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TRANSFORM

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# Epic Journey of an Enterprise Cloud Transformation While Building Security

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# Content

- 30,000-foot view
- Walking Through the Transformation
- Cloud Transformation and Security: Use Cases
- Takeaways, you can apply in your organization starting today

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# 30,000-foot view

# 30,000-foot view: SAP

Hundreds of products across six main portfolio categories

Cloud, On-Premise, Hybrid solutions

Wide range of technologies, programming languages

# Mindset Shift

| From | To |
| --- | --- |
| Moment in time | Journey |
| Fit to gap | Fit to standard |
| Monolithic | Modular |

**Digital transformation is not a destination,**
**it's a continuous journey.**

# Common Industry Challenges

- Complex, hybrid IT landscapes and increasing technical debt
- Shortage of developers (drives LCNC* trend), shortage of security professionals, and limited time
- Evolving security threats

*LCNC: low-code and no-code (solutions)

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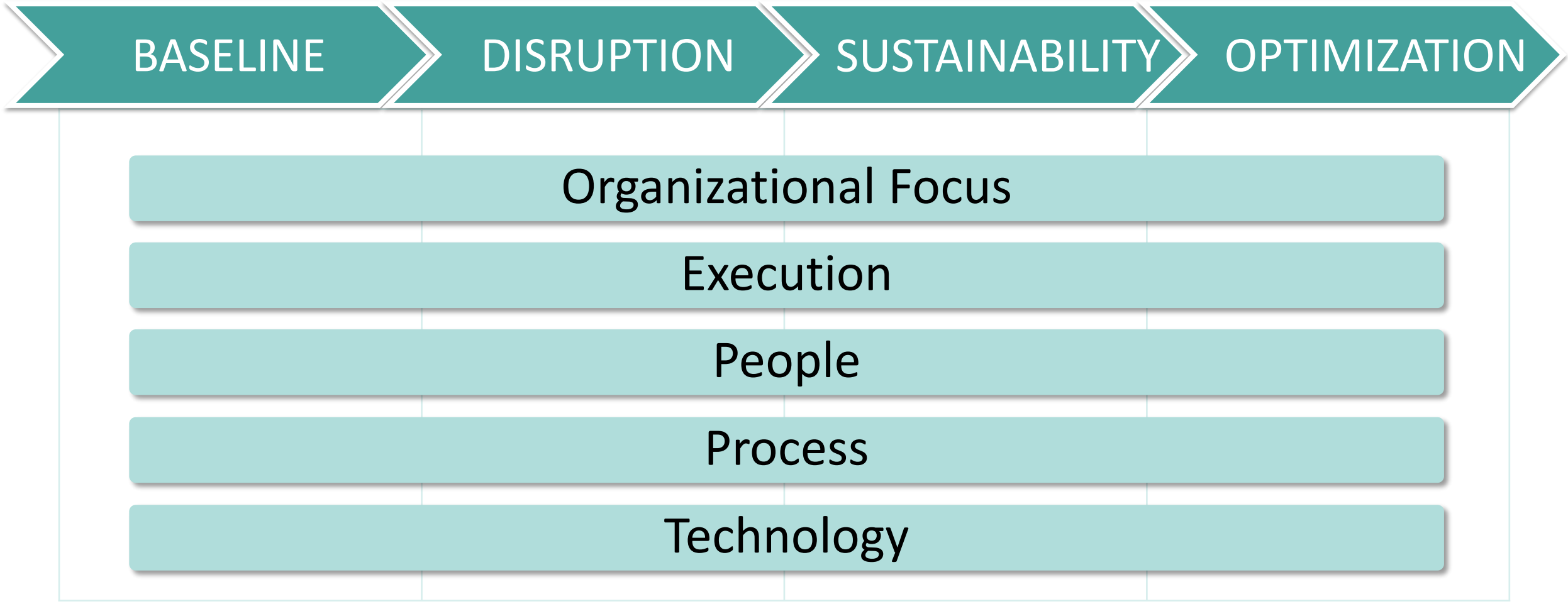
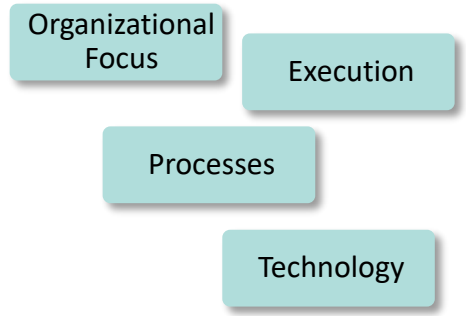
# Working Through the Transformation

