

COURSEWARE

# DEVOPS

## MASTER COURSEWARE

Alejandro Pestchanker

# DevOps Master Courseware

## Colophon

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## **Publisher about the Courseware**

The Courseware was created by experts from the industry who served as the author(s) for this publication. The input for the material is based on existing publications and the experience and expertise of the author(s). The material has been revised by trainers who also have experience working with the material. Close attention was also paid to the key learning points to ensure what needs to be mastered.

The objective of the courseware is to provide maximum support to the trainer and to the student, during his or her training. The material has a modular structure and according to the author(s) has the highest success rate should the student opt for examination. The Courseware is also accredited for this reason, wherever applicable.

In order to satisfy the requirements for accreditation the material must meet certain quality standards. The structure, the use of certain terms, diagrams and references are all part of this accreditation. Additionally, the material must be made available to each student in order to obtain full accreditation. To optimally support the trainer and the participant of the training assignments, practice exams and results are provided with the material.

Direct reference to advised literature is also regularly covered in the sheets so that students can find additional information concerning a particular topic. The decision to leave out notes pages from the Courseware was to encourage students to take notes throughout the material.

Although the courseware is complete, the possibility that the trainer deviates from the structure of the sheets or chooses to not refer to all the sheets or commands does exist. The student always has the possibility to cover these topics and go through them on their own time. It is recommended to follow the structure of the courseware and publications for maximum exam preparation.

The courseware and the recommended literature are the perfect combination to learn and understand the theory.

-- Van Haren Publishing

## Other publications by Van Haren Publishing

Van Haren Publishing (VHP) specializes in titles on Best Practices, methods and standards within four domains:

- IT and IT Management
- Architecture (Enterprise and IT)
- Business Management and
- Project Management

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Topics are (per domain):

### IT and IT Management

ABC of ICT  
ASL®  
CATS CM®  
CMMI®  
COBIT®  
e-CF  
ISO/IEC 20000  
ISO/IEC 27001/27002  
ISPL  
IT4IT®  
IT-CMF™  
IT Service CMM  
ITIL®  
MOF  
MSF  
SABSA  
SAF  
SIAM™  
TRIM  
VeriSM™

### Enterprise Architecture

ArchiMate®  
GEA®  
Novius Architectuur  
Methode  
TOGAF®

### Business Management

*BABOK® Guide*  
BiSL® and BiSL® Next  
BRMBOK™  
BTF  
EFQM  
eSCM  
IACCM  
ISA-95  
ISO 9000/9001  
OPBOK  
SixSigma  
SOX  
SqEME®

### Project Management

A4-Projectmanagement  
DSDM/Atern  
ICB / NCB  
ISO 21500  
MINCE®  
M\_o\_R®  
MSP®  
P3O®  
*PMBOK® Guide*  
Praxis®  
PRINCE2®

For the latest information on VHP publications, visit our website: [www.vanharen.net](http://www.vanharen.net).

## Author about this Courseware

Technology has brought the world more change in the last 20 years than in the previous 200, and we can only expect, that pace will be even faster in the years to come. Well established big businesses around the world, are being seriously challenged by new companies created almost overnight, by two adolescents in a remote area that nobody has ever thought of as a technology advanced place.

In that context, the era of the IT departments as we know it, is coming to a new beginning. To stay relevant, companies desperately need IT to become a business enabler, helping the business to learn fast from the customer, understand their changing needs and their journeys to take its products and services to a new level of user experiences and make them lovable.

As IT professionals and good old techies, it is our responsibility to keep up the pace with the changes and needs, evolving constantly, seeking new and improved ways to add value to our customers and our organizations.

DevOps is one of those beacons out there, that can help us in that endeavor, as a community collaborative effort to spread those methods and ways to establish the proper culture in our teams, for a more agile, lean and true customer centric value adding IT.

This courseware aims to provide a guided learning experience, to shed some light amid the vast amount of information, concepts and misconceptions. Especially useful for those who plan to obtain the Exin's DevOps Master certification, but hopefully also for anyone seeking to improve thru learning and becoming a change agent within its area of influence.

