



# DEVELOPING DEVOPS KNOWLEDGE & SKILLS FOR THE DIGITAL AGE

By: Mike Orzen  
Suzanne Galletly

# CONTENTS

1. Introduction
2. Importance of DevOps in the Digital Age
3. DevOps as Part of the Digital Skillset
4. EXIN DevOps Certification Program
5. Summary
6. About the Authors
7. About EXIN

# 1. Introduction

Whether you are shopping, listening to music, traveling or communicating, the chances are you have made use of digital services in one form or another. Digital services are crucial to the success of any modern business, even if the core product is a physical one. Often this leads to significant disruption of the status quo, with traditional business models becoming obsolete and established names disappearing, unable to adapt and move with the times. The pace of change is such that we can say with certainty that the next disruption is just around the corner – we just don't know what it is yet.

Digital transformation offers massive business opportunities to organizations, not just to increase efficiency via the digital optimization of business processes, but for truly transforming the way they conduct business and interact with their customers.

“New digital business models are the principal reason why just over half of the names of companies on the Fortune 500 have disappeared since the year 2000.”\*

**PIERRE NANTERM, THE CEO OF ACCENTURE,  
TO THE WORLD ECONOMIC FORUM**

Moving with the digital times has become a matter of survival for most companies, both large and small and across every industry sector.

Being able to respond and adapt to this pace of change is essential and this has led to new ways of working. It was against this background that Agile started to develop, and over the last years agile approaches have become business as usual. DevOps is very strongly linked to Agile, as DevOps help organizations develop the agility, speed, and responsiveness they require in a competitive business environment. DevOps enables organizations to decrease time to market for new releases, software, or services by encouraging a collaborative approach from development and operations teams, and by increasing productivity through automation. DevOps focuses on providing customer value by creating iteratively and delivering continuously which means it will stay relevant for many years to come.

## 1. Introduction

**The purpose of this paper is to set out EXIN's vision on the development of DevOps related skills and knowledge in the digital age for interested parties: corporate organizations, training organizations, and business and IT professionals.**

This paper considers the importance of DevOps, the skillset professionals need in order to embrace the future, and how to develop knowledge and skills related specifically to DevOps to ensure their relevance. It serves as an introduction to EXIN's DevOps certification program.



## 2. Importance of DevOps in the Digital Age



The need for rapid, complete, and accurate delivery of products and services has never been greater. Customers and business partners have come to expect consistent high performance as a prerequisite for doing business. In our global economy, access to information, competition, and the pace of change has drastically altered the playing field. We have moved from an efficiency model where the focus was on stability and cost control, to a value-creation model where the focus is on effectiveness and added value.

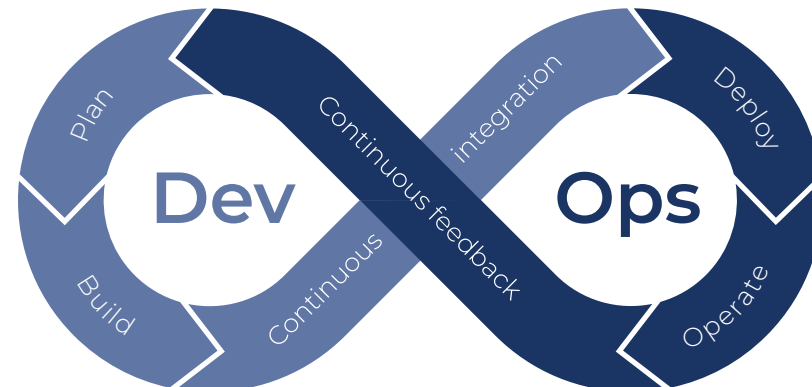
**For customers and end users, effectiveness means quality, speed, value, and flexibility. Today's end users have zero tolerance for outages or apps that are counterintuitive.** Time to market for new products, services, and upgrades translates into new customers and more profits. In fact, if your IT capability can't deliver fully operational value-adding functionality at the speed of customer demand, your future is at risk. DevOps provides the mindset, skill set, and tools needed to create a working environment which supports the people, processes, and technology to make this happen.

## 2. Importance of DevOps in the Digital Age

**DevOps is built on a framework of core concepts originating from lean manufacturing, first applied to software development (Agile), then expanded to IT operations (Lean IT).** This then evolved into a unified approach to create a coordinated flow between IT development and IT operations. But that was just the beginning. DevOps is extending its focus to coordinate and collaborate beyond the boundaries of IT. Winning in the marketplace requires creating a seamless flow from concept to launch, from order to delivery, and from start to finish for all customer experiences.

The integration of Development and Operations brings a fresh perspective to software development. The number of DevOps tools available can be simultaneously inspiring as well as daunting. It is not surprising that many IT professionals dive into the technical side of DevOps (automated CI/CD, infrastructure as code, containerization, monitoring tools, tool chains, etc.) – that's where all the action is! Yet, the challenge and the real payoff of DevOps results from building the social work environment required to profit from the technology.

