An Antwerp Management School (AMS) Research Journey into Digital Platform Security Assurance

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Researchers

Antwerp Management School

Design Science Research

Design Science Research Methodology

Design Science Research (DSR) is a s
methodology of problem-solving that was dev
specifically for the Information Systems (IS) c
Many researchers have used the iterativ
methodology to develop information technolo
artifacts. DSR involves the creation o
knowledge through the design of new or inn
artifacts, analysis of use and performance o
artifacts to improve information systems (Va
& Kuechler, 2007).

Business Platform models

Business value

Agile methodologies

Technological advances

Digital Platforms

Organisational approaches

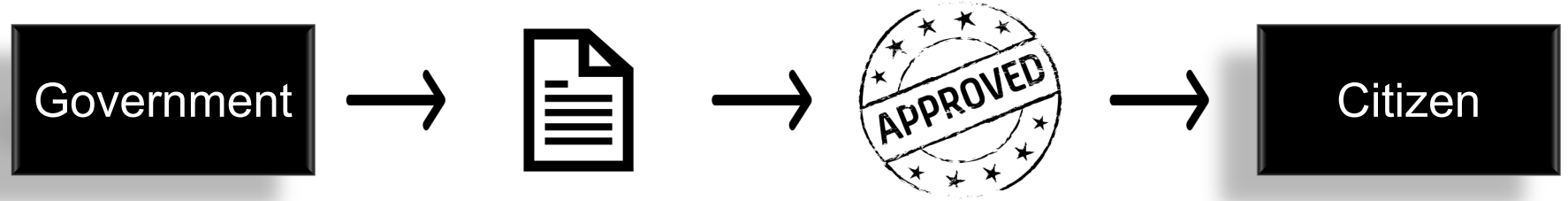
Security assurance in DevOps

Compliance

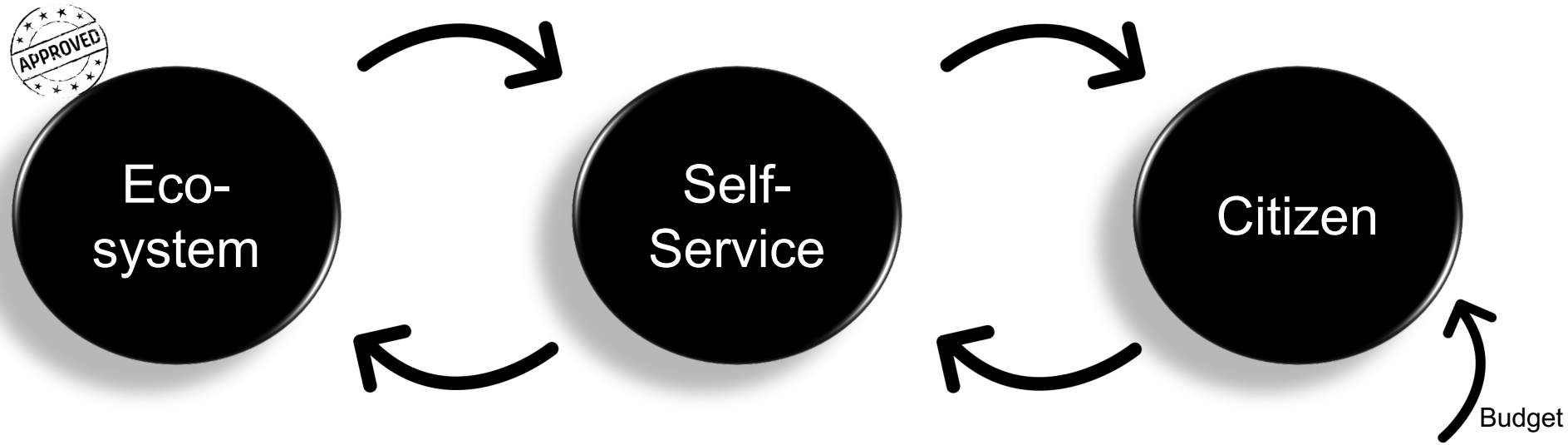
CI/CD and DevOps vs Security compliance

Rethinking Citizen Services model of government (*)

From: Lineair working



To: Platform Thinking



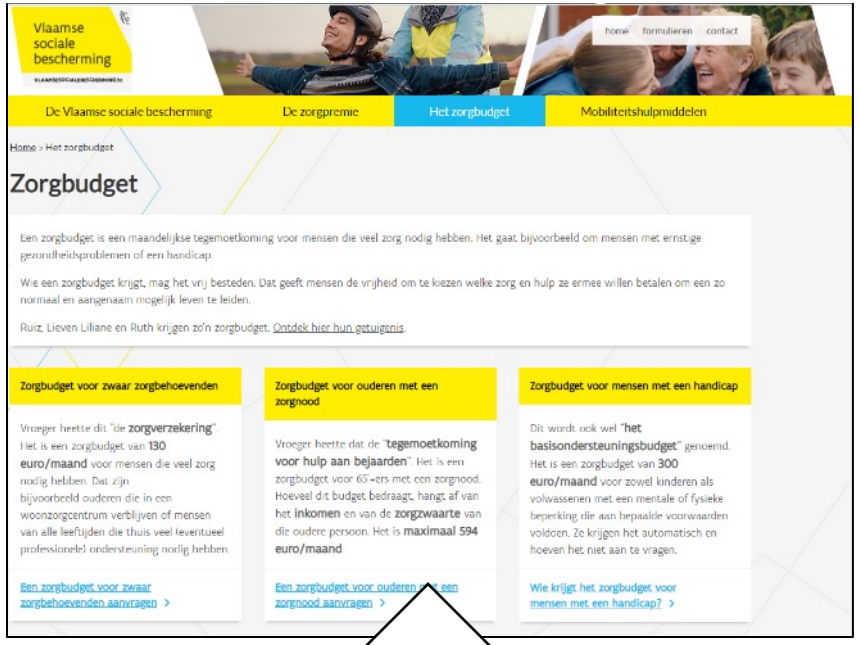
(*) Based on “Pipelines, Platforms and the New Rules of Strategy”, April 2016, by Marshall, Van Alstyne, Parker & Choudary