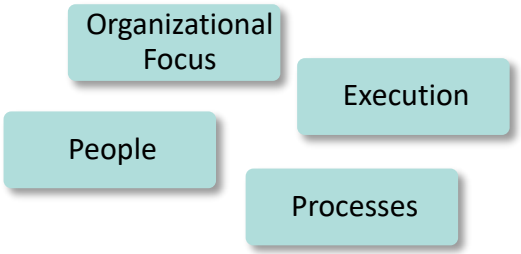
# Enterprise Security Transformation

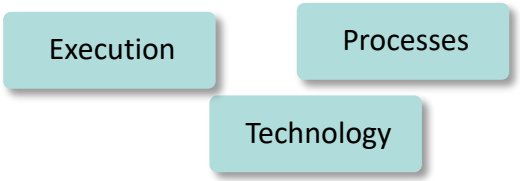


# Security Challenges with Cloud Transformation

| Common Industry Challenges | Translated Security Challenges |
| --- | --- |
| Complex, hybrid IT landscapes and increasing technical debt | · Security controls must handle a mix of technologies and integration<br>· Software supply chain risks (third party, open source, dev infrastructure) |
| Shortage of professionals (especially, on security side), and limited time | · Lack of security culture<br>· The need for harmonized processes |
| Evolving security threats | · The need for proactive approach and streamlined response |



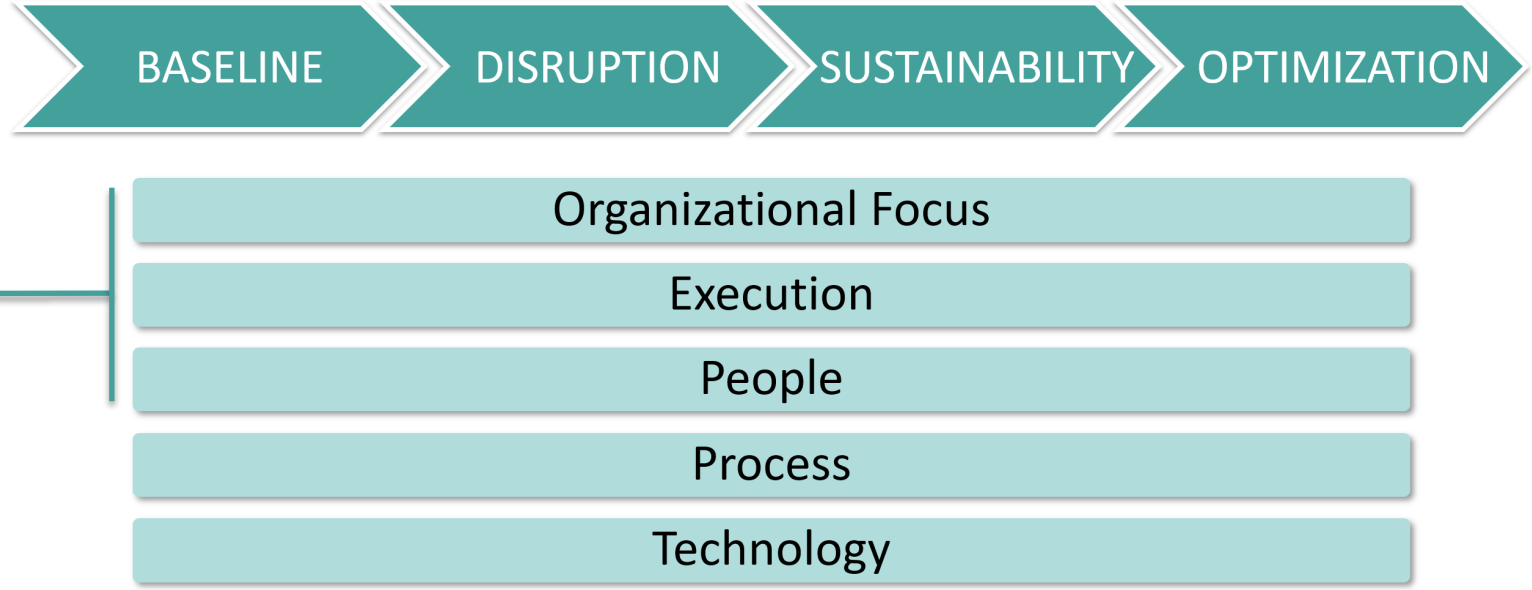



# Working through the Security Challenges with Cloud Transformation

## Security Challenge Areas:

1. Security Culture
2. Processes
3. Technology



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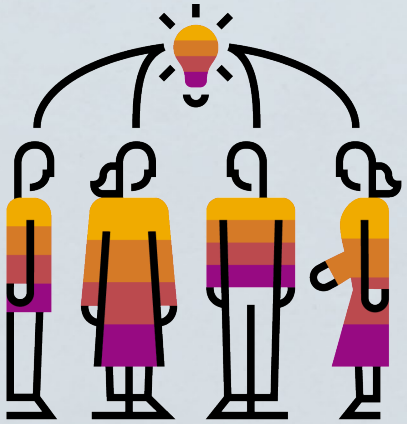
# Working Through the Transformation

