EMBRACING DIGITAL DISRUPTION BY ADOPTING DEVOPS PRACTICES

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INTRODUCTION

We live in interesting times, especially when you like we do, work for IT boutique consulting firms specialized in Lean IT, IT Craftsmanship, Automation and Agility. Many organizations are starting to tear down the walls between business and IT, the even thicker walls between technical departments within IT, and have replaced their “Waterfalls” with fountains of nice feedback loops and shorter iterations.

Leaders of these organizations now start to realize that IT is a strategic differentiator instead of a mystical capability best left to techies who speak a foreign language. They read almost daily in newspapers stories that inspire them further. One type of story focuses on organizations that have been dramatically transforming by adopting an engineering culture, and moving towards a new world of IT. This leads to extremely fast concept-to-cash or low time-to-market, and much lower operating and capital expenditures. Another type of story, which offers equally interesting lessons learned, focuses on organizations that have either gone bankrupt or lost huge parts of their market share because they have been replaced by a startup, or an "App".

We are confident that stories such as the ones described above are only the tip of the iceberg. Disruptive innovations in IT are accelerating at a fast pace, and enormous gains achieved if organizations apply the best practices correctly.

At the same time, business leaders are fed up with "IT departments that say no" and start building (lean) enterprises from the ground up including New IT as a central pillar. To make it into the next decade, as Fig. 1 depicts, enterprises regardless of the industries they are in, need to transform to become a so-called “fast-mover”.

DevOps is one of the central pillars on which many of the new breeds of IT organizations realize a new modus operandi for delivering IT services. Using DevOps across the entire organization, so-called enterprise DevOps, they redesign their business and IT organization using a new operating model that says goodbye to traditional demand supply models, centralized IT operations, and complex value streams with an excess of handovers, waste and error-prone manual activities that do not deserve the label 'engineering.'

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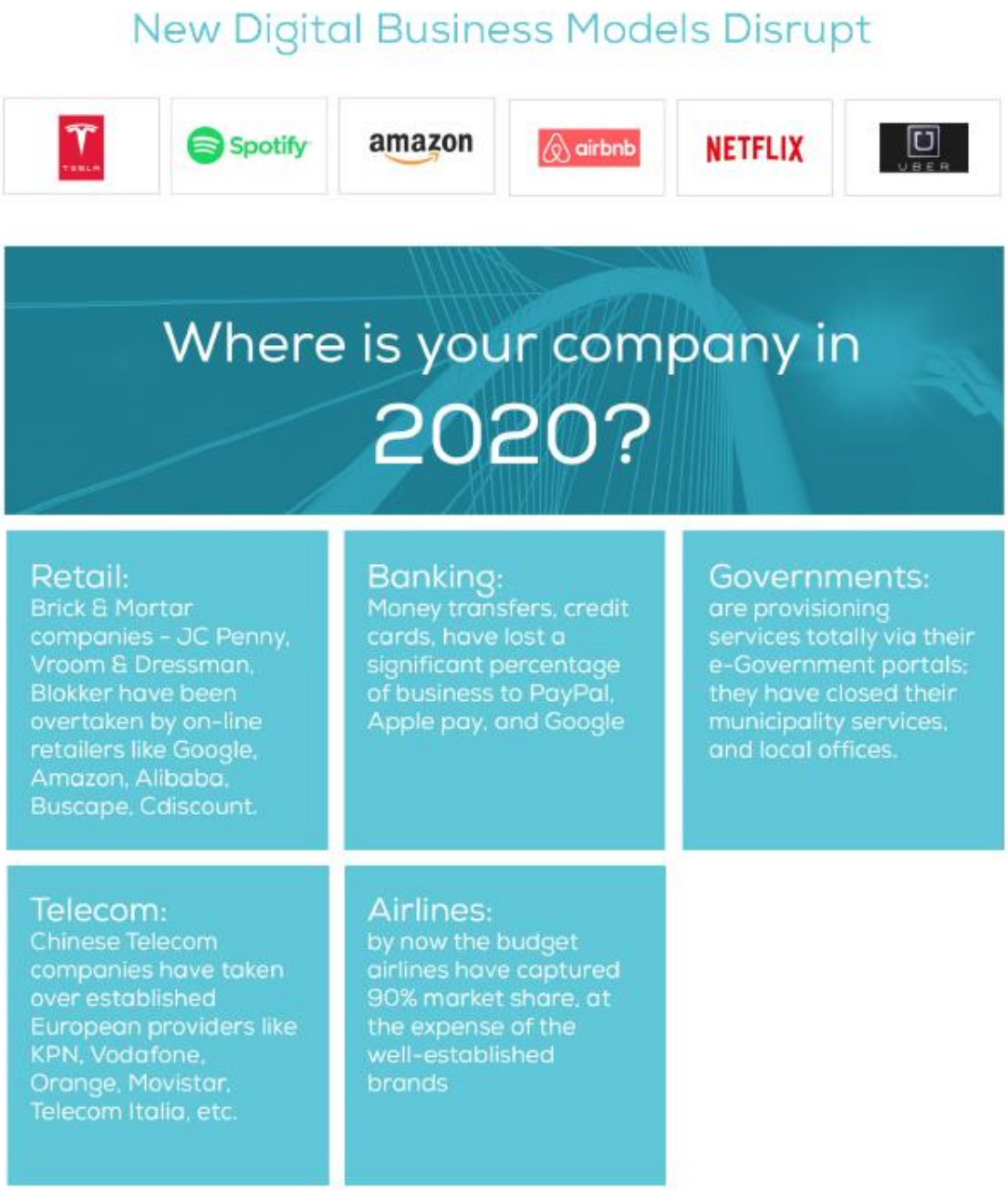