Examples

Surviving in Brussels

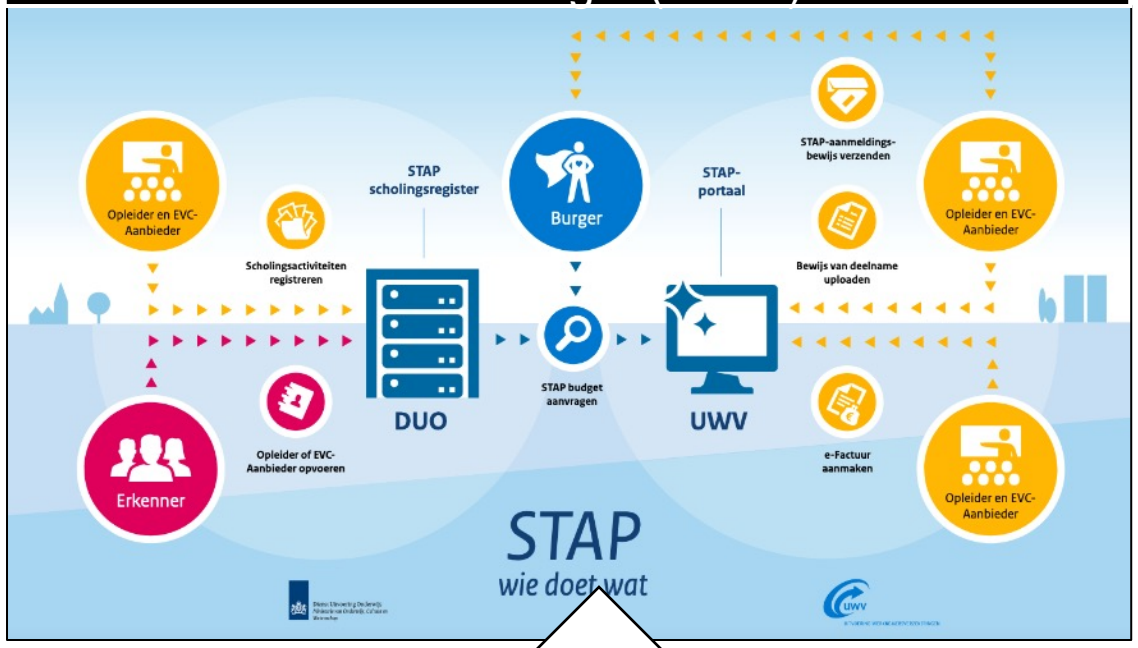
Personalized services for homeless

Flemish Care Budget



- Monthly allowance
- Anyone who receives a care budget can spend it freely.

NL Education Budget (STAP) - 2022



- Yearly personal training budget
- Spent it on selected trainings

Self-Service, Personalized, Own budget, Choice of Provider, Gov. provides platform

https://www.survivinginbrussels.be/app/nl/

https://www.vlaamsesocialebescherming.be/zorgbudget

https://www.uwv.nl/particulieren/stap-budget/index.aspx

Proper strategic approaches are needed

"Platforms still unaffected in education, government, and healthcare," (1)

"Lack of IT standards & (digital) skills. Absence of political support or strategic vision" (2)

"Government lag industry progress" (3)

How do you <u>strategize</u> and design a platform model?

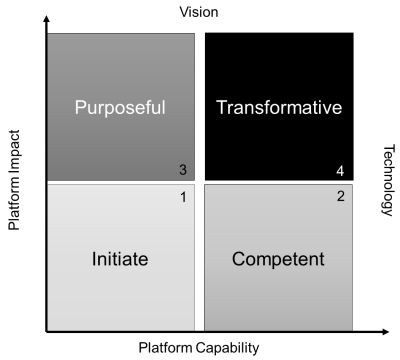
How do you <u>organize</u> for operating a platform model?

"Platforms are here to stay"

1. Parker et al., 2016 - Platform Revolution. / 2. Enzo et al., 2019 - "State of the art in the use of emerging technologies in the public sector" / 3. DIGIT, 2019 - eGovernment factsheets anniversary report / 6. Accenture, Citizen Survey 2019

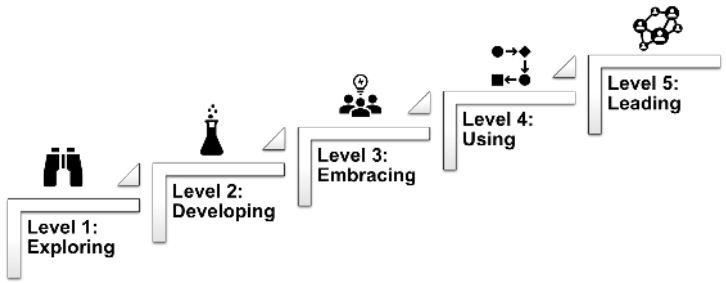
Zooming in on 4 strategic approaches

Vision & Strategy



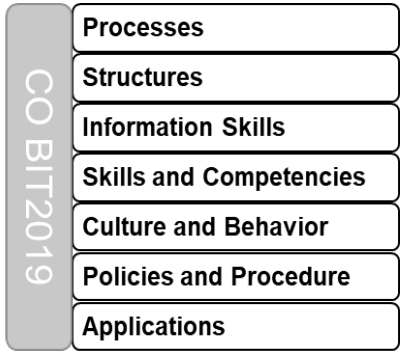
1. Determine organizational readiness by using the **Platform Capability Model**

Plan



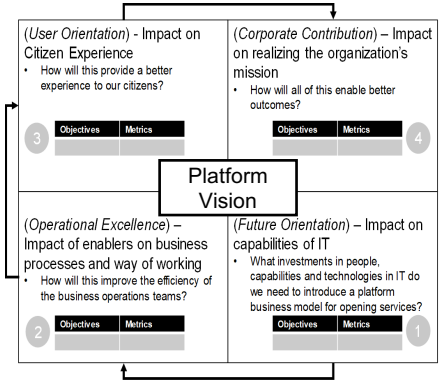
2. Determine your ambition and roadmap by using the **platform maturity level**