## Security Culture



# Security Culture

- Security is a matter of quality
- Education, make it fun
- Cybersecurity hygiene
- Continuous improvement
- Risk assessment
- Zero-defect approach
- Testing & validation
- Collaboration, security champions

To develop and operate secure software, we need to change our development culture, looking beyond the technology, at the organization that created it.

The change has to start with **people**.

Security Culture Toolkit: https://www.sap.com/about/trust-center/security.html?pdf-asset=c8573354-f87d-0010-bca6-c68f7e60039b

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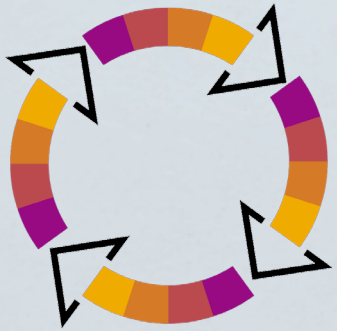
# Working Through the Transformation

## Processes



# Transformation of Security Requirements

## Foundational

- Secure against untrusted Input
- Secure Communications
- Secure Identity Management and Authentication
- Secure Cryptography
- Secure Audit Logging
- Secure by default & by design
- Data Protection & Privacy
- Secure Authorizations
- Secure Storage

## Cloud security

- Secure against untrusted Input
- Secure Communications
- **Secure Identity Management and Authentication +**
- Secure Cryptography
- **Secure Audit Logging +**
- Secure by default & by design
- **Data Protection & Privacy +**
- **Secure Authorizations +**
- **Secure Storage +**
- **Secure Operations**
- **Secure Multi-Tenancy**

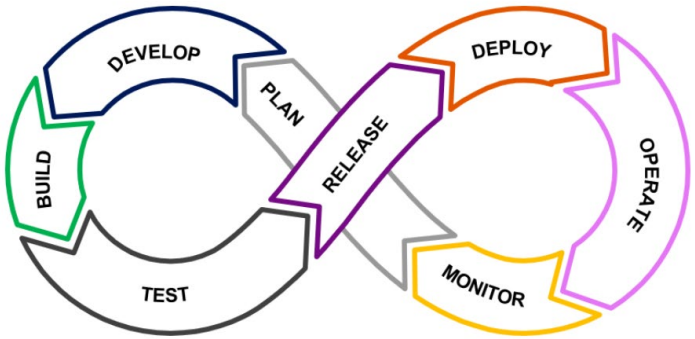
# Transformation of Secure Processes

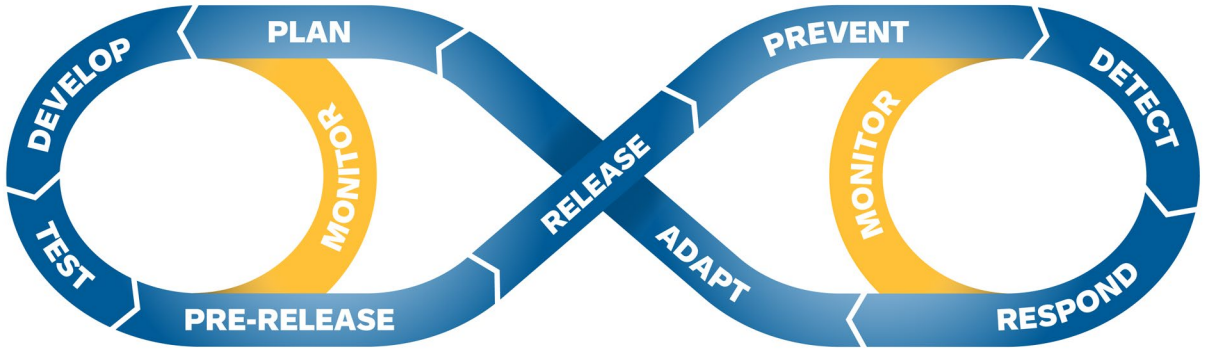
Secure Software Development and Operations Lifecycle (aka Secure SDOL)

## From Linear…

Provided foundational guidance for security activities throughout development lifecycle (risk-based approach, recommendations)

## To Continuous…




**Gen1**: Introduced continuous approach towards secure development and operations (risk-based, contract-based requirements, recommendations)

**Gen2**: Optimized continuous approach towards secure development and operations (contract-based, mandatory requirements, software supply chain safeguards, etc.)

