randstad technologies solutions

IoT: our favorite technology acronym.

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randstad

a global market leader.

randstad globally

€23.7 billion
in revenue

38,280
corporate employees

649,000
avg. talent working each day

4,861
outlets in 38 markets

in north america

€4.4 billion
in revenue

5,690
corporate employees

94,600
avg. talent working each day

1,153
outlets in the U.S. and Canada

technology core service offerings.

+ temp and perm staff augmentation

+ onsite workforce management

+ payrolling and IC solutions

+ business process and functional outsourcing

+ managed services programs

+ recruiting process outsourcing

+ career transition services

+ **engineering/IT solutions (consulting, projects, outsourcing, global footprint, export controls)**

global solutions and services.

application services

enterprise application development

mobility and modern web development

application monitoring and maintenance

data management and business intelligence

infrastructure services

technology deployments

technology and cloud migrations

infrastructure monitoring and maintenance

data center operations/smart hands

end-user services

service desk

desktop support

ITSM tools/ServiceNow consulting

service management assessments

engineering solutions

electronics product development

full-lifecycle embedded software development

PC-based engineering tools and simulators

| PMO services | PMO strategy and governance | agile transformations | project and program execution |

| strategy and architecture | assessments and improvement recommendations | strategy, planning and design | intelligent automation |

greg martin
vp
engineering solutions

shi jin lee
principal
strategy and architecture

matthew fiallos
solutions architect
infrastructure solutions

jared weinbrenner
sr. solutions architect
infrastructure solutions

brian fox
sr. solutions architect
engineering solutions

sudi narayanan
technology director
application services

jeff brandt
solutions director
end-user services

worldwide spending on IoT continues to grow.

$646B

spent in 2018

$745B

forecasted in 2019

likely

$1trillion

in 2022

ZNet, 2019

any new or disruptive technology introduces challenges to your organization.

- state of technical duality (old vs. new)
- operational governance and control
- architectural strategy and alignment
- general skill set gaps

IoT introduces a unique set of challenges.

challenge 1
IoT requires competencies outside of a core business capability.

challenge 2
IoT requires business, IT and engineering alignment and collaboration.

challenge 3
IoT mandates high-velocity responses.

IoT requires competencies outside of a core business capability.

examples

- air conditioning filter company
  - core competency: filters — period
  - lack of competency in: electronics, applications, infrastructure, connectivity

- industrial battery backup supplier
  - core competency: large, room-size backup batteries
  - lack of competency in: connectivity, applications, infrastructure

should we build in-house or outsource?

- hybrid / bimodal
- business goals
- ROI and time to market
- existing skill-sets
- technical debt
- culture and change threshold