Design



3. Design your **platform governance model**

Measure



4. Convert into **objectives and metrics**

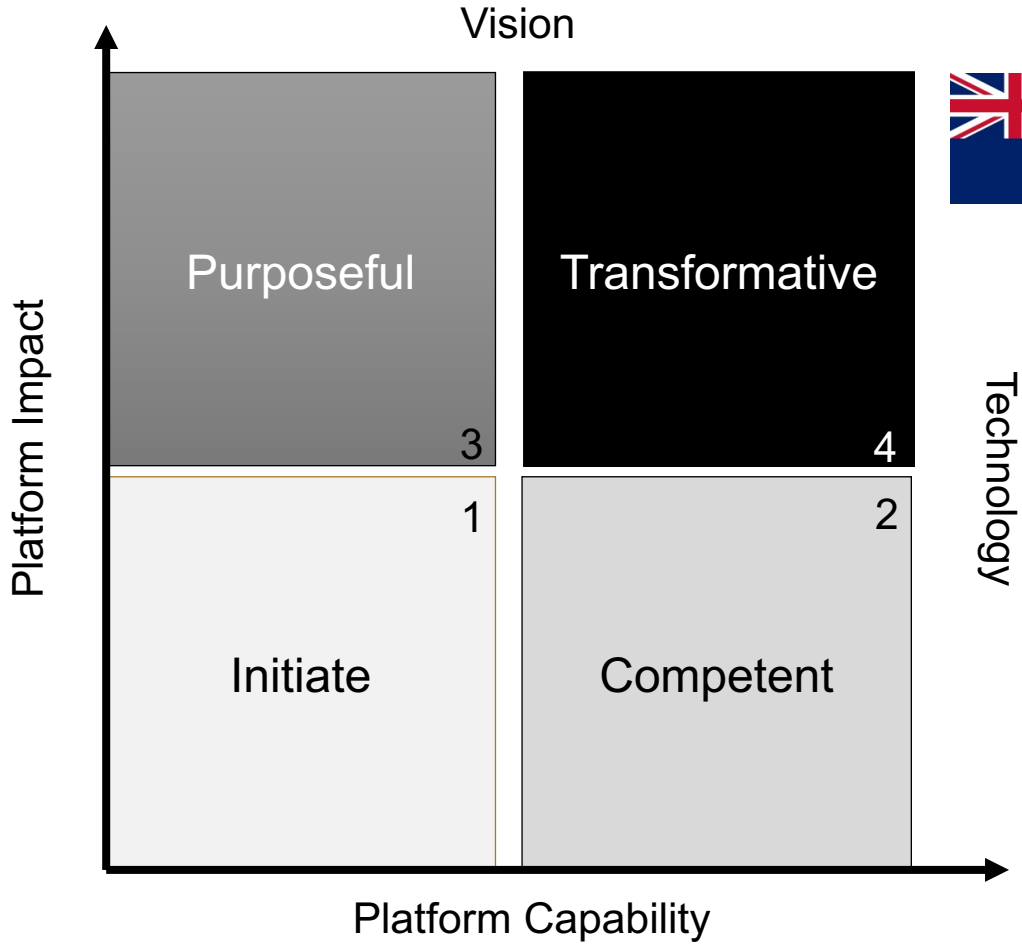
Strategic Approach 1: Vision & Strategy

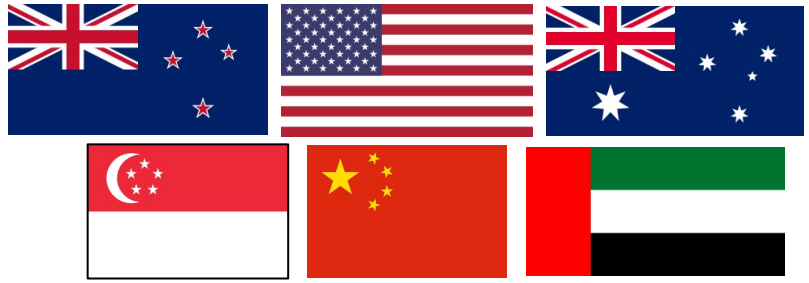
Determine organizational readiness

Platform Capability Model

Two series of 30 Indicators

- Based on research & case studies
- For each indicator determine score
- Magic Quadrant determines readiness





Strategic Approach 2: Plan

Determine ambition and roadmap: **Platform maturity model**

Level 1: Exploring

…the business platform Model

Level 2: Developing

…a business platform model

Level 3: Embracing

… for first experimental cases or well-defined scope

Level 4: Using

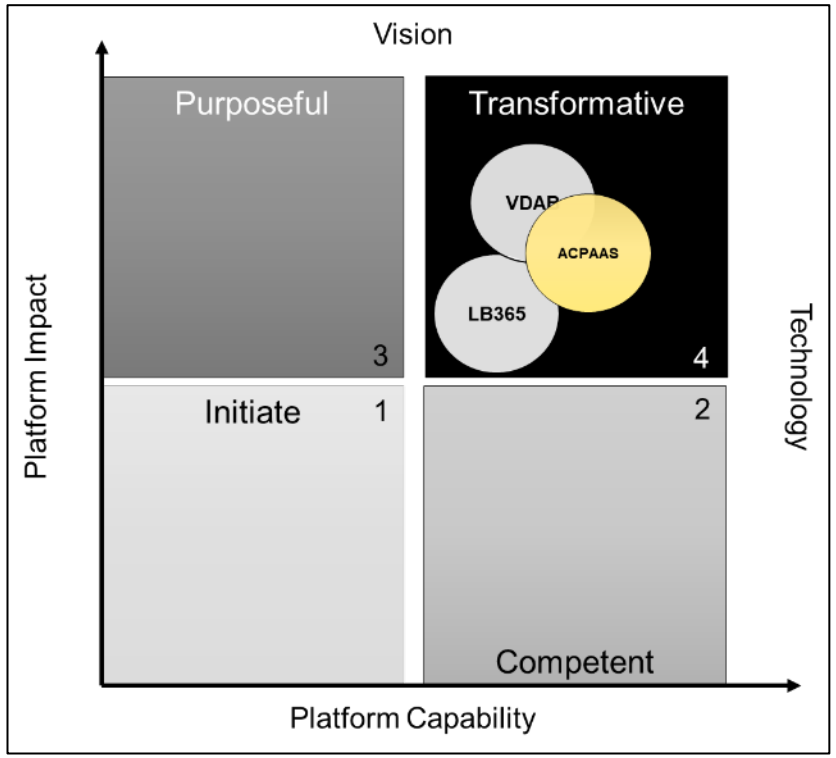
… a business platform model for certain services

Level 5: Leading

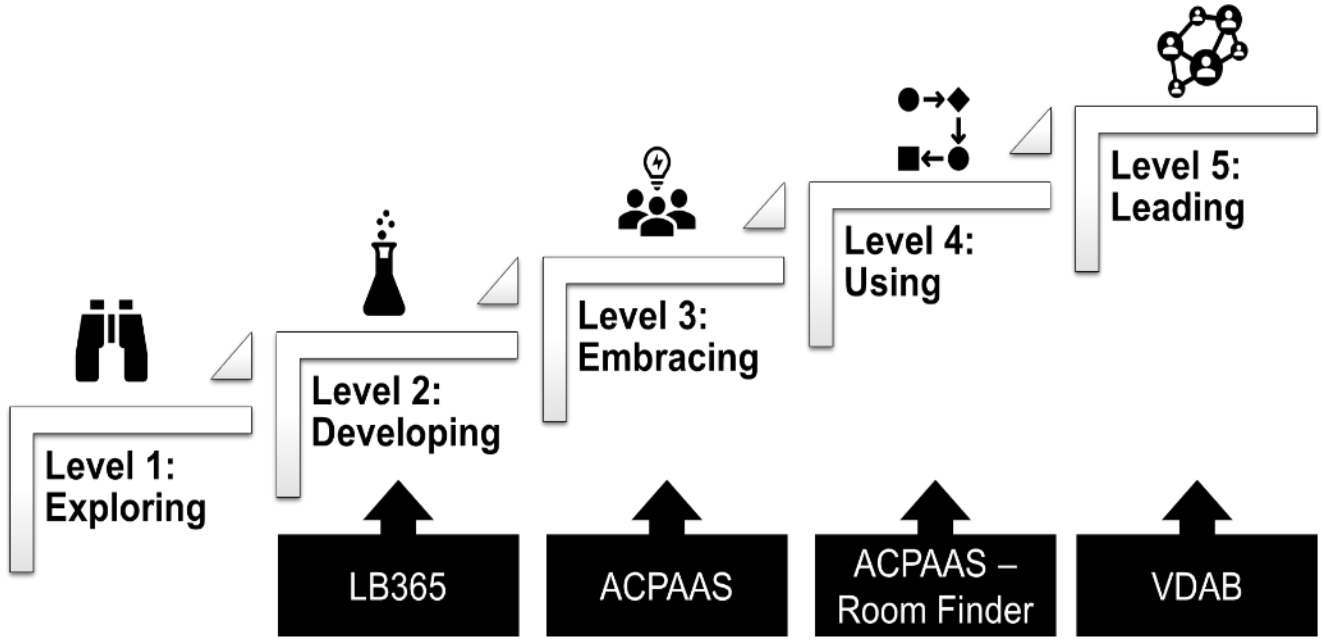
… the business platform model, actively putting services out to the ecosystem

