

Scaling DevSecOps for a Large IT Services Firm

Leena Pradhan

Delivery Excellence, Service Reliability Engineering, Tata Consultancy Services

Dhruba Jyoti Chaudhuri

Delivery Excellence, Service Reliability Engineering, Tata Consultancy Services

**DEVOPS
ENTERPRISE
SUMMIT**

AN  REVOLUTION EVENT

Scaling DevSecOps for a Large IT Services Firm

Tata Consultancy Services

May 2022



Enterprise Agile vision brought DevOps into prominence....



2017: Organization level One Vision: Enterprise Agile by 2020



2020: Enterprise Aha moment!!!



More than 80% Agile engagements



The strong Agile Foundation brought the engineering reinforcement - Strengthen DevOps practices in every engagement and go deep into DevSecOps

...it paved the path to faster realization of business value

Customer Objectives



Competitiveness



Agility to Respond



Efficiency

Technology Reality

Rise in Digital Footprint

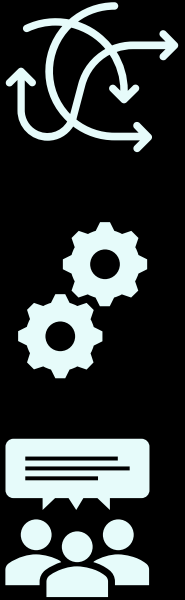
Increased exposure to Cyber threats

\$4.24 Mn Cost of breach in 2021 - 10% higher
Ref: *Cost of a Data Breach Report 2021* – IBM Security



Reliability and Resilience @ Speed is the imminent need!!!

