Another Purpose for Agility: Sustainability

Claudia de O. Melo(✉)

International Atomic Energy Agency, Vienna, Austria
c.melo@iaea.org
http://www.iaea.org

Abstract. This position paper aims at building a short narrative on what has been the need for agility, its evolution, and a possible re-purpose based on our global sustainable development challenges. Agile implies that a software development team (or now entire organizations) should be resilient, adaptable, and quickly learn, which is also a great capability featured by nature. However, the justification for becoming agile is being a chorus of voices repeating the same mantra: competitive advantage. The evolution of agility could be shaped by forces of cooperation, instead of only of competition, with a purpose to enable a better and more sustainable future for society. There is a strong case for inter- and trans-disciplinarity in agile, technology and sustainable development research, where agility has definitely a role.

Keywords: ICT4S · Agility · Sustainability

1 The Need for Agility

Agile has an important role in the current technological revolution, as it enables technologists to quickly adapt and evolve the digital systems that are transforming our economy and society. The Digital Economy is considered the single most important driver of innovation in countries [3], with a promise to contribute to inclusion, sustainability and peace [11].

When reflecting on the origins of agility, there was a combination of factors fostering agile ideas. Mostly a **reaction** to heavyweight, prescriptive approaches to software development, combined to the **increasing level of change** in the business environment urged practitioners to **handle complex and unpredictable requirements** in systems development [12].

When dealing with **complexity**, teams experimenting with agile needed to face a number of paradoxes that enabled a range of responses depending on contextual changes. Agile leaders needed to learn how to balance accountability and autonomy, hierarchical control and self-organization, predictability and adaptability, or efficiency and responsiveness. This, alongside with the engineering practices, required a great deal of learning for software development teams.

P. Meirelles et al. (Eds.): WBMA 2019, CCIS 1106, pp. 3–7, 2019.
https://doi.org/10.1007/978-3-030-36701-5_1

Over time, what started being experimented on small teams, for specific situations, finally become mainstream to software development at **scale**. A number of adaptations were developed by industry, shared through community events and investigated by researchers. Examples of this evolution is the Continuous Delivery approach, in which software can be released to production at any time, and the DevOps movement [9].

As concluded by the State of DevOps 2019 report involving over 31,000 professionals (mostly from Global North countries), the industry continues to improve on agility, particularly among the so-called "elite performers". They also conclude, through their research models, that delivering software quickly, reliably, and safely is a core engine of the technology transformation and organizational performance on respondents' organizations [6].

2 Agile Transformations and the Risk of Commodification

Agile ideas scaled not only in size, from teams to the whole organizations, but also in scope. As recently stated by Steve Denning, "we are now seeing Agile in manufacturing, Agile in retail, Agile in petroleum, Agile in strategy, Agile in human resources, Agile budgeting, Agile auditing, and Agile organizational culture" [4]. Agile transformations aiming to achieve organizational (or business) agility are happening in many organizations [13]. The research community is still defining the meaning of agile transformation and the possible research areas to address existent challenges, as how to manage organizational boundaries or how to integrate non-development functions to this new way of organizing work [1].

In the experts' community, there is a debate on how much these ideas are still following the agile principles, if it makes sense to call them "agile" or it is going beyond its essence and meaning. In the same vein, there is a strong debate around failures of agile transformations. One of the main arguments is that many organizations still mimic agile practices, that they do not really grasp (yet) agile principles and values [4]. Often, organizations follow technology trends and behaviors without understanding the cause, but expecting the promoted effects. Because the values and principles need to be well understood to be practiced and finally learned, no matter what specific agile method is in trial, few benefits will be realized.

To address concerns about the risks of agile transformations, there are proposals for frameworks describing principles and, sometimes, recipes for organizations to roll out agile. This is known as the commodification of agile, a tentative to simplify and control the journey, what usually also limits its full realization (because it will be partial or contextual) and can often bring discredit to the movement. Guidance that concentrates on principles are usually more beneficial, because frame the process without being prescriptive. Examples are Bossa Nova [5] and the DevOps Handbook [9].

3 Agility for Broader Positive Impact and Sustainability

Because of the discussions on what is next for agile, in industry or academia, we often refer back to agile roots to remember the fundamental reasons, the essence, why agile in the first place? One of the drivers of agility has been the increased competition at a global scale, where the advantage is transient, and learning and adapting quickly is the way to thrive [10].