Samples – use cases researched

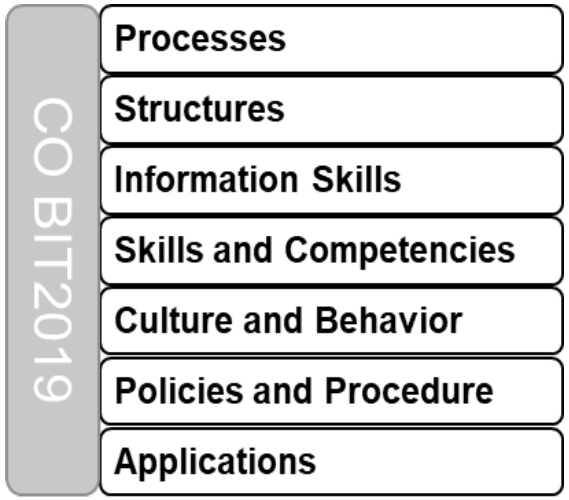
Platform Capability Model



Platform Maturity Model



Strategic Approach 3: Design



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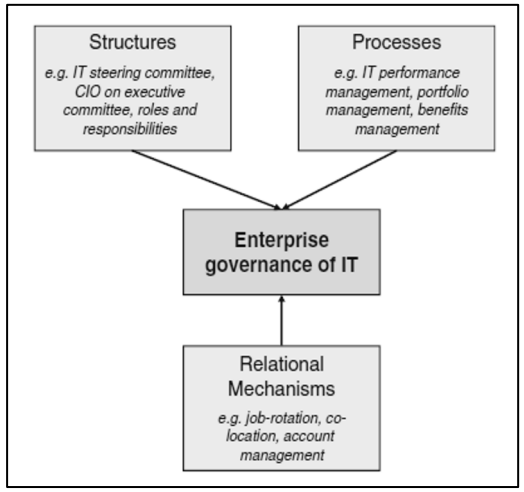

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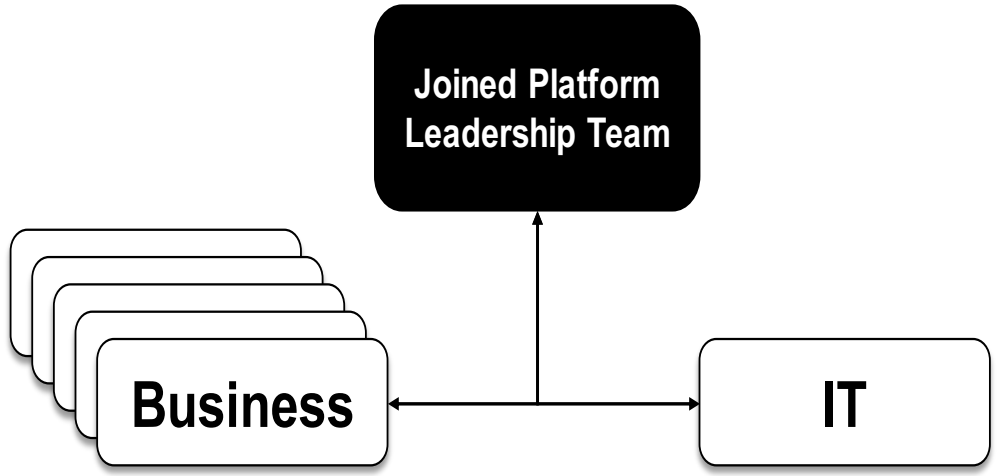
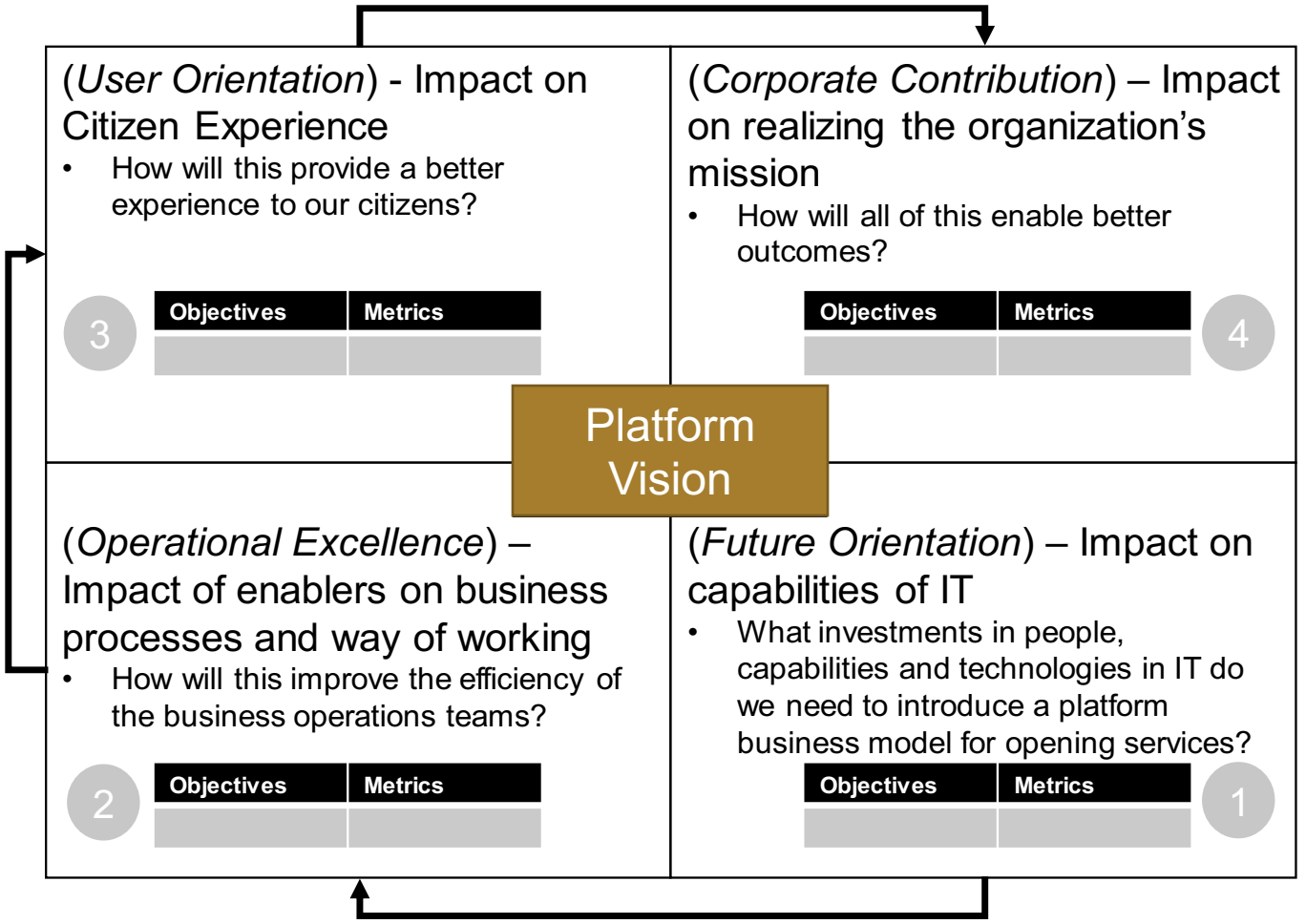