... But every team was learning and implementing DevSecOps in their own way



Diverse Implementation

Varied degree of understanding

Experience and learning remained within the teams

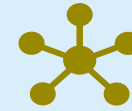
Re-inventing the wheel

Pockets of maturity; lack of cross-pollination

Lack of assurance of meeting DevSecOps goals

Siloed and Varied

A Standard Framework was imperative to scale DevSecOps



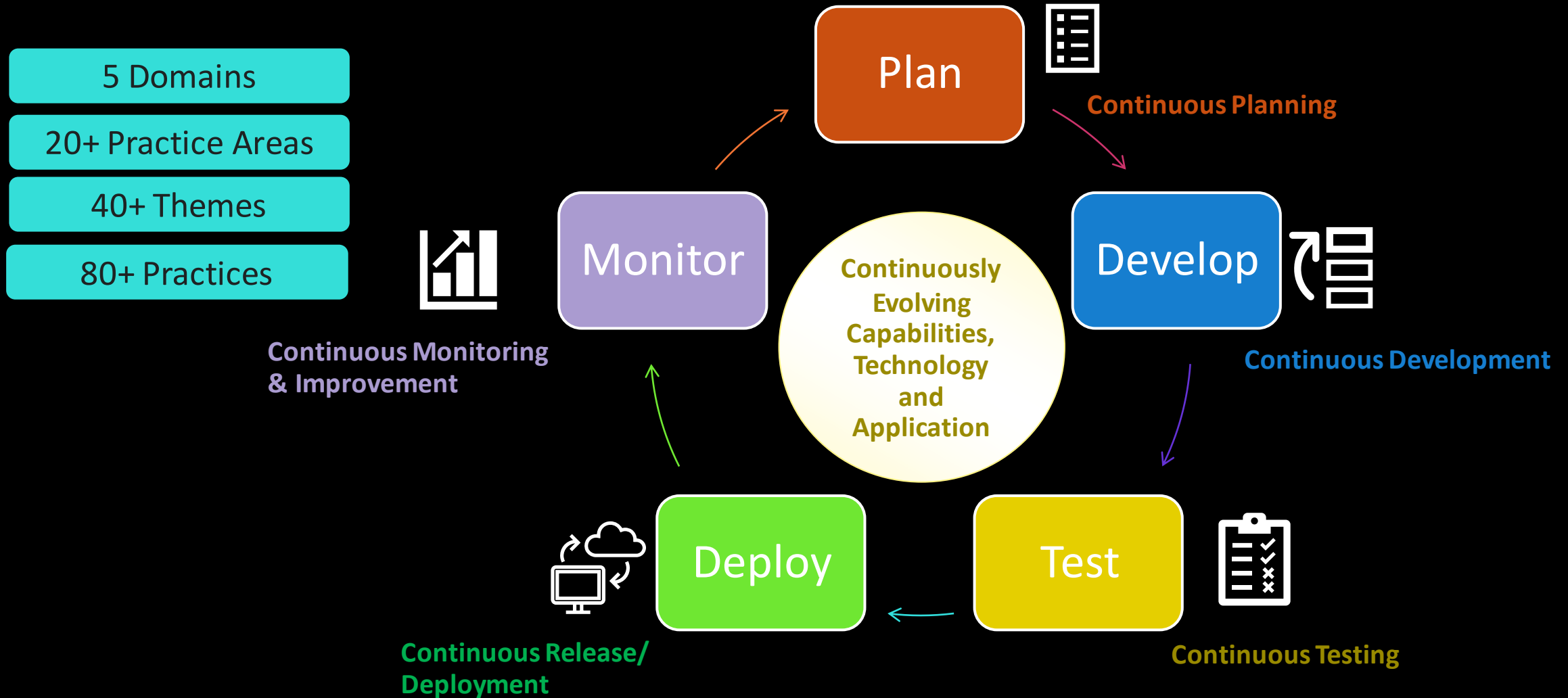
TCS DevSecOps Framework

Structure for Implementation

- Standard approach for matured DevSecOps adoption
- Institutionalize DevSecOps practices across teams
- Minimize incubation and readiness cycle time
- Enable Benchmarking
- Facilitate continuous improvement
- Maximize achievement of DevSecOps goals

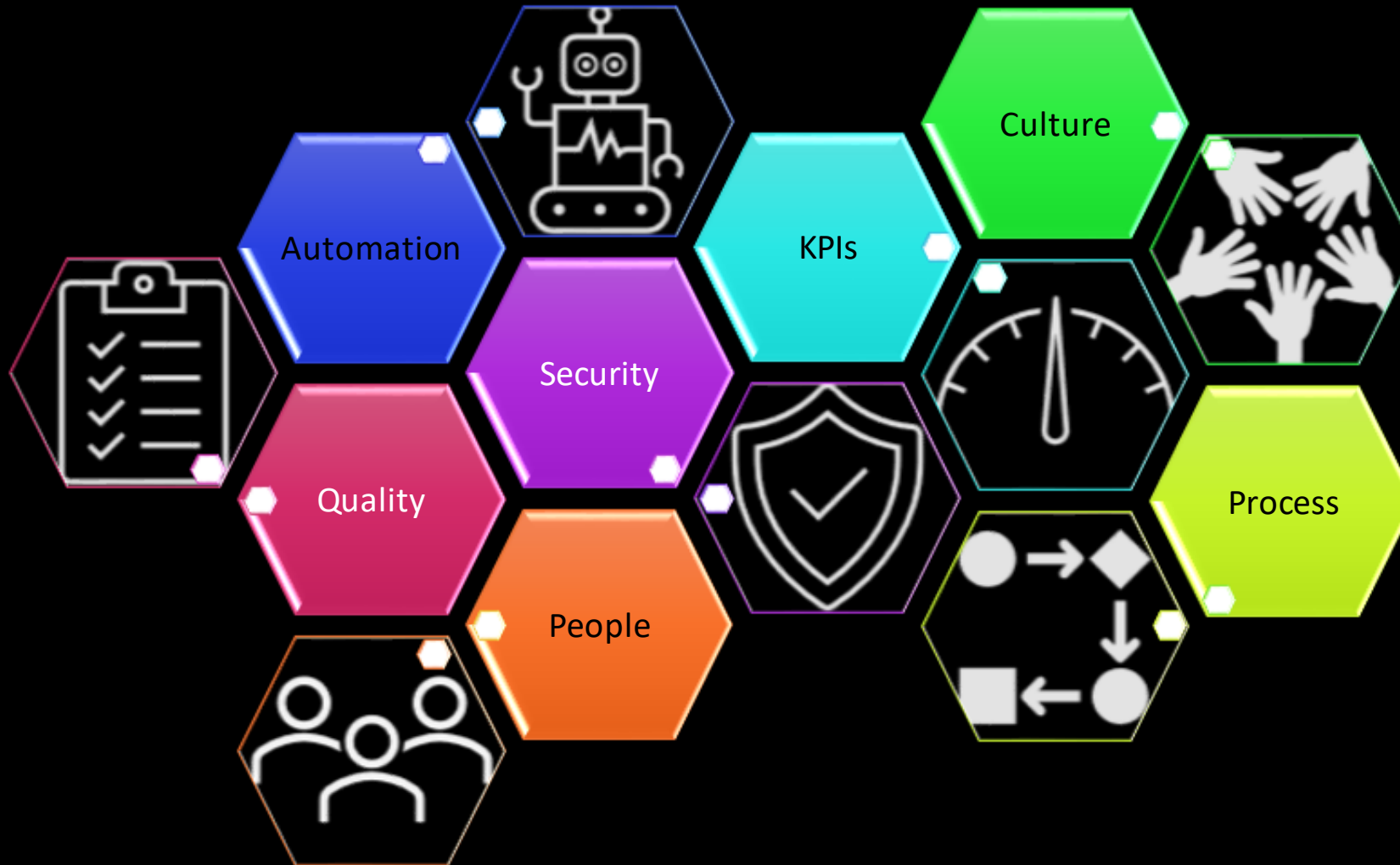
Strengthen the Core with a comprehensive Framework