# Continuous Compliance

- Controls mapping to:
  - Security requirements
  - Secure Software Development and Operations Lifecycle
- Onboarding procedure
- Accountability (dev teams)
- Centralized support

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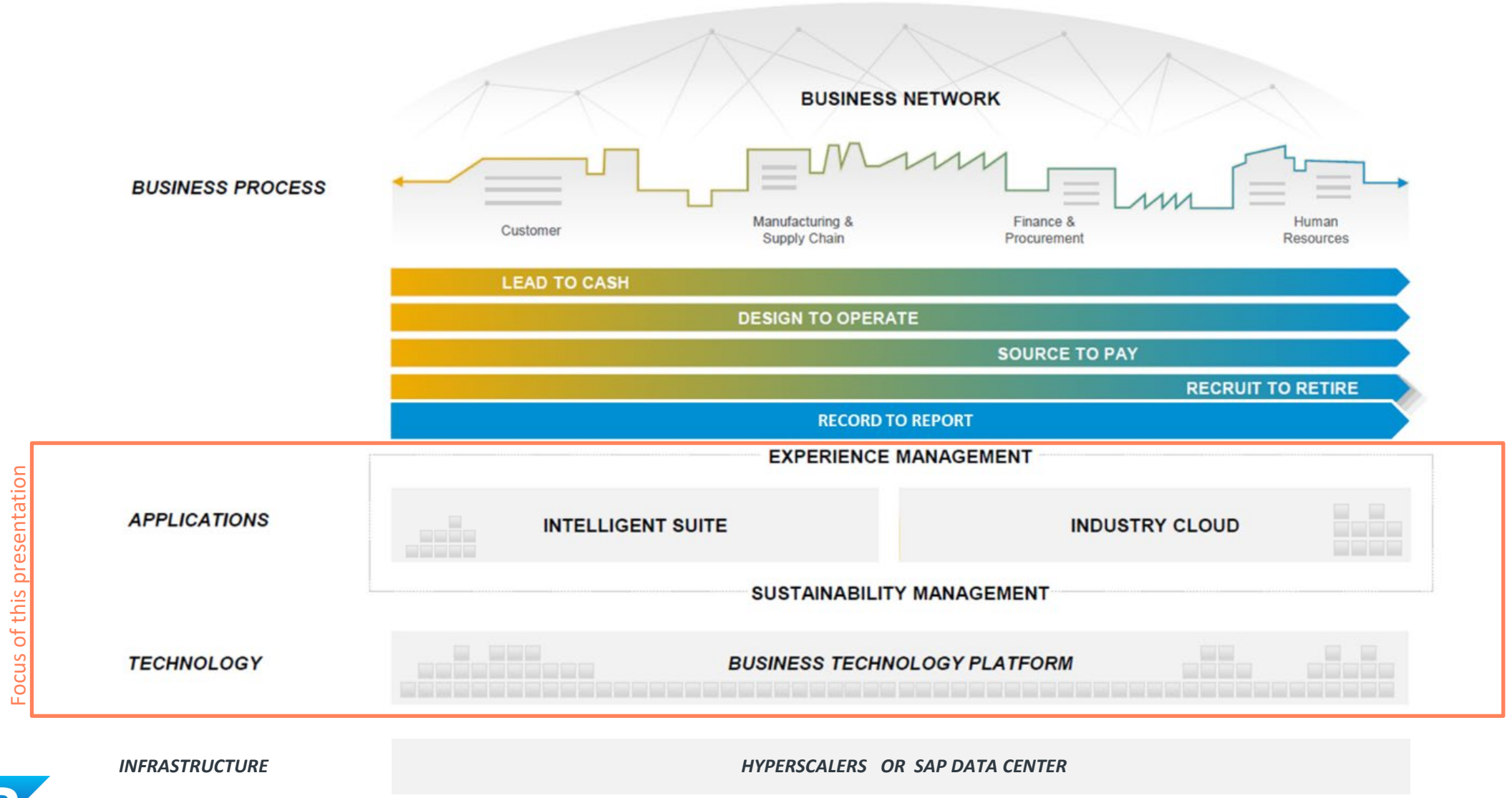
# Working Through the Transformation