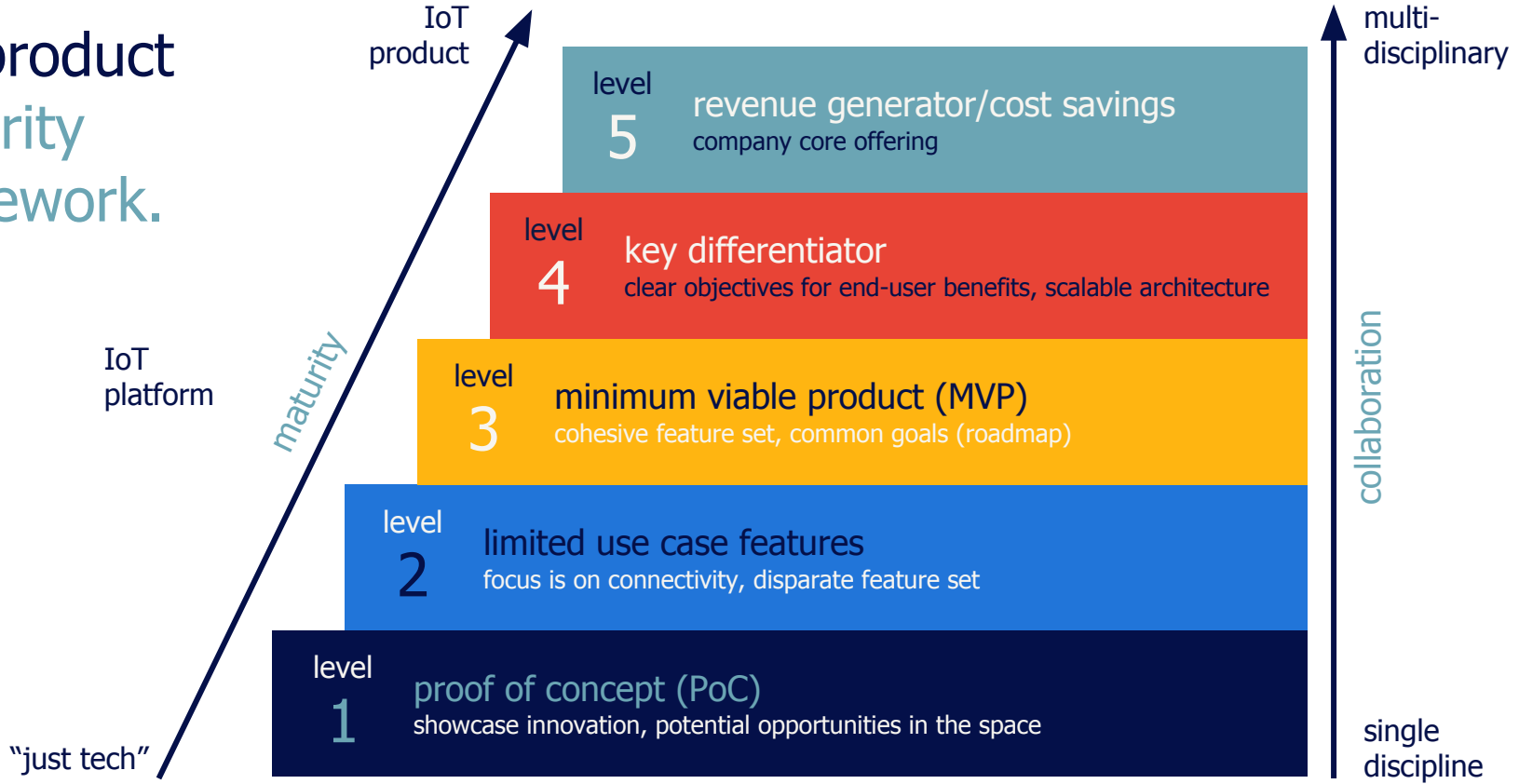# IoT requires business, IT and engineering alignment and collaboration.

Organizations that truly harness the benefits of IoT are those able to achieve a certain level of organizational maturity and multidisciplinary alignment.

Achieve maturity by:

- including the business as part of their multidisciplinary team

- addressing the IoT solution as a "product" or "core offering"

- making business decisions driven by data

IoT product
maturity framework.

IoT product

multi-disciplinary

level 5 revenue generator/cost savings
company core offering

level 4 key differentiator
clear objectives for end-user benefits, scalable architecture

IoT platform

maturity

collaboration

level 3 minimum viable product (MVP)
cohesive feature set, common goals (roadmap)

level 2 limited use case features
focus is on connectivity, disparate feature set

level 1 proof of concept (PoC)
showcase innovation, potential opportunities in the space
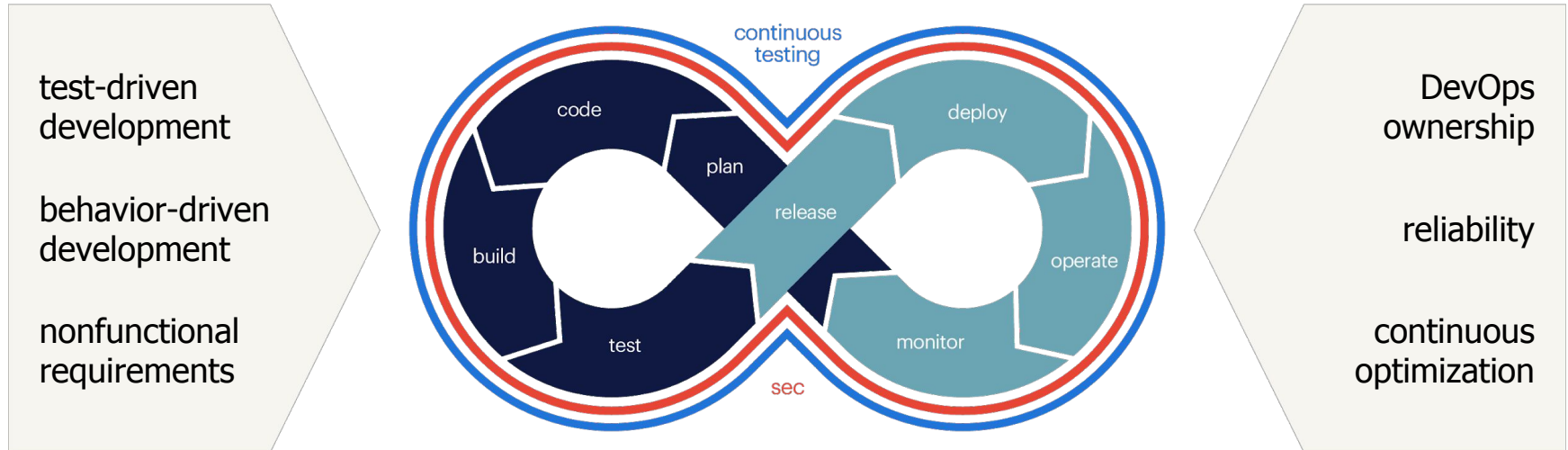
"just tech"

single discipline

IoT mandates high-velocity responses.