EGIT IT Governance Mechanism
IT strategy committee at the level of board of directors
>> (New) Platform Transformation Leader
>> (New) Platform Governance Officer
Architecture steering committee
>> (New) Platform Steering Committee

*** SAMPLE ***

Strategic Approach 4: Measure

3. …Impacting citizens services…



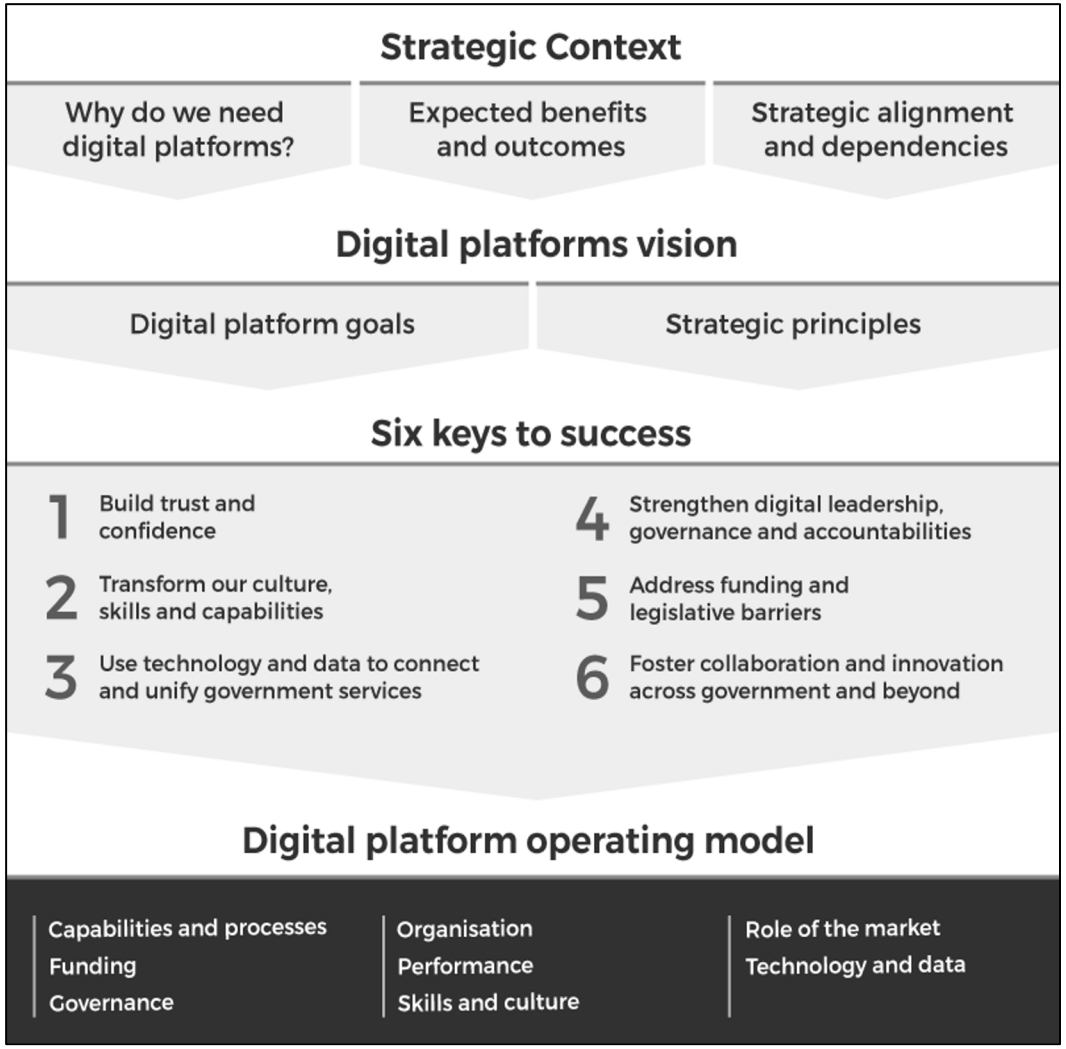
4. …Realizing our Platform strategy.