I wish you a great experience, with many challenges to your status quo, and enough reflection to becoming a DevOps evangelist at the end of it.

Keep up with the learning, there's no better professional and job satisfier than it.

Please send us any feedback, comment or critic that can help us make this courseware better or if you feel like, to reach out to chat about experiences or ideas to continue being part of this great technology journey that will take humans to the next step in our evolution.

-- Alejandro Pestchanker

Buenos Aires, Argentina 2019

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## Self-Reflection of understanding Diagram

*‘What you do not measure, you cannot control.’ – Tom Peters*

Fill in this diagram to self-evaluate your understanding of the material. This is an evaluation of how well you know the material and how well you understand it. In order to pass the exam successfully you should be aiming to reach the higher end of Level 3. If you really want to become a pro, then you should be aiming for Level 4. Your overall level of understanding will naturally follow the learning curve. So, it’s important to keep track of where you are at each point of the training and address any areas of difficulty.

Based on where you are within the Self-Reflection of Understanding diagram you can evaluate the progress of your own training.

<i>Level of Understanding</i>	<i>Before Training (Pre-knowledge)</i>	<i>Training Part 1 (1st Half)</i>	<i>Training Part 2 (2nd Half)</i>	<i>After studying / reading the book</i>	<i>After exercises and the Practice exam</i>
<i>Level 4 I can explain the content and apply it .</i>					
<i>Level 3 I get it! I am right where I am supposed to be.</i>					<i>Ready for the exam!</i>
<i>Level 2 I almost have it but could use more practice.</i>					
<i>Level 1 I am learning but don't quite get it yet.</i>					

(Self-Reflection of Understanding Diagram)

Write down the problem areas that you are still having difficulty with so that you can consolidate them yourself, or with your trainer. After you have had a look at these, then you should evaluate to see if you now have a better understanding of where you actually are on the learning curve.

**Troubleshooting**

*Problem areas:*

*Topic:*

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Part 1

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Part 2

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You have gone through the book and studied.

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You have answered the questions and done the practice exam.

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## Timetable

### Day 1

09:00 - 9:30	Introduction, About this course
09:30 - 09:45	Let's know each other
09:45 – 11:15	Module 1 – DevOps adoption
11:15 – 11:30	<i>Break</i>
11:30 - 13:00	Module 2 – Planning, requirements and design
13:00 – 14:00	<i>Lunch</i>
14:00 - 17:00	Game / Practical assignment

### Day 2

09:00 – 09:15	Recap from Day 1
09:15 – 11:15	Module 3 – Development & deployment
11.15 – 11.30	<i>Break</i>
11.30 – 13:30	Module 4 – Operation and scaling
13:30 – 14:30	<i>Lunch</i>
14:30 – 17:00	Game / Practical assignment

### Day 3

09:00 – 09:15	Recap from Day 2
09:15 – 11:15	Module 5 – End-of-life
11:15 – 11:30	Break
11.30 – 13.30	Game / Practical assignment
13.30 – 14:30	Lunch
14:30 - 15:30	Exin's DevOps Master Certificate
15:30 – 17:00	Sample Exam

# DevOps Master



## Agenda

### Day 1

09.00 - 9.30	About this Course
09.30 - 9.45	Let's know each other
9.45 - 11.15	Module 1 – DevOps adoption
11.15 - 11.30	Break
11.30 - 13.00	Module 2 – Planning, requirements and design
13.00 - 14.00	Lunch
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14:30 – 17:00	Game / Practical assignment

### Day 3

09:00 – 09:15	Recap from Day 2
09:15 – 11:15	Module 5 – End-of-life
11:15 – 11:30	Break
11.30 – 13.30	Game / Practical assignment
13.30 – 14:30	Lunch
14:30 - 15:30	Exin's DevOps Master Certificate
15:30 – 17:00	Sample Exam