## Technology

# SAP Reference Architecture




https://www.sap.com/documents/2020/02/520ea921-847d-0010-87a3-c30de2ffd8ff.html

# Integration through SAP Suite Qualities

SAP's Cross Product Architecture (CPA) workstreams

- Aligned domain models
- Consistent security & identity management out-of-the-box
- Coordinated lifecycle management

https://www.sap.com/documents/2020/02/520ea921-847d-0010-87a3-c30de2ffd8ff.html

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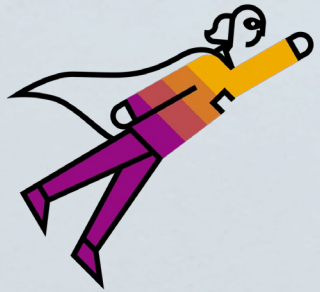
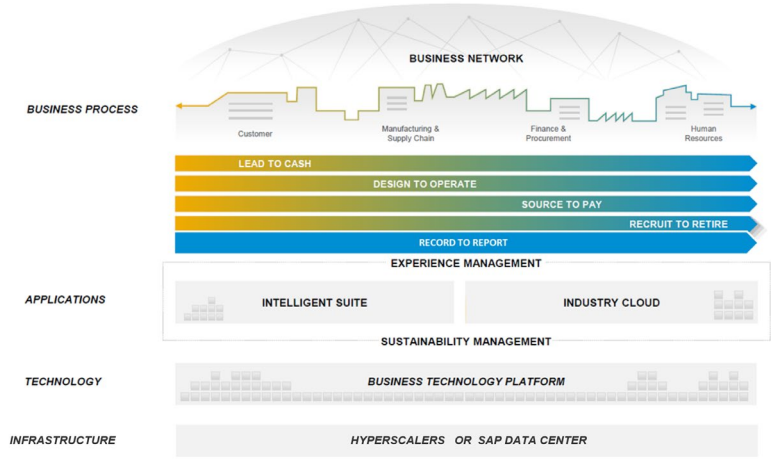
# Cloud Transformation and Security