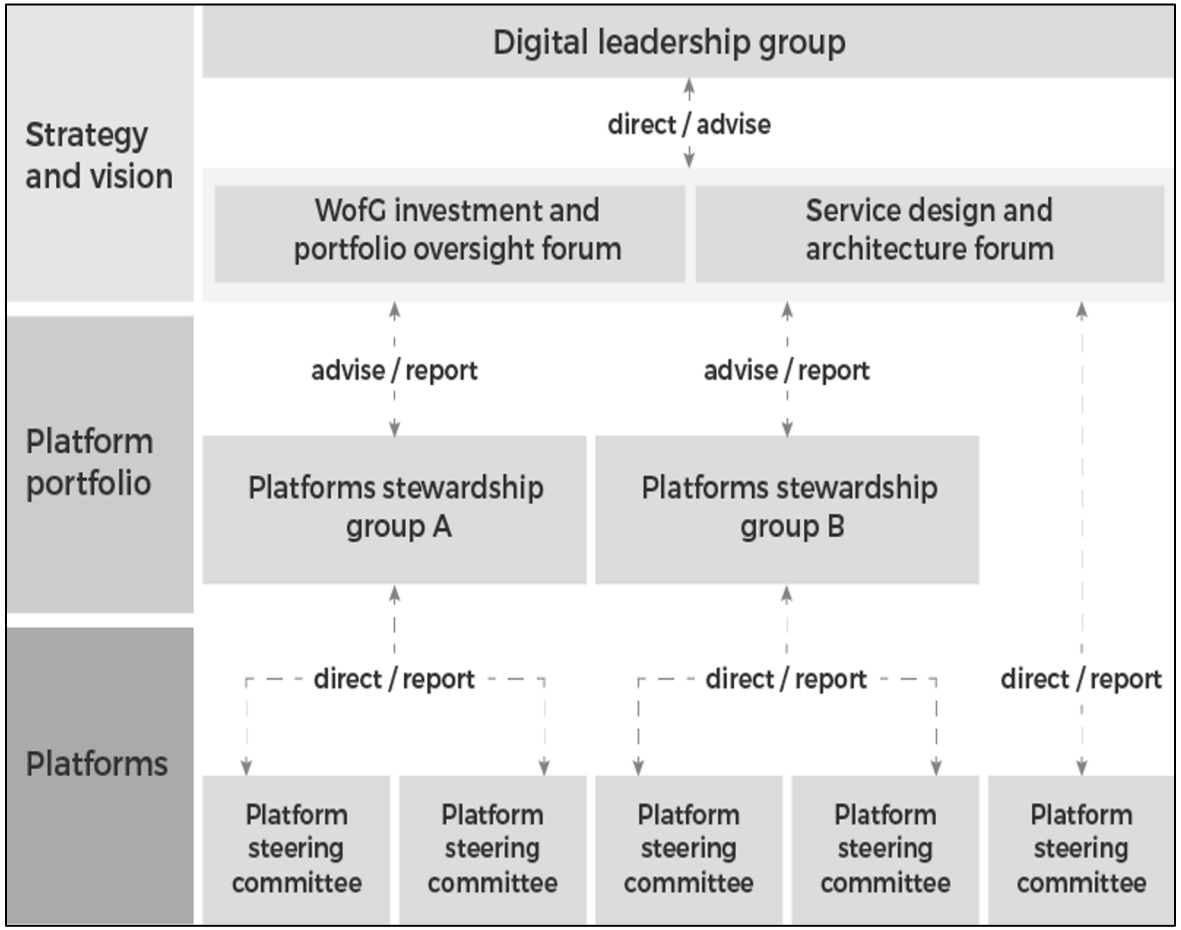
2. …Should contribute to…

1. Any investments in (platform) IT…

Based on adapted Balanced Score Card as defined by De Haes, S., Van Grembergen, W., Anant, J., & Huygh, T. (2020). Enterprise Governance of Information Technology. In Enterprise Governance of Information Technology. https://doi.org/10.1007/978-0-387-84882-2

Sample Platform Best Practice – Gov. of Australia





https://www.dta.gov.au/our-projects/digital-service-platforms-strategy/overview

Government Platform Models do make a difference, **when designed properly**

There is value (*) for government

There are benefits for
- Citizens,
- Government,
- Ecosystem

Political leadership is present
- Vision
- Strategy

Using an ecosystem is possible

(*) e.g. faster matching of unemployed to the right job by a partner, personal budget for care or school allowance, finding the right help for handicapped, Surviving in Brussels

Why does this research matter?

Address Concerns

- Proven Strategic Approaches

Evaluate Options

- Plan your roadmap

Set Direction

- Political Leadership
- Ecosystem
- Services redesign

Raise Awareness

- New Business model
- Technology Driven
- Data
- Privacy
- Governance

Digital Platforms

Software development

Internal	Hybrid	External

Cloud Technology

On-premise	Hybrid	Hosted

Technological advances

- API driven technology
- Readily available and scalable resources
- Increased automation (everything-as-code)

Business value

- Strategic rather then operational
- Important driver for competitive advantage
- Direct contribution to business value

Business value

Technological advances

Digital Platforms

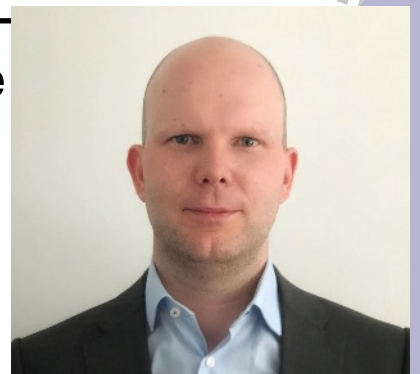
Organisational approaches

Compliance

Compliance

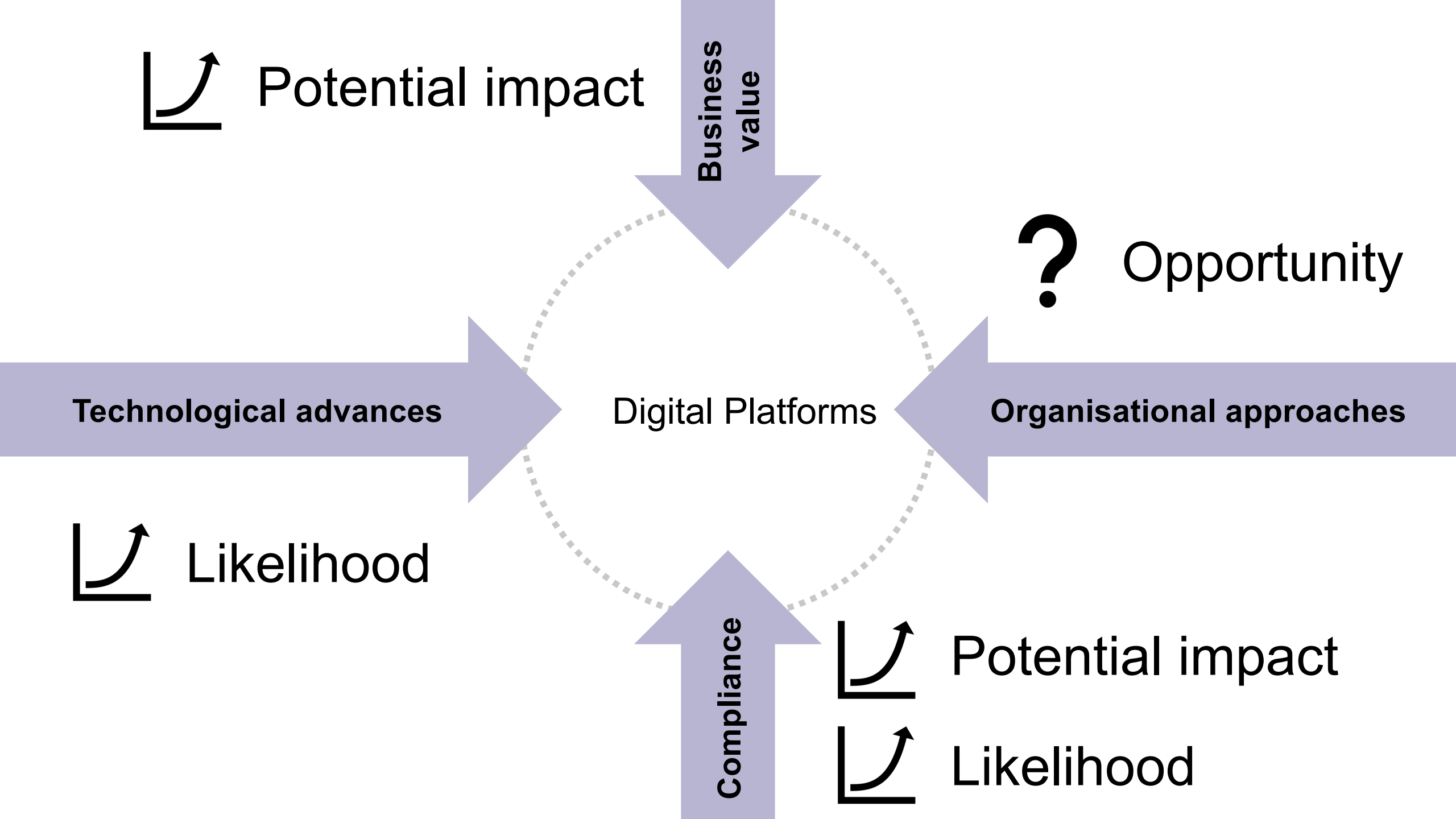
- Increased regulatory pressure
- Increased vendor compliance
- GDPR, NIS(2), PCI