Fig 1: The urgency for enterprises to become a fast-mover

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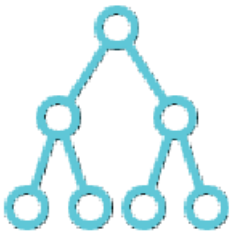
UNDERSTANDING THE DISRUPTIVE REVOLUTION CALLED DEVOPS

Historically, we have seen many small waves of innovation hit the information technology industry. Typically, these waves focused on either infrastructure (mainframe to distributed to virtual), application architecture (monolithic to client-server to n-tier) or processes/methods (ITIL, TOGAF, Prince2, COBIT to Lean, Agile, Scrum). What is radically different now, is that we find ourselves in the midst of a ‘perfect storm’ that encompasses all three areas at once, which is why labels such as 'Digital business transformation', and 'digital disruption' are no exaggeration in our humble opinion.

Some key ingredients:



IT **infrastructure** as we know it is completely disrupted by lightweight container technology (best known by market leader Docker and its technology)

Public **cloud** solutions (e.g. Amazon AWS, Google Cloud, MS Azure) are now sufficiently mature to convince even larger enterprises to go cloud-native and reduce in-house IT operations.

Agile software development teams transform from happy folks gathered around a Scrum board with multi-colored post-its to high-performance feature teams for which "Done = live" and "infrastructure as code" are central credos instead of marketing buzz.

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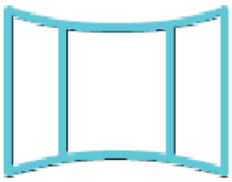
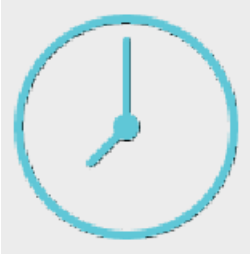


Monolithic and traditional application **architectures** landscapes that typically accrued substantial technical debt over the past years, transform to distributed microservices-based models to allow value-added business logic to be quickly added or changed by those agile autonomous teams, to better serve the end users.



Organizations start to realize that bringing a new feature into production is something that should be possible within minutes, multiple times a day, without disrupting any business continuity. As a result, all waste in IT Development and Operations is removed by fully automating the lifecycle adopting reliable **continuous delivery** and deployment practices.

Combining these ingredients helps organizations in arriving at a complete Rethink -- or Reset -- of this IT structure and capability, as depicted in Fig. 2. Agile product teams are able to utilize a modern, cloud-based and fully automated end-two-end stack to deploy their software products multiple times a day if needed. In parallel cloud operations teams, ensure the evolution and 24x7 quality of this stack to fully support the teams and to allow organizations to spend a maximum percentage of time and money to innovation, new products and services, and understanding end customers and market trends.