## Use Cases



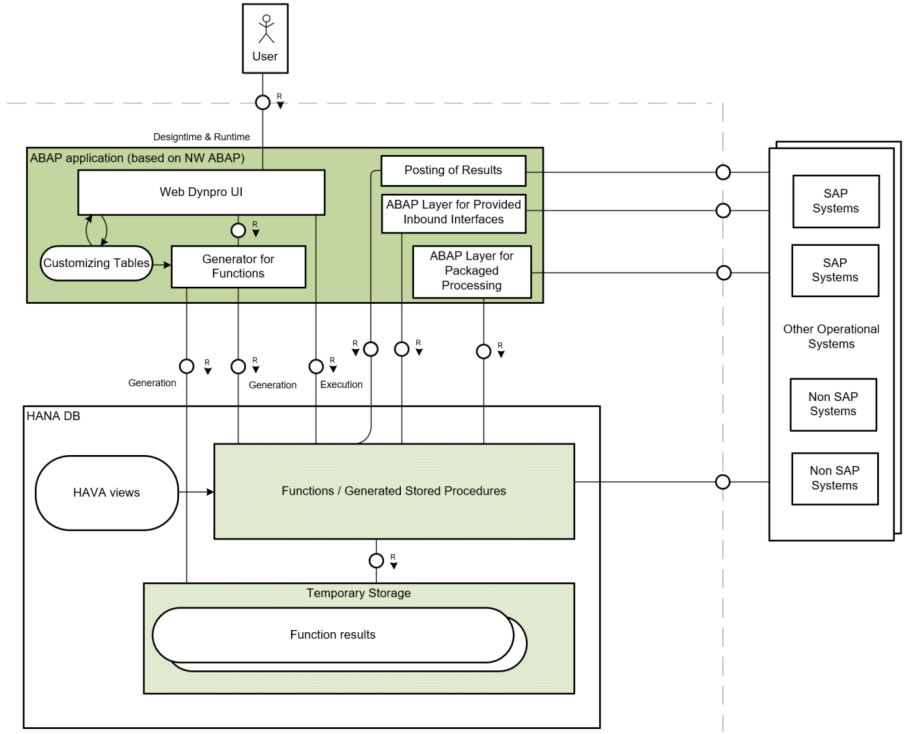
# Use Case 1: Intelligent Suite



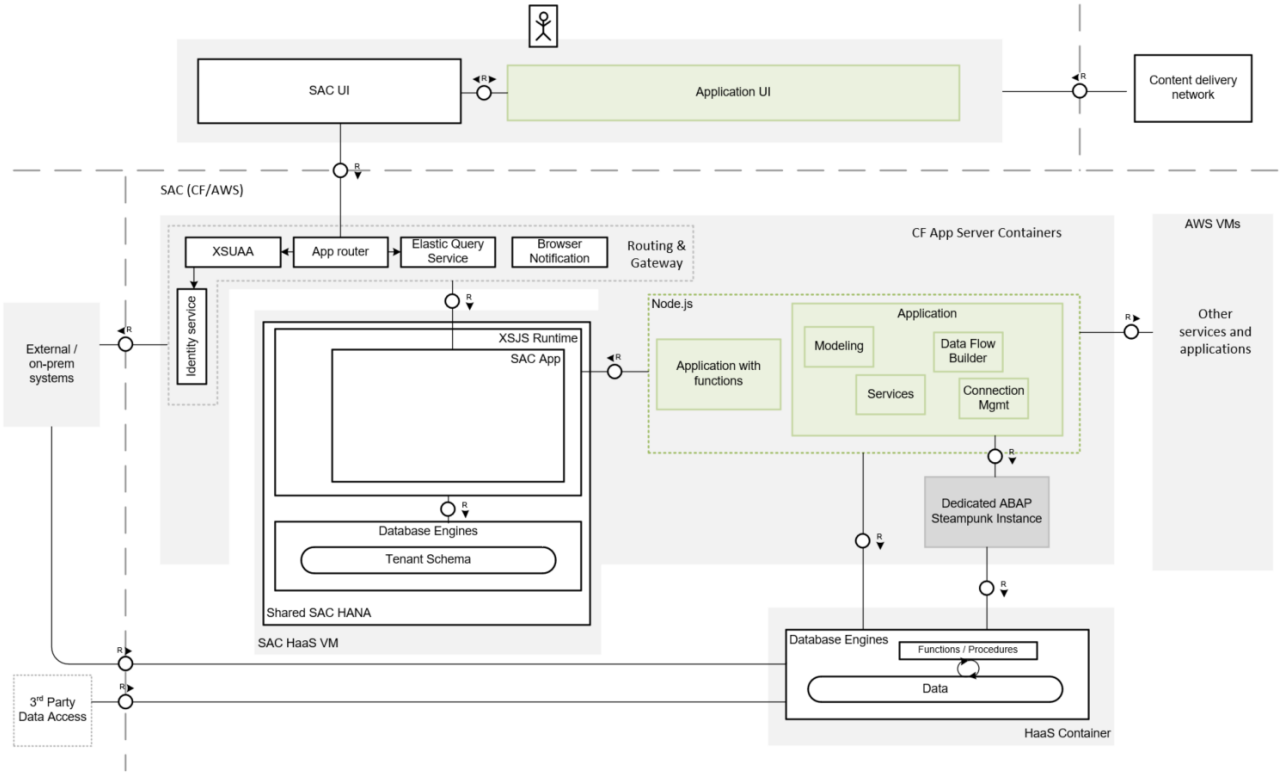
# Use Case 1: Reference Architecture for Transformed Application