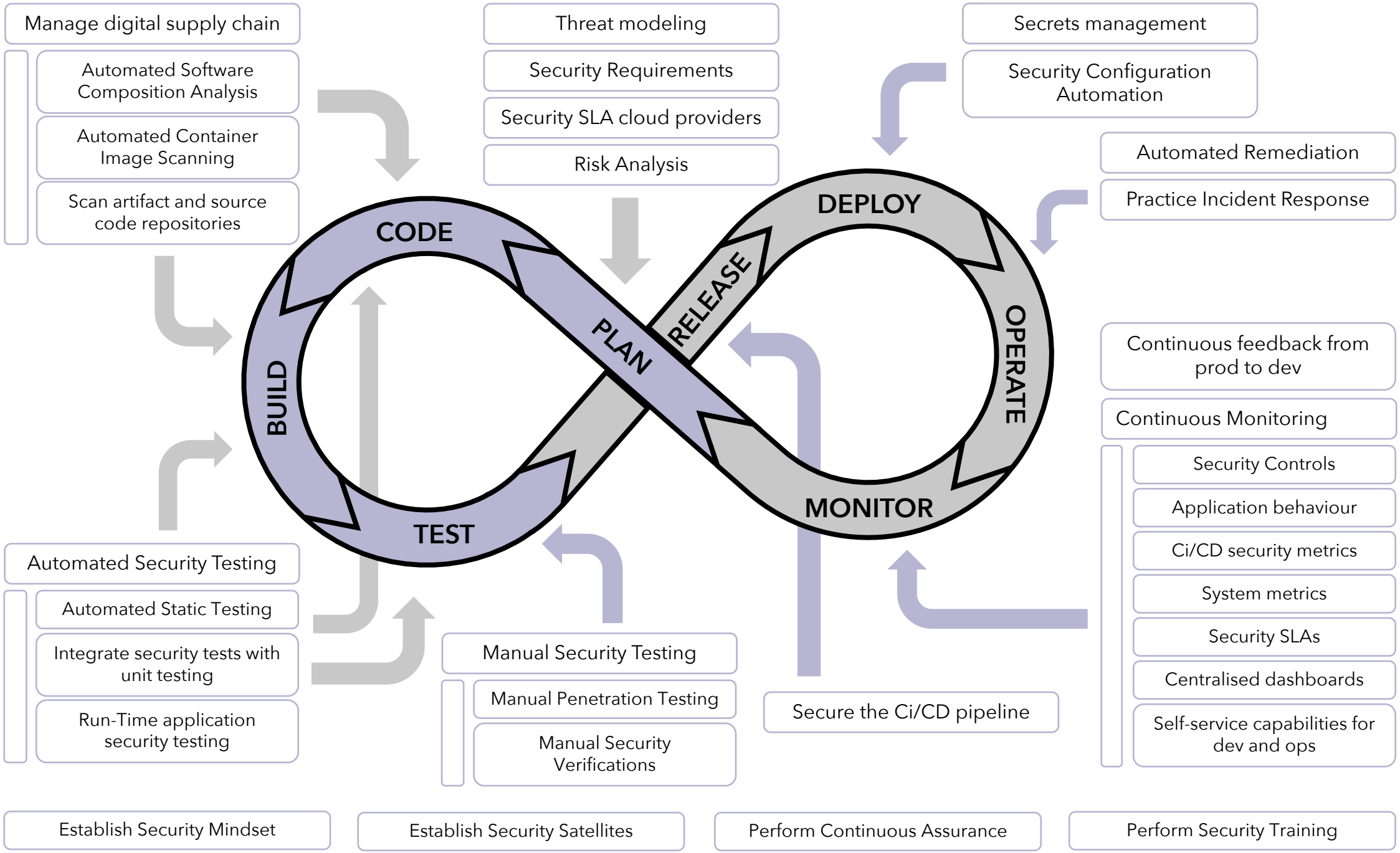
Dennis Verslegers



Organisational approaches

- Shift towards new work methods
- Emergence of Agile, DevOps
- Move away from siloed IT organisations


Potential impact
Business value
Opportunity
Technological advances
Digital Platforms
Organisational approaches
Likelihood
Compliance
Potential impact
Likelihood


Manage digital supply chain
Automated Software Composition Analysis
Automated Container Image Scanning
Scan artifact and source code repositories
Threat modeling
Security Requirements
Security SLA cloud providers
Risk Analysis
Secrets management
Security Configuration Automation
Automated Remediation
Practice Incident Response
CODE
BUILD
TEST
PLAN
RELEASE
DEPLOY
OPERATE
MONITOR
Continuous feedback from prod to dev
Continuous Monitoring
Security Controls
Application behaviour
Ci/CD security metrics
System metrics
Security SLAs
Centralised dashboards
Self-service capabilities for dev and ops
Automated Security Testing
Automated Static Testing
Integrate security tests with unit testing
Run-Time application security testing
Manual Security Testing
Manual Penetration Testing
Manual Security Verifications
Secure the Ci/CD pipeline
Establish Security Mindset
Establish Security Satellites
Perform Continuous Assurance
Perform Security Training