DevOps can address the velocity needs that IoT demands, while diminishing risk, enhancing quality and increasing maturity in the overall IoT solution roadmap.

- DevOps should not be implemented in silos
- DevOps can improve key aspects of the overall solution:
  - security through DevSecOps
  - requirement quality
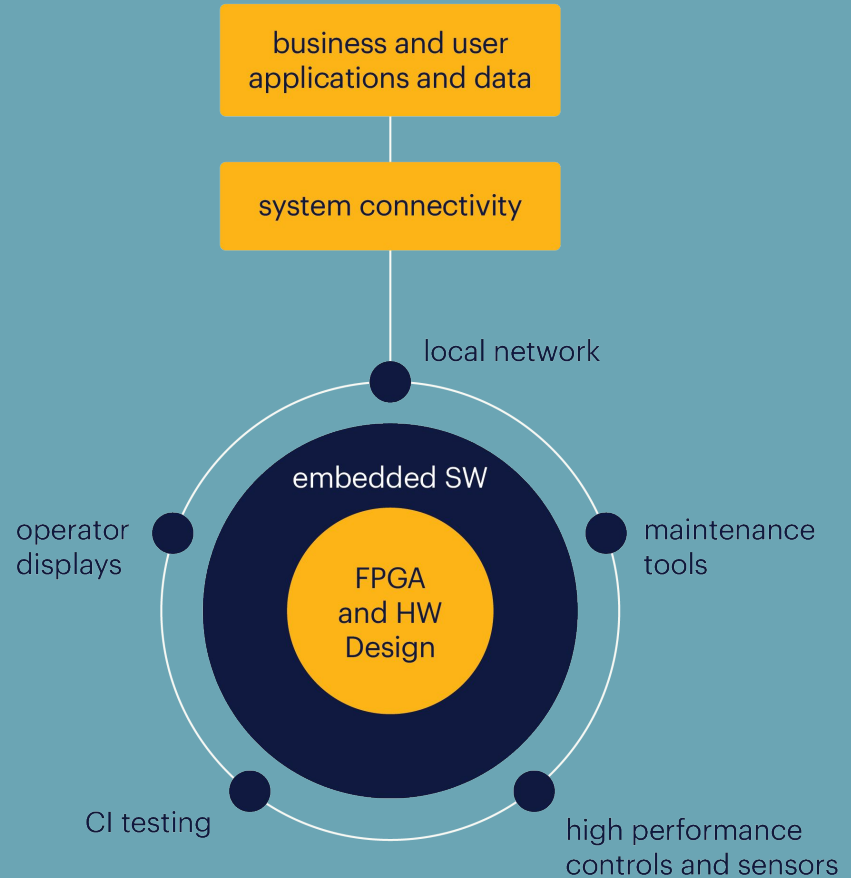 - testing and overall quality

alignment of your DevOps or DevSecOps efforts with your IoT solution is critical to achieving velocity while managing and reducing risk.

test-driven development

behavior-driven development

nonfunctional requirements

continuous testing

code

plan

release

build

test

deploy

operate

monitor

sec

DevOps ownership

reliability

continuous optimization

randstad top 7 common IoT issues.

- security
- privacy
- connectivity
- cost
- competency
- size and speed
- safety

business and user applications and data

system connectivity

local network

embedded SW

FPGA and HW Design

operator displays

maintenance tools

CI testing

high performance controls and sensors

do's and don'ts.

do's

- promote multi-disciplinary collaboration
- ensure business is an integral part of the "product" development
- revisit your architecture regularly
- evaluate and leverage your data to inform decisions
- consider scalability in your design
- ensure quick responses to product updates and customer support needs through CI/CD

don'ts

- don't implement DevOps in a silo
- don't forget to plan for end-user support
- don't forget about asset management and the support and maintenance aspect of your solution
- don't let security and safety be an afterthought
- don't forget to take device deployment into account
- don't use "test" as a single component of your IoT lifecycle, but leverage continuous testing

thanks for attending.

For more information, please contact:

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randstad

human forward.