From ABAP on-prem to Node.js native cloud

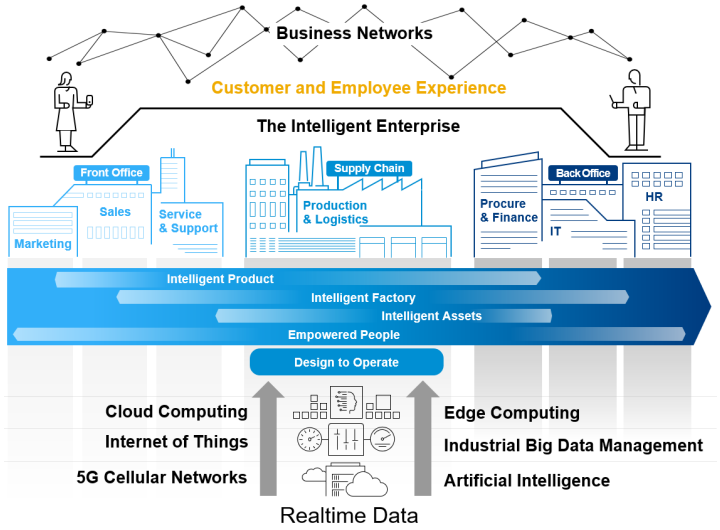
## Before: on-prem



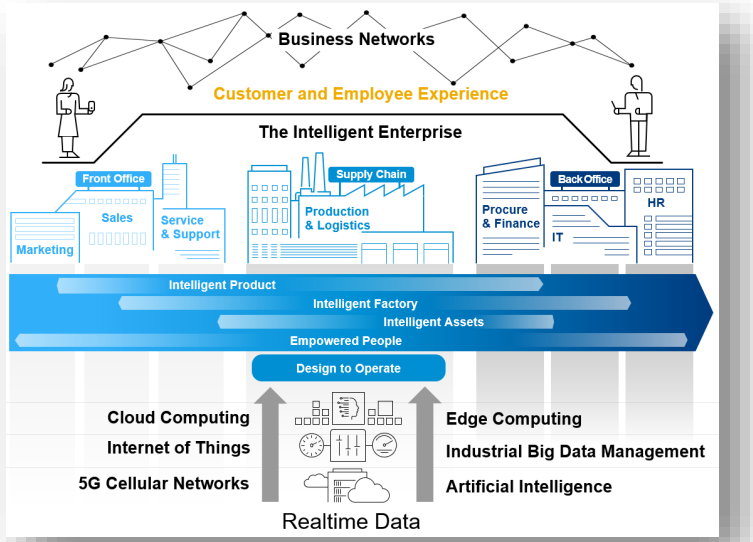

## New: cloud

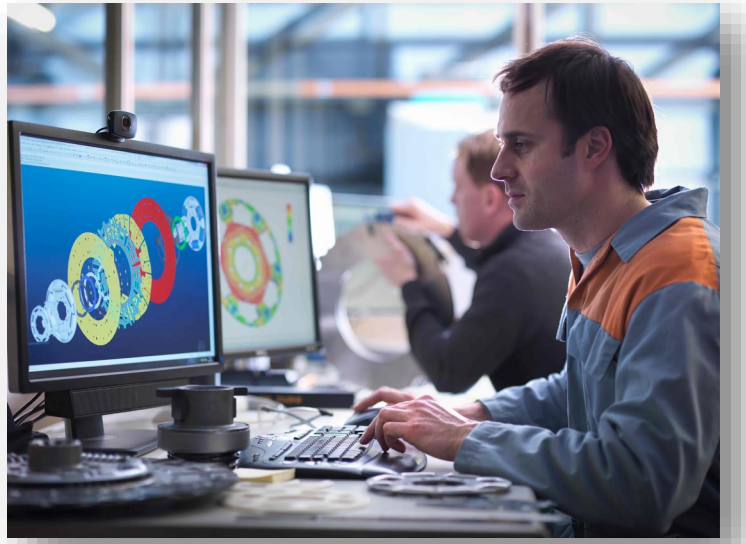


# Use Case 2: Industry 4.Now



# Use Case 2: Security Challenges for Industry 4.Now



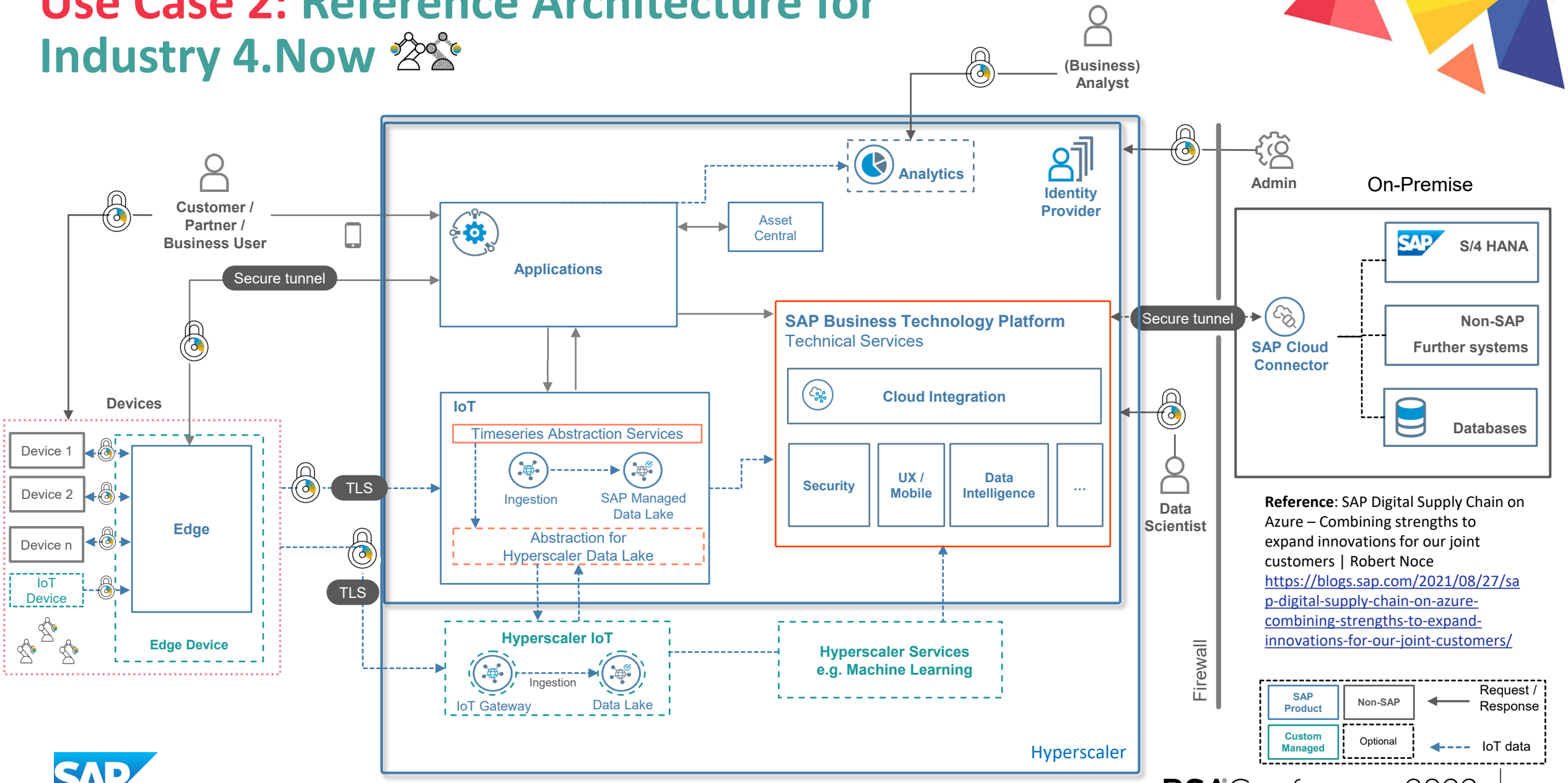


Landscape Complexity

Digitization of Industrial Technology

Intellectual Property Concerns

# Use Case 2: Reference Architecture for Industry 4.Now

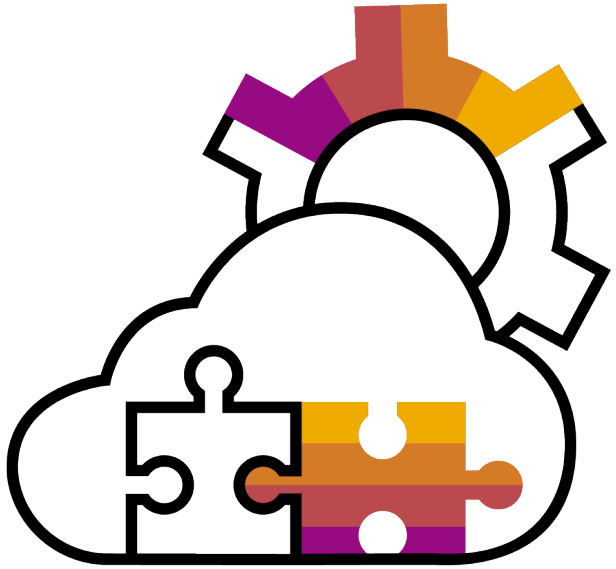



**Reference**: SAP Digital Supply Chain on Azure – Combining strengths to expand innovations for our joint customers | Robert Noce https://blogs.sap.com/2021/08/27/sap-digital-supply-chain-on-azure-combining-strengths-to-expand-innovations-for-our-joint-customers/

# Use Cases Summary: Security at SAP

Build-in security at every level of organization, connected security to business objectives

- Built-in security capabilities and processes
- Incorporated latest technical services (qualities) for integration or security capabilities
- Onboarding to operations and audit services



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# Takeaways

# Apply what you've learned

Step forward to the higher level of security maturity at your organization.

## 1. Security Culture

- Connect security to business objectives
- Security Culture Toolkit: www.sap.com/about/trust-center/security.html?pdf-asset=c8573354-f87d-0010-bca6-c68f7e60039b

  or use tinyURL: **tinyurl.com/SecurityCultureToolkit**

## 2. Process

- Integrate, automate, improve
- Threat model DevOps processes and tooling

## 3. Technology

- Perform risk assessment: application, infrastructure, 3rd party
- Build security into everything; defense in depth; foundation
- SAP's transformation: www.sap.com/documents/2020/02/520ea921-847d-0010-87a3-c30de2ffd8ff.html

  or use tinyURL: **tinyurl.com/TransformationRoadmap**

# Thank You

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