So, the fundamental assumption is that agile processes harness change for the customer's competitive advantage. This frequently justifies continuous improvement efforts and investments. It is rare to hear questions on why competitive advantage? Is competitive advantage the final purpose we are all working for? Is competitive advantage sustainable?

For instance, there is already acknowledgment that most successful digital organizations have become (quasi-)monopolies through agility and that sometimes they abuse this power (e.g. on users' privacy). Statements as "business agility is not the same thing as business virtue" [4] are examples of luminaries recognizing the importance of discussions related to positive impact that organizations need to reflect a.

The Agile Manifesto brought a principle related to sustainability, defined as "maintaining a constant pace indefinitely". This principle has been interpreted from managerial, technical, and social aspects. A team should be able to keep its workload under control given the short-term focus. If they do not carry a heavy workload, a traditional problem faced by software development teams, they are less likely to burnout or have work-life balance issues. Finally, from a technical and management perspective, the team should be able to avoid future heavy workloads or stress of not getting anything done by managing technical debit.

In a broader sense, sustainability is meeting the needs of the present without compromising the ability of future generations to meet their needs. It is often considered in terms of the three pillars of environmental, social and economic considerations [8]. The link between sustainability and software development has been done by some research fields, as the nascent *Information and Communication Technologies for Sustainability* (ICT4S)[1].

This research community has created the **Karlskrona Manifesto** [2] to articulate a set of principles and commitments, as we are responsible for the long-term consequences of our systems' designs. They state that "if we don't take sustainability into account when designing, no matter in which domain and for what purpose, we miss the opportunity to cause positive change". A positive impact on society occurs when the effect of a sustainable activity on the social fabric of the community causes well-being of the individuals and families [16].

The Karlskrona Manifesto states that "sustainability is at its heart a systemic concept and has to be understood on a set of dimensions, including social, individual, environmental, economic, and technical". When trying to understand the most important global discussions around sustainability, we usually refer to the 17 universal goals for sustainable economic, social and ecological development to be met by 2030, described as the Sustainable Development Goals (SDGs) [11].

[1] http://ict4s.org.

4 Core Agility Capabilities at the Heart of Implementation of SDGs

Implementing sustainable development goals is finding solutions for wicked problems, complex, non-linear, dynamic challenges in situations of insufficient resources, incomplete information, emerging risks and threats, and fast changing environments. Software development, in general, is a complex environment that cannot be fully understood upfront, some experimentation is needed.

In this context, agile principles are appropriate for the exploration of emergent needs, so the agile evolutionary approach is a fit to the experimentation approach that sustainable (wicked) problems require [14]. Agile has brought a huge contribution to the IT community as it created a language, a set of principles, a structure for experimentation and digital innovation through teams. Agile is being successfully connected to other innovation approaches, as Design Thinking and Lean Startups.

The agile movement is now devoted to transform entire organizations, which requires knowledge to redesign them from upside down, breaking silos and repurposing entire business functions. This required systemic capability is no longer exclusive for solving clients' problems, but to the reinvention of the organizations themselves. This set of sophisticated capabilities can be key levers to promote systemic changes we need for sustainability.

While the assumption that agility enables competitiveness is still valid, how much competitiveness we want to enable and to what price? Is the indefinite evolution of agility towards competitiveness helping society to live more sustainably? Should agility enable cooperativeness among organizations, not only inside them? To answer these questions, professionals need to embrace knowledge on areas as ethics, environment, policy, economics, and social justice. I would argue this is a new purpose for the agile movement, beyond the "compete or die" logic, assuming a more proactive and robust role on sustainability challenges and goals.

Implementing SDGs will require strategic efforts by different actors and transformative actions. There is a need for approaches and principles guiding strategic transformational change for organizations trying to implement SDGs [7]. Therefore, there is an opportunity to investigate how business agility can support the implementation of sustainable development goals. Where are the synergies and incompatibilities and how this knowledge can help society to make a transition to qualitative growth [15].

5 Conclusion

This position paper is a call to action for the agile community to revisit the purpose of agile, re-framing it in the 21st century context. The central argument is built upon the idea that agile evolution is being driven mostly by competitive advantage and scaling forces. From small to large teams, from teams of teams to entire organizations, some of them becoming quasi-monopolies. These drivers not necessarily help society achieving sustainable development goals.

A multi- or trans-disciplinary approach is probably needed to rethink the major drivers of current transformations (for agility and for sustainability) and strategically use the existent agile capabilities.

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