# About this Course



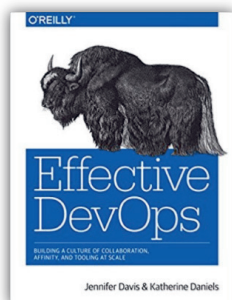
DevOps MASTER

COURSEWARE

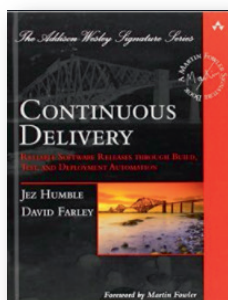
## About this courseware

### Literature:

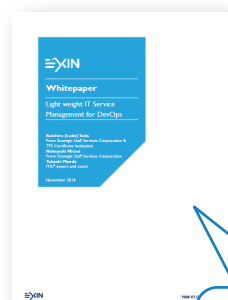
A



B



C



This literature is added to the back at the end of this courseware

## Course Objectives and Target Audience

The DevOps Master training and certification is aimed at all professionals who want to update their knowledge with the latest development in ICT management.

The EXIN DevOps Master certification is meant for anyone working within a DevOps team or in an organization that considers the transition to a DevOps way of working.

This course will prepare candidates for the EXIN DevOps Master certification test.

To achieve that goal the candidates have to prove their mastering of DevOps principles and skills.

An EXIN DevOps Master is able to help facilitate an organization's transition to DevOps and grow the business in a way that brings the most value to a customer

## Let's know each other

Who are in this class? Introduce yourself.

What is your name?

Which company do you work for?

What is your role your company?

Do you have any experience working with standards, frameworks or methodologies? (Scrum, Agile, ITIL, ISO)

What do you expect from this course?



# Module 1 DevOps adoption



## Module 1.1

# DEVOPS MINDSET AND BENEFITS

1.1 DevOps Mindset and Benefits

Traditional business culture is siloed into Islands of self-goals

Done! See Ya!

Ms. Dev

Wait! Wait! I need more time!

Mr. Test

You! Shall NOT Pass!

Mr. Ops

\$1M and our BEST Customer at RISK!

Mrs. Miss

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To bridge the IT internal islands,  
we must work as a joint team with  
a single goal:

**to deliver Business Value**

A: 1, 2, 3, 5 | B: 1 | C: 1, 2, 3



## DevOps Mindset and Benefits

### ¿What is DevOps?

*A Philosophy rather than a deterministic guide*

Continuously grow business advantage  
and customer satisfaction

Sustainable practices

Tools & Scale

A way of Thinking

Collaboration  
&  
Affinity

A way of Working



## Aspects of DevOps

### Cultural Aspects

#### Principles

- Collaboration
- Affinity
- Tools
- Scale

### Technical Aspects

#### Body of Knowledge

- Disciplined Agile
- Continuous Delivery
- IT Service Management
- Lean

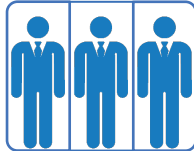


## DevOps Anti-Patterns



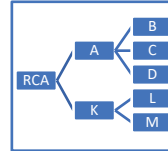
### Blame Culture

- Bad Apple
- Self-preservation
- Closeness
- No collaboration
- Information withhold
- Hostility
- No Learning



### Silos

- No Communication
- No Sharing
- Self-goals
- Slowness
- Low Morale
- Different tools
- Escalations



### Root Cause Analysis

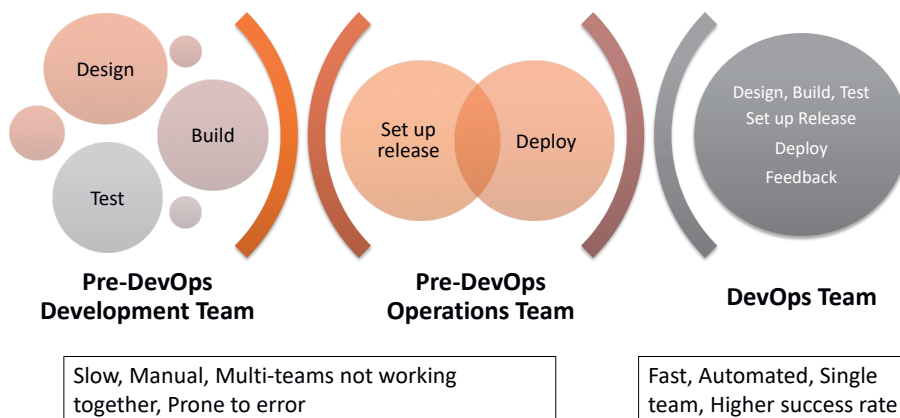
- Single Cause
- Linear
- Not suited for complexity
- Frequently used to blame



