Chapter 5
Rapid Agile Transformation at a Large IT Organization

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ABSTRACT
This chapter describes the agile transformation of an IT organization in China with about 4000 people including contractors. In the span of one year, 47 teams and 1700 engineers moved from traditional to agile way of working. There was a 44% reduction in development lead-time, 5% reduction in production defects and 22% reduction in production incidents. This agile transformation occurred at two levels. At the organization level, adoption speed was crucial, as we wanted to reach critical mass in rapid time with limited coaching resources. This was very much an entrepreneur startup problem, where customers in our case are teams and members in the IT organization. At the team level, a practice architecture provided a roadmap for continuous improvement. A theory-based-software-engineering approach facilitated deeper learning. Beyond the usual factors for leading successful change, this transformation exemplified the use of a startup mentality, social networks, practice architecture, simulation, gamification, and more importantly integrating theory and practice.

1. INTRODUCTION
Today, agile development has “crossed the chasm” and became mainstream (Maurer & Melnik, 2007). Many organizations have adopted agile development (Vijayasarathy & Turk, 2008). However, failures to agile adoption are not uncommon and the ride towards agility can be bumpy (McAvoy & Butler, 2009). Regardless, the industry is now seeking new frontiers towards agile development. For example, teams are extending agile principles to IT operations in the form of DevOps (Spinellis, 2012), and to novel product development in the form of Lean Startup (Ries, 2011). Still, there are others who want to be successful not only in small development, but also in large development, such as using Large Scale Scrum (LeSS) (Larman & Vodde, 2013), Scaled Agile Framework (SAFe) (Leffingwell, 2010) and Disciplined Agile Delivery (DAD) (Ambler & Lines, 2012). Many authors and organizations have shared their experiences in large-scale agile development. Babinet and Ramanathan shared their experiences

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with dependency management in salesforce.com (Babinet & Ramanathan, 2008). Read and Briggs shared their experiences with large-scale agile design (Read & Briggs, 2012). Paasivaara and Lassenius shared experiences with scaling Scrum to large distributed development, with specific emphasis on the product owner role (Paasivaara & Lassenius, 2011). Fitzgerald et. al studied scaling agile methods to regulated environments in an industry setting (Fitzgerald, Stol, O’Sullivan, & O’Brien, 2013). However, there is little literature discuss how to effectively, systematically and rapidly enable a large organization to transform to an agile development, which is the emphasis of this chapter.

In this chapter, we highlight the enabling approaches that helped an IT organization of 4000 people including contractors transform from a traditional way of working into an agile one that is responsive to business needs. The author was the lead coach and advisor to this transformation. Our work with this IT organization occurred at two levels, organization and team.

At the organization level, it is really a change management process. A number of works exist on leading such changes including Kotter’s 8 step process for leading change (Kotter, 1995), Prochaska’s stages of change, (Prochaska et al., 1994) Lewin’s three steps to organization change (Lewin, 1989) and Gleicher’s formula for change (Dannemiller & Jacobs, 1992). However, our experience is that an organization was not a monolithic entity, but a complex network of social entities, where each entity can influence another. An agile transformation endeavor is then about systematically propagating change (i.e. the message and spirit of agility) across the organization to different entities (i.e. teams), often across organizational silos. Even though the IT organization in our case study had a top-down culture, a top-down directive would not work in the long run, but instead would kill the spirit of agility and innovation. Thus, agile transformation is about seeking out teams who would embark on the agile transformation journey with us and help us spread the message. This in effect is very much like a startup company. Blank (Blank, 2013) stated that a startup is a company designed for rapid search to find a scalable and repeatable business model. In the same way, we are rapidly searching for a way to scale the agile transformation across the organization to all teams. This involves not only organization changes such as removing silos, but also community activities to spread various teams’ successes.

At the team level, it is about how interested teams could become agile. The challenge here is about introducing the right set of practices to achieve quick wins given their context, their current limited lack of understanding of agile methods and their limited resource. These practices can be familiar ones like Scrum (Schwaber, 1997), continuous integration (Duvall, Matyas, & Glover, 2007), automated testing (Gamma & Beck, 2006), agile requirements (Leffingwell, 2010), etc. or something novel that emerged when engaging the teams in their daily work. Regardless, practices have to be contextualized and supported by sound theoretical and empirical basis. Our previous work on Theory Based Software Engineering (TBSE) (Jacobson, Ng, McMahon, Spence, & Lidman, 2013) plays an important role in linking context, practice and theory within a practice framework. This practice framework is crucial because it evolved into the organization’s knowledge of how to conduct software development in the future.

The goal of this chapter is to present our experiences, the lessons learnt and the strategy that emerged as we engaged with the leaders and teams of the IT organization. We organize this chapter as follows. Section 2 describes the agile transformation case study and the events that occurred as well as the results. Section 3 describes our approach and strategy at the organization level, which involved many aspects of change management such as executive support, changing internal processes, establishing communities, rewards, etc. We adopt and agile approach to agile transformation and created a minimum viable “product” to get quick wins and traction. Section 4 describes our approach and strategy at the team level. Central to our approach here was the use of TBSE to rapidly capture practices with supporting theories.