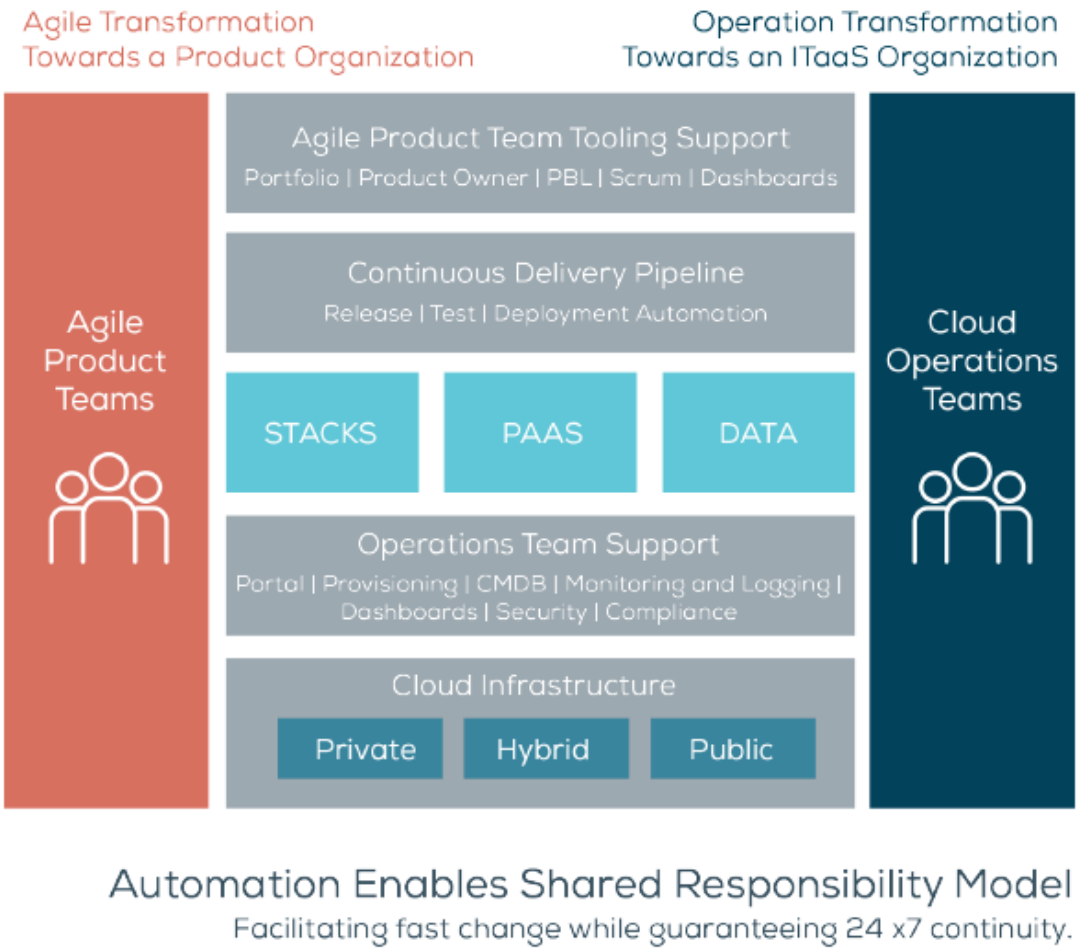


Figure 2: Combining key DevOps ingredients to rethink and reset your IT

DevOps aims for a simple, yet important goal to make IT easier, faster and cheaper, to provide more value faster to the business/consumer/user. And that is the end game after all. DevOps, a philosophy that arose from an urgent need for better alignment, collaboration, and empathy between IT Development and IT Operations teams or departments, is now increasingly used to denote precisely the aforementioned key ingredients that constitute the New IT wave. For us, enterprise-wide DevOps stands for rethinking traditional IT practices and capabilities, including a product, process, and people perspective. DevOps is the ultimate search for flow in the delivery of IT services. Many firms are in dire need to find this flow before it is too late. We denote this as “DevOps or die”. In discussions with CEOs this often helps opening their eyes.

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DEVOPS PRINCIPLES

Many definitions of DevOps exist, and many of them adequately explain one or more aspects that are important to find flow in the delivery of IT services. Instead of trying to state a comprehensive definition on our own, we prefer highlighting six principles we deem essential when adopting or migrating to a DevOps way of working.

Customer-centric action. It is imperative nowadays to have short feedback loops with real customers and end-users, and that all activity in building IT products and services centers on these clients. To be able to meet these customers' requirements, DevOps organizations require the guts to act as lean startups that innovate continuously, pivot when an individual strategy is not (or no longer) working, and constantly invests in products and services that will receive a maximum level of customer delight.

Create with the end in mind. Organizations need to let go of waterfall and process-oriented models where each unit or individual works only for a particular role/function, without overseeing the complete picture. They need to act as "product companies" that explicitly focus on building working products sold to real customers, and all employees need to share the engineering mindset that is required actually to envision and realize those products.

End-to-End responsibility. Where traditional organizations develop IT solutions and then hand them over to Operations to deploy and maintain these solutions, in a DevOps environment teams are vertically organized such that they are fully accountable from "concept to grave". IT products or services created and delivered by these teams remain under the responsibility of these stable groups. These teams also provide performance support, until they become end-of-life, which greatly enhances the level of responsibility felt and the quality of the products engineered.

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Cross-functional autonomous teams. In product organizations with vertical, fully responsible teams, these teams need to be entirely independent throughout the whole lifecycle. That requires a balanced set of skills and also highlights the need for team members with “T-shaped” all-round profiles instead of old-school IT specialists who are only knowledgeable or skilled in for example testing, requirements analysis or coding. These teams become a hotbed of personal development and growth.