### DevOps Cycle



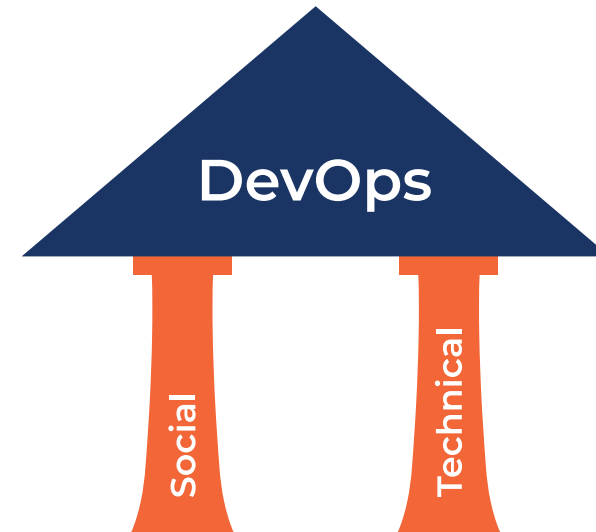
## 2. Importance of DevOps in the Digital Age

**It is essential to view DevOps as having two key elements: social and technical.**

If we think of a building as supported by two pillars, one social and the other technical, it makes sense that both pillars are vital to create a stable structure. The same is true for DevOps. In fact, all DevOps practitioners discover that the social side of creating a working environment and culture where DevOps excels is by far more complicated and challenging than building and mastering their DevOps tool stack.

The social side of the DevOps build is simple to learn and discuss, and deceptively difficult to get right. That is because the social side addresses people and teams and contains all the emotions, hopes, fears, drama, and quirks that make us human. It's messy work - and without a consistent and embedded approach to skills development, many IT professionals will find themselves lacking the skills necessary to navigate these waters.

DevOps  
Pillars



### 3. DevOps as Part of the Digital Skillset

New demands are constantly being made on professionals in terms of which skills and competences they need to master in order to survive and thrive. Technical skills are no longer sufficient in isolation; the professional of today needs to have a much broader range of competences in order to add value. Deloitte's model, entitled 'Skills necessary for digital transformation', can be a useful reference point when considering the areas of knowledge and skills required to support businesses in the digital age.

A number of the skills mentioned have a strong relationship with DevOps. For example, 'Agile structure' is mentioned as a separate required skill, due to how important responsiveness to change is in order for digital transformation efforts to succeed. DevOps is relevant here, as DevOps practices can help organizations to structure their activities in an agile way. Many of the other skills mentioned in Deloitte's model also have a strong link with DevOps. The focus within DevOps on collaboration, where development and operations teams work closely together on product development, is aligned with 'Collaborative processes', and DevOps skills contribute to 'Technological savviness' since many of its practices (e.g. continuous delivery) require knowledge of technologies. DevOps also supports the development of an 'Entrepreneurial spirit' as it significantly speeds up the development of products, which in turns supports the business in adapting to the market by introducing innovative products and services in a timely way.



UX DESIGN | AGILE STRUCTURE |  
ENTREPRENEURIAL SPIRIT |  
COLLABORATIVE PROCESSES |  
BUSINESS ACUMEN |  
TECHNOLOGICAL SAVVINESS



## 4. EXIN DevOps Certification Program

As observed by Gartner, **people** are the key to organizational change and successful DevOps. The EXIN DevOps certification program supports professionals in developing the required DevOps knowledge and skills, so they can make the difference within organizations.

“Organizational learning and change are key to allowing DevOps to flourish. In other words, people-related factors tend to be the greatest challenges – not technology.”\*

**GEORGE SPAFFORD**  
SENIOR DIRECTOR ANALYST, GARTNER

The program covers both the social and the technical aspects, so that professionals are equipped with the right knowledge and skills to work in a DevOps driven environment and ultimately guide the organization in creating the right culture. The program is focused on providing customer value by creating iteratively and delivering continuously.

## 4. EXIN DevOps Certification Program

The EXIN DevOps certification program is depicted on the right hand side of the page. The certifications are based on publicly available and globally recognized literature, and they target a broad audience in both business and IT.

The EXIN DevOps Foundation certificate provides professionals from all backgrounds with an introduction to the main DevOps principles, core concepts, and practices. The DevOps Professional certificate is more technical. It covers the Three Ways in DevOps as well as security and compliance during change. It is based on the popular DevOps Handbook. The DevOps Master is role-based and helps to prepare professionals to take a guiding role in a DevOps team or in the broader organization. The DevOps Master certificate includes practical assignments (or 'The Phoenix Project' simulation) to focus on applying knowledge in practice, as required for the role, as opposed to just testing theoretical knowledge through multiple choice questions. Pre-existing knowledge is recognized, so that professionals can enter the certification program at the level which is appropriate to their experience, without the need to start at the beginning.

The program has no recertification requirements - all of the certificates have a lifetime validity.