### Human Error

- Simplistic view
- Shallow analysis
- Biased
- Ending point

## DevOps Anti-Patterns scenario



## DevOps Business Benefits

- Companies using DevOps are outperforming those who are not\*
- It's a broad and inclusive effort to finally align IT with the business
- Focuses IT in maximizing business outcomes (e.g. Sales, profitability)
- Helps to establish a streamlined JIT business process
- Means establishing the IT service supply chain in the business
- Focuses on both cultural and technical aspects



\*Source: 2017 State of DevOps Report, presented by puppet and DORA - <https://puppet.com/resources/whitepaper/state-of-devops-report>

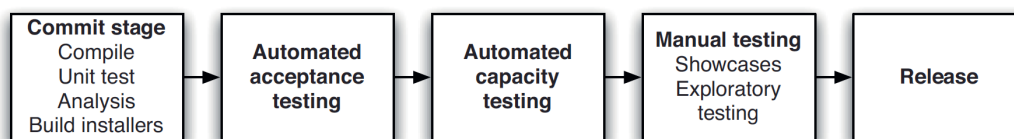
## DevOps IT Benefits

- Shift focus from **what** to **why** – question, innovate, collaborate
- Continuous improvement thru quick learning
- Repeatable, reliable, and predictable
- Faster reaction to business needs
- Higher return on investment in software
- DevOps principles can also be applied to the business

## DevOps and the Software Development Process

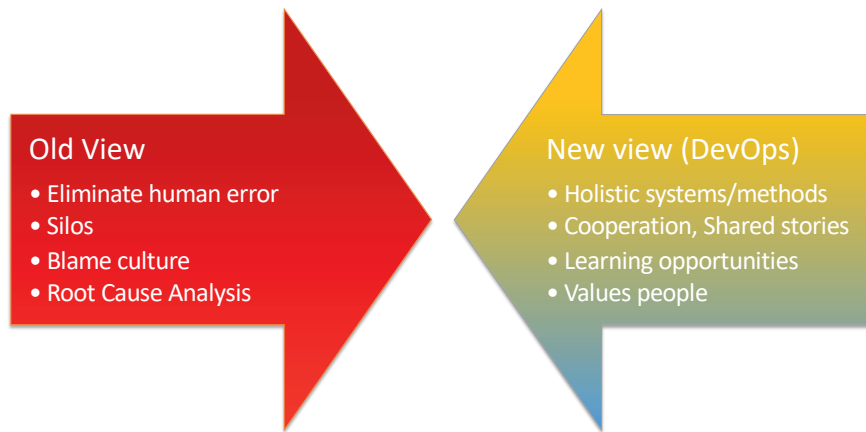
- Software does not exist separately from users and developers
- Software development methods focus primarily on development with little linkage to deployment and operations
- Devops is about adapting and innovating social structure, culture, and technology together in order to work more effectively

## The Deployment Pipeline



- Makes every part of the process of building, deploying, testing, and releasing software visible to everybody involved, aiding collaboration.
- Improves feedback so that problems are identified and resolved as early in the process as possible.
- Enables teams to deploy and release any version of their software to any environment at will through a fully automated process.

## The DevOps Mindset



## The DevOps Compact

People working as teams  
Mutual understanding & trust  
Communicate intentions & issues  
Dynamic adjustment & repairs of understanding

**Work towards shared  
organizational goals**