TCS DevSecOps Framework – Thought Leadership Framework for Value Delivery..



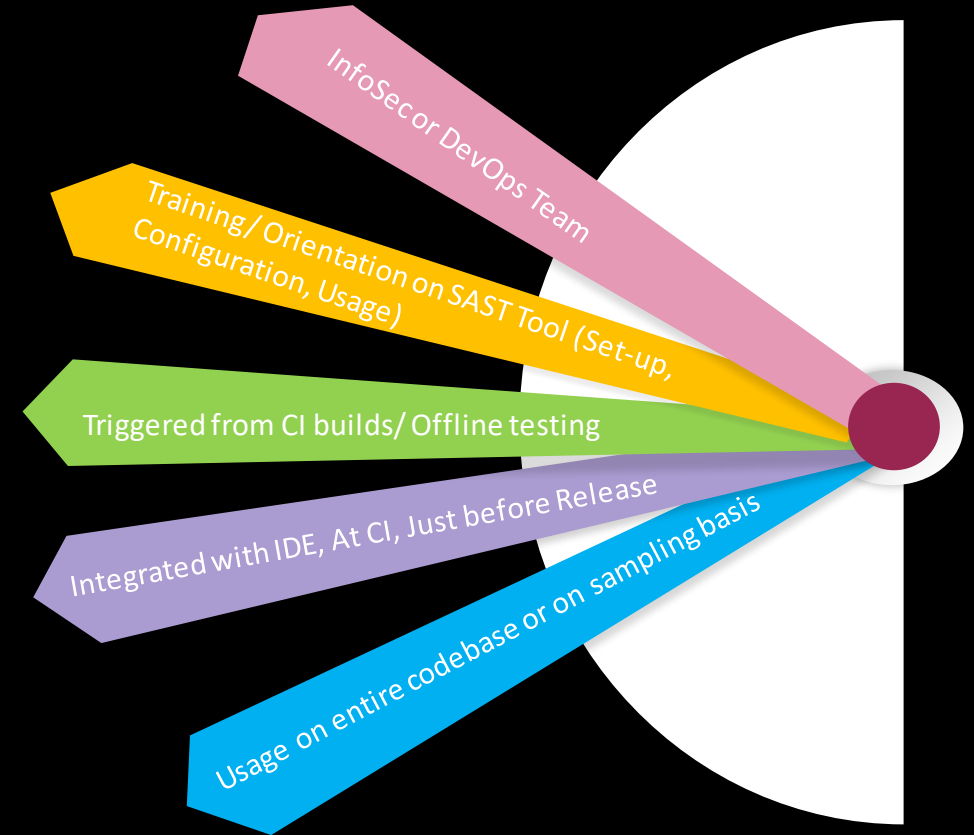