Leverage and secure pipelines

- Everything-as-code

Ensure security scalability

- Consumable security services
- Tailored methodologies

Technological advances

Practice incident response

- Emergency code base response

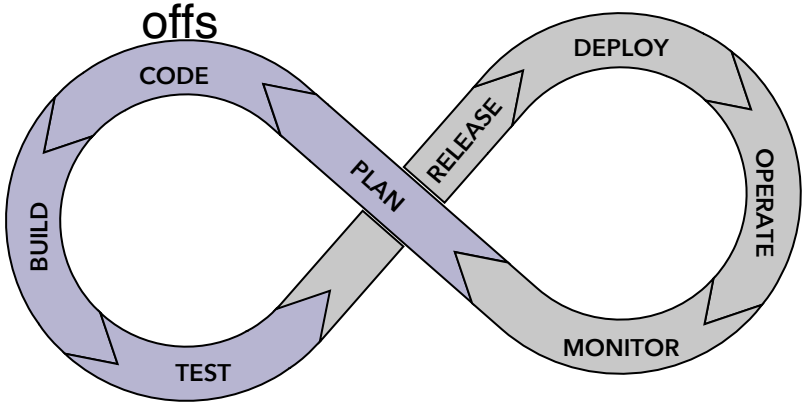
Establish security observability

- Collect metrics through CI/CD
- Self-service

Business value

Mechanisms for trade-offs

- Implicit vs explicit security trade-offs



Perform cont. assurance

- Compliance-as-code

Compliance

Maintain a business perspective

- Translate security aspects to business risk

Establish a security culture

- Open communication
- Solid engineering practices

Organisational approaches

Establish shared perspective

- Clearly express security goals

Empower teams

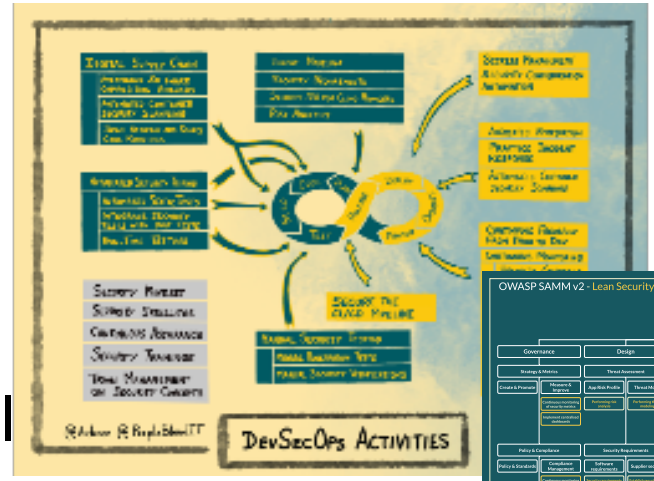
- Delegate authority
- Guardrails not gates

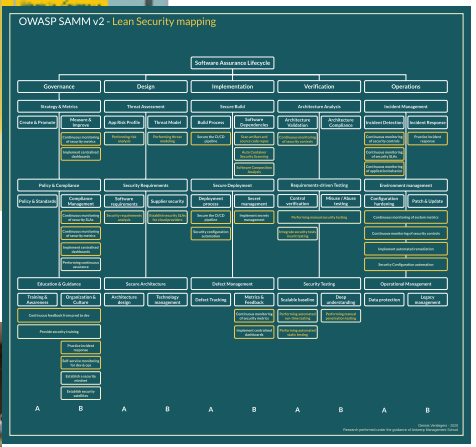
Wrapping up

- It does not matter how fast you can go security and compliance cannot keep up.
- Security is not a product you buy, a tool you integrate in your pipeline or an additional step in the process. DevSecOps is about solid (security) engineering practices.
- All teams involved in the system development lifecycle contribute to security and the opportunity and ownership to do so.
- Automation is a way to achieve security scalability.

Additional resources

- **On the lean-security.org website:**
- Infographic of DevSecOps activities
- Mapping to Security Assurance Maturity Model



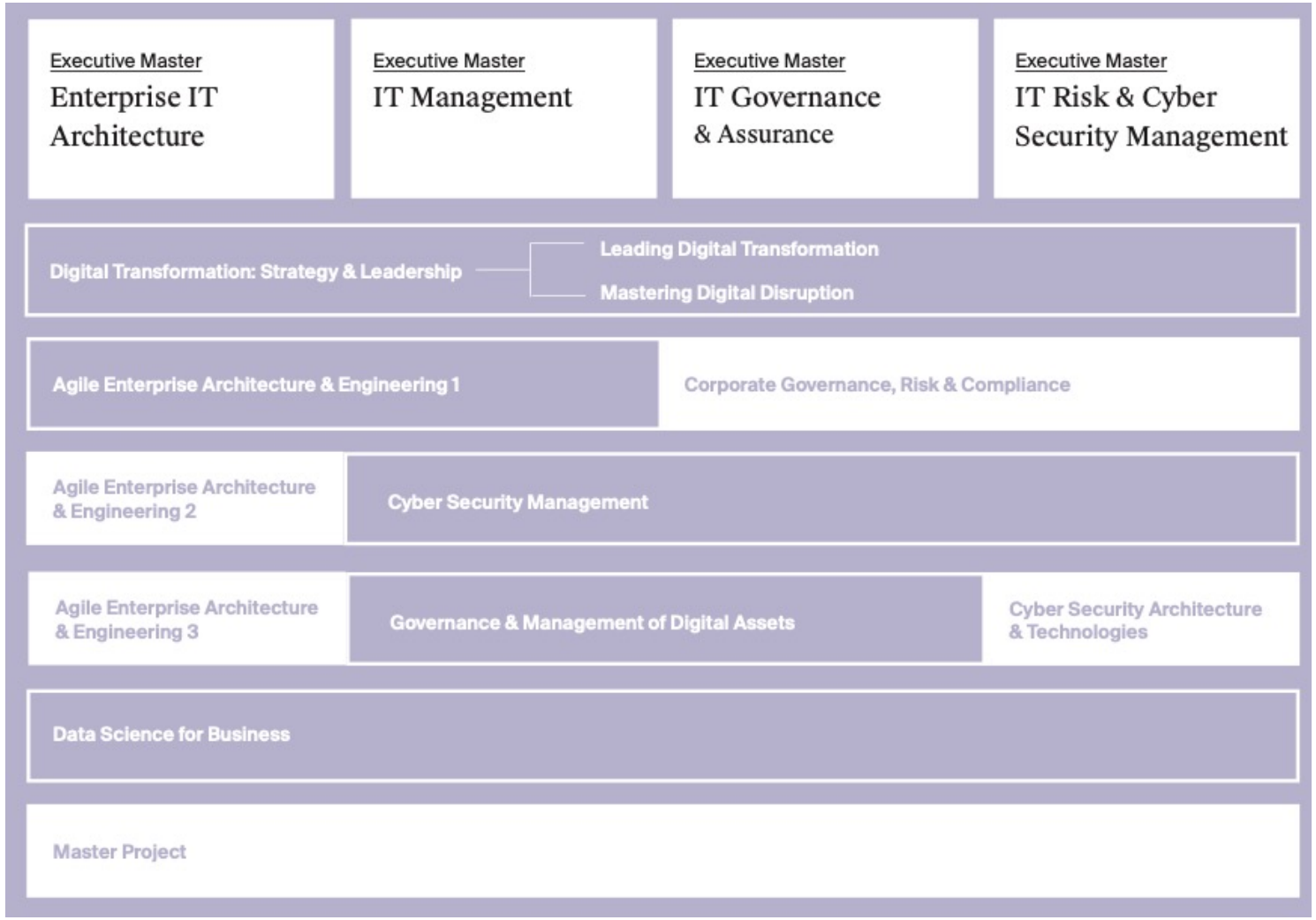


- **Strategic Approaches to Digital Platform Security Assurance book:**
- **https://www.igi-global.com/book/strategic-approaches-digital-platform-security/262921**
- In-depth content on DevSecOps assurance, compliance, agile methodologies and platform strategies

Additional resources

- **In the Master in IT Risk & Cyber Security Management:**
- Broad perspective on Cyber security and risk management

1 Portfolio – 4 Master Degrees – 10 Master Classes



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- Watch the video here

- Web: https://www.antwerpmanagementschool.be/programma/master-class-information-security-management
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