The EXIN DevOps certification program has been developed in close partnership with both subject matter experts and industry organizations, to ensure that the content is relevant and aligned with the market need. It is regularly updated to ensure new insights and market developments are incorporated into the program.



## 4. EXIN DevOps Certification Program

**Mike Orzen**, a recognized global thought leader in the domain of Lean and DevOps, provides his insights on the development of DevOps skills for the digital age.

“DevOps is increasingly important in today’s digital age, where consumer demands are higher than ever before, and developing a high level of agility is crucial to survival. Professionals need to develop DevOps knowledge and skills so they can seamlessly coordinate with all parts of the value stream to release customer-focused products quickly and with few errors. EXIN’s certification program provides a strong basis for developing the required knowledge and skills and covers certification on all levels so that professionals enter at the level best suited to their experience.”

**MIKE ORZEN, LEAN & DEVOPS THOUGHT  
LEADER**

## 4. EXIN DevOps Certification Program

**As with all EXIN's certification programs, the EXIN DevOps program is closely aligned to the e-Competency Framework (e-CF), an independent framework for IT-related competences which has been developed by the European Union.** Each certification within the program has been mapped to this framework so there is full transparency into which competences are covered and at which level, based on an internationally accepted standard. Framing the DevOps related competencies in the context of the e-CF enables comparison of individual growth, against competencies needed in a team or in the whole organization.

The result is that successful candidates receive an internationally recognized certificate provided by an independent exam institute, which allows them to demonstrate their knowledge and skills in the area of DevOps to the outside world and establish themselves as valuable assets in the market.



## 4. EXIN DevOps Certification Program

### The EXIN DevOps certification program is:

- The only DevOps program with certifications at all levels including Master;
- Covers both the social and technical aspects of DevOps;
- Based on publicly available and globally recognized literature;
- Practical to ensure what is learnt has maximum value in the workplace for better ROI;
- Aligned to an international competency framework (e-CF);
- A multi-layer program which recognizes pre-existing knowledge;
- Available in multiple languages to support local markets;
- Available through multiple channels so you can take your exam anytime, anywhere;
- A globally recognized, independent certification program with no lock-in.

EXIN's DevOps certification program is available in eight languages. Thousands of professionals have already been certified in the program in over thirty countries.

## 5. Summary

**DevOps practices are more relevant now than ever before as organizations seek to develop the agility, speed, and responsiveness they require in a highly competitive business environment.**

DevOps enables organizations to decrease time to market for new releases, software, or services by encouraging a collaborative approach from development and operations teams, and by increasing productivity through automation. As such, the development of knowledge and skills related to DevOps is a critical part of the digital skillset needed by professionals.

EXIN's DevOps certification program has been created with this in mind and helps professionals develop the skills – both social and technical – which they need to apply DevOps within organizations. In addition, they can achieve an independent, internationally recognized certificate to prove their worth, making them valuable assets in a highly competitive market.

## 6. About the Authors



### Michael Orzen

Michael delivers a unique blend of Lean, Agile & DevOps to IT and Service Operations. Considered a pioneer of Lean and technology, Michael is coauthor of the award-winning book “Lean IT: Enabling and Sustaining Your Lean Enterprise” and the follow up “The Lean IT Field Guide”. He is often referred to as “The Father of Lean IT” and recognized internationally as a thought leader in Lean, enterprise transformation, Lean IT and DevOps. He is a blogger for DevOps.com and has extensive experience in training and coaching DevOps at all levels in the IT organization. He is also a certified facilitator for The Phoenix Project Simulation game.



### Suzanne Galletly

As Portfolio Director at EXIN, Suzanne is end responsible for the development and positioning of EXIN's certification portfolio, in line with market needs and industry trends. Next to her role within EXIN, in 2017 Suzanne was appointed Chief Examiner for VeriSM™ by the newly established International Foundation for Digital Competences (IFDC). In this role Suzanne is responsible for ensuring there is alignment between the VeriSM™ approach and the VeriSM™ professional certification scheme.

Suzanne is certified in several progressive areas such as Agile Scrum, SIAM and VeriSM™, as well as in more traditional areas such as ITIL Expert, ISO 20000 Consultant, PRINCE2 Practitioner and MoP Practitioner.

## 7. About EXIN



Since 1984 EXIN has been a leading independent exam and certification institute, having certified millions of professionals in the digital domain. EXIN has over 1000 accredited partners in more than 165 countries worldwide. EXIN's flexible and innovative services enable candidates to take exams anywhere around the globe in many languages.

EXIN enables digital transformation by assessing and validating competences. EXIN offers a broad range of relevant and much demanded certifications, e.g. in the field of Service Management such as VeriSM™ and ITSM, Agile Scrum, DevOps, SIAM™, Information Security Management, Data Protection (based on GDPR), Cybersecurity, Data Center Management and Cloud Computing. EXIN also provides e-CF® NEXT, an advanced Skills Gap Analysis solution for organizations.

EXIN® is a registered trademark of EXIN Holding BV.