Continuous Improvement. End-to-end responsibility also means that organizations need to adapt continuously in the light of changing circumstances (e.g. customer needs, changes in legislation, new technology becomes available). In a DevOps culture, a strong focus is put on continuous improvement to minimize waste, optimize for speed, costs and ease of delivery, and to continuously improve the products/services offered. Experimentation is therefore an important activity to embed and develop a way of learning from failures is essential. A good rule to live by in that respect is “if it hurts, do it more often”.

Automate everything you can. To adopt a continuous improvement culture with high cycle rates and to create an IT organization that receives instant feedback from end users or customers, many organizations have quite some waste to eliminate. Fortunately, in the past years, enormous gains in IT development and operations can be made in that respect. Think of automation of not only the software development process (continuous delivery, including continuous integration and continuous deployment) but also of the whole infrastructure landscape by building next-gen container-based cloud platforms that allow infrastructure to be versioned and treated as code as well. Automation is synonymous with the drive to renew the way in which the team delivers its services.

PROFESSIONALIZING THE DEVOPS DISCIPLINE

It should come as no surprise that the DevOps world described earlier is quite disruptive for the average enterprise, IT organization and John Doe working for example as a software developer, tester or system administrator. There are definitively frontrunners and organizations who score high on DevOps maturity and individual IT professionals for whom the DevOps principles closely relate to how they have always worked. But for the majority, there is quite some work to be done Enter DASA, the DevOps Agile Skills Association. This association is an open, global initiative to develop standards for DevOps competencies that will benefit the individual, team, and organization. DASA has set out to promote a knowledge and skills framework for DevOps based on the set mentioned above of principles for DevOps.

DASA develops and evangelizes a vendor neutral DevOps qualification program for professionals, generates interest and awareness for the need for knowledge and skill development, promotes open source certification for DevOps knowledge and skills and ensures the quality of training for the market through a logical and threshold driven qualification program.

Anyone can participate in defining role-based competencies, learning paths and qualification schemes. All existing learning content that maps against the DASA knowledge and skill areas has value. DASA will map content and demonstrate relevance and will maintain an open and logical operating model for training delivery.

Fig 3: DASA's Mission

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INVEST IN YOUR PEOPLE'S COMPETENCIES, NOW!

We firmly believe, and we see this reflected in the market, that the transition to DevOps goes hand in hand with a redesign in IT roles and responsibilities. Many traditional IT functions will soon be deprecated as we move towards DevOps teams in which team members become more all around professionals with engineering skills, soft skills and a prime focus on all the DevOps principles mentioned in this article.

The key to working in this new environment is to recognize that there is a skills and knowledge set that needs to be present in every DevOps team. The distribution of these skills and knowledge may be different per team. However, each team will need to ensure that there is enough of each skill and knowledge area to ensure the service is delivered as required by the customers of the service.

Over the past couple of years, we have seen DevOps teams in various phases of development. Our experience has shown, and in discussion with other DevOps practitioners confirmed, that there are specific skills and knowledge that can be discerned (see figure 4).

In next articles we will elaborate in more detail each of the 12 competency areas that constitute our DASA's competence framework and explain what organizations and individuals can best do in terms of skills development, learning paths, and how this relates to DASA certification.

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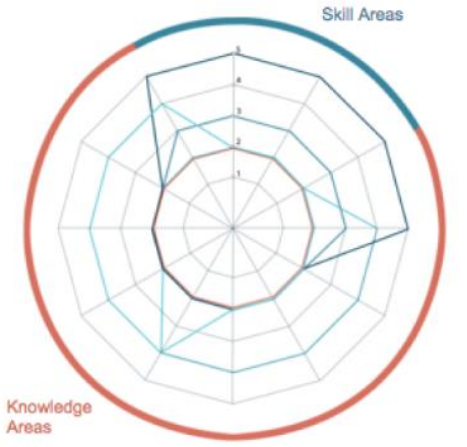
DASA Competence Framework



1- Novice / 2- Competent / 3- Proficient / 4 - Expert / 5 - Master

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The DASA Competence Framework identifies **(8) Knowledge areas and (4) Skills that are relevant in DevOps.**

Every individual operating in a DevOps team require to be competent at all 8 knowledge areas and proficient at the 4 skill levels.

In a search for ultimate flow, at the team level, one should strive for level 4 for each of the competence levels.

In conclusion, we believe that the journey to securing your IT Transformation includes investing in the training and education and skills development of your teams. We invite you to stay tuned to our next whitepaper that will delve even deeper in how you can empower your team to gain the skills and knowledge they need to help your organization achieve its IT Transformational goals.

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