

Both - and approach helps in carrying opposites together

Carrying opposites together is a characteristic helping management of paradoxes

Figure 4: TISM of flexibility and agility in business by Sushil (2014, p. 13).
5 Related terms

Within this paper, agility has been treated as an adaptive capacity, meaning “the amount and variety of resources and skills possessed and available for maintaining viability and growth relative to the requirements posed by the environment” (McCann, Selsky & Lee, 2009, p.4). In other words, agility is seen as a possible method to deal with the rapidly changing environment.

However, in order to offer a broad perspective on the state of the art with regard to the literature on the topic, this paper will further discuss related terms to agility, thereby focussing on both terms which are generally being used to denote the rapidly changing world causing the need for agility (§ 5.1 environmental turbulence) as well as terms indicating a way to deal with it (§ 5.2 adaptive capacity).

5.1 Environmental turbulence

Within this paper, environmental turbulence is the umbrella term denoting the pace and disruptiveness of change within an operational, competitive or larger contextual environment.

Within this category, we frequently encounter the term the pace of change in the literature. This term denotes “variations in the frequency, number and kinds of conditions being experienced” (McCann et al., 2009, p. 4). Disruptive change, on the other hand, consists of “severe surprises and unanticipated shocks that destabilise performance, even threaten ongoing viability” (McCann et al., 2009, p. 6). It is characterised by periods in which sharp and novel conditions may upset competitive dynamics. Disruptive change might for example be natural disasters or man-made crises.

When talking about the need for agility in today’s dynamic business environment, one cannot ignore the well-known term of VUCA. This concept was introduced by the U.S. Army War College to describe the more volatile, uncertain,
complex, and ambiguous, multilateral world. The notion of this seemingly hostile environment resulted from the end of the Cold War (Kingsinger & Walch, 2012). The acronym itself appeared in the late 1990’s but gained considerable attention due to terrorist attacks of September 11, 2001 (Kirk, 2013). As was the case with the term agility, VUCA was subsequently adopted by business leaders to refer to the chaotic, turbulent, and rapidly changing environment. In order to deal successfully with ‘the VUCA world’, Bob Johansen developed ‘the VUCA Prime’ (see figure 5) which proposes that real VUCA leaders are characterised by vision, understanding, clarity and agility. These concepts are also considered the “flips to the VUCA model” (Kirk, 2013, p. 6).

*Figure 5: The VUCA Prime by Bob Johansen*
5.2 Adaptive capacity

Turbulence is not always experienced in the same way since the capacity to adapt to these changing environments varies significantly from individual to individual, team to team and organisation to organisation (McCann et al. 2009). But one thing has been confirmed by many practitioners: increasing turbulence is a burden on the adaptive capacity of a company and is eventually able to overwhelm the company unless this capacity is being generated.

According to McCann et al. (2009), adaptive capacity has at least two important dimensions - agility and resiliency - but acknowledge that this list is not exhaustive and allows for the inclusion of more dimensions. In what follows, we use the term ‘adaptive capacity’ as a collective name to denote all possible related terms to agility and hence methods to deal with the rapidly changing business environment.

Resiliency is a relative new concept that rooted in psychotherapy and social psychology (Hind, Frost & Rowley, 1996; Ruttner, 1990). Nowadays, it is a frequently used term in psychology, referring to “the capacity to withstand traumatic situations and the ability to use a trauma as the start of something new” (Holling, 1973). Later on, the concept of resilience has evolved from disciplines of materials science (Sheffi, 2005), ecology (Holling & Gunderson, 2002) and environmental studies to become a concept used by engineers and academics. The 21st century, characterised by turbulence, led business communities to embrace this concept in order to explain why organisations must reinvent their business models and strategies to deal with this environment. Resiliency within organisational literature is “the capacity for resisting, absorbing and responding, even reinventing if required, in response to fast and/or disruptive change that cannot be avoided” (McCann et al., 2009, p. 4). The difference with agility is the fact that the latter denotes a clear “capacity for moving quickly, flexibly and decisively in anticipating, initiating and taking advantage of opportunities and avoiding any negative consequences of change” (McCann et al., 2009, p. 4).
**Flexibility** is another adaptive capacity that enables one to deal with change. Flexibility is defined as the ability to quickly change from one erratic situation to another (Goldman, Nagel & Preiss, 1995). Already in the 80’s, flexibility within marketing- or operational processes has been discussed by many scholars. It is only when the concept of ‘flexibility management’ has been introduced in the literature that we see a strong correlation with agility since not only the ability to adapt to change, but also a quick response to change is being discussed.

The concept of ‘flexibility management’ has been investigated by Armstrong (1993), who states that a flexible approach enables the company to adapt to changing demands, to respond quickly to new threats and opportunities, and to manage diverse and decentralised operations. The scholar affirms that this flexible approach can be achieved by contract-based flexibility, time-based flexibility, job-based flexibility, organisation-based flexibility and skill-based flexibility. Pasmore (1994) studied organisational flexibility as the ability to change everything at the same time. Improving flexibility, he affirms, “starts with the recognition that organizational change and human change are one and the same” (Pasmore, 1994, quoted in Sushil, 2014 p. 6). The author recognises the possibility of flexibility at various levels such as flexible people or flexible thinking.

The concept of flexibility and agility in management literature turned into a critical issue as markets became more dynamic, and consequently more unpredictable. Still, the literature on the concept heavily focusses on the ability of organisations to quickly adapt to change by being supported by information technology and productive flexibility (Sushil, 2014, p. 7). Armstrong (1993) and Pasmore (1994) are among the scholars who discussed flexibility at various levels of the organisation. Not only applying flexibility in supply chain and IT processes formed a competitive advantage, but companies also had to introduce it at other levels: flexible people, flexible work, flexible thinking and flexible managers.

Nevertheless, it is important to note that the debate of the actual difference between both concepts is still going on today. Some claim that the difference can be find in the fact that flexibility is mostly used to denote short term contexts and daily operational situations, whereas agility is almost exclusively used in long term contexts (Qin & Nembhard, 2010). The difference between strategic flexibility and
agility is rather small for Correa (1994) who sees both concepts as complementary. Instead of a complete new concept, agility is then seen as the most recent development in the search of organisations to survive in this dynamic environment (Sherehiy, Karwowski & Layer, 2007).

Furthermore, agility is frequently associated with **lean manufacturing or lean production**. These management philosophies were established by Toyota at the end of the 20th century, based on the principles of Henry Ford’s scientific management school and refers to a long-term approach that systematically seeks to achieve small, incremental changes in the supply chain processes in order to improve efficiency, high quality and maximise value for customers without loss (Chalmet, 2013). Organisational success by Toyota yielded an unprecedented interest in this management practice and this success is still visible today. In addition, researchers and practitioners notice the convergence of **lean** and **agility**, which is caused by the idea that lean alone is not enough to tackle today’s changing environment (Chalmet, 2013).

On the individual level, learning agility and emotional agility are frequently referred to when discussing how employees can keep up with a rapidly changing environment. The concept of **learning agility** was first used by Lombardo & Eichinger (2000) and originally refers to “a person’s ability and willingness to learn from experience and apply the lessons of experience to improve future performance” (De Meuse, Dai, & Hallenbeck, 2010; Eichinger & Lombardo, 2004; Lombardo & Eichinger, 2000 quoted in DeRue et al. 2012, p. 259). Based on research conducted by Vlerick Business School, we sought to find a definition that is more aligned with today’s dynamic business environment since the different dimensions characterising learning agility and learning ability were much alike. This choice is motivated by the fact that being agile, and hence flexible and quickly in one’s understanding, is more and more an emerging key dimension in a competitive business environment (Sushil, 2015). Learning agility can hence be defined as an ability to learn from experiences through being flexible and fast (DeRue, 2012). Clarifying why some people learn faster than others and/or are more flexible is a part of that ability to learn.

**Emotional agility**, on the other hand, is a term coined by Susan David and Christina Congleton in Harvard Business Review (November 2013): they describe
it as “the ability to attend to and use one’s inner experiences (both good and bad) in a more mindful, productive way”. It is aligned to emotional intelligence in action (Fleming, 2016). Emotional agility is still in its infancy in business contexts, but has demonstrated to help people alleviate stress, reduce errors, become more innovative and improve job performance.
6 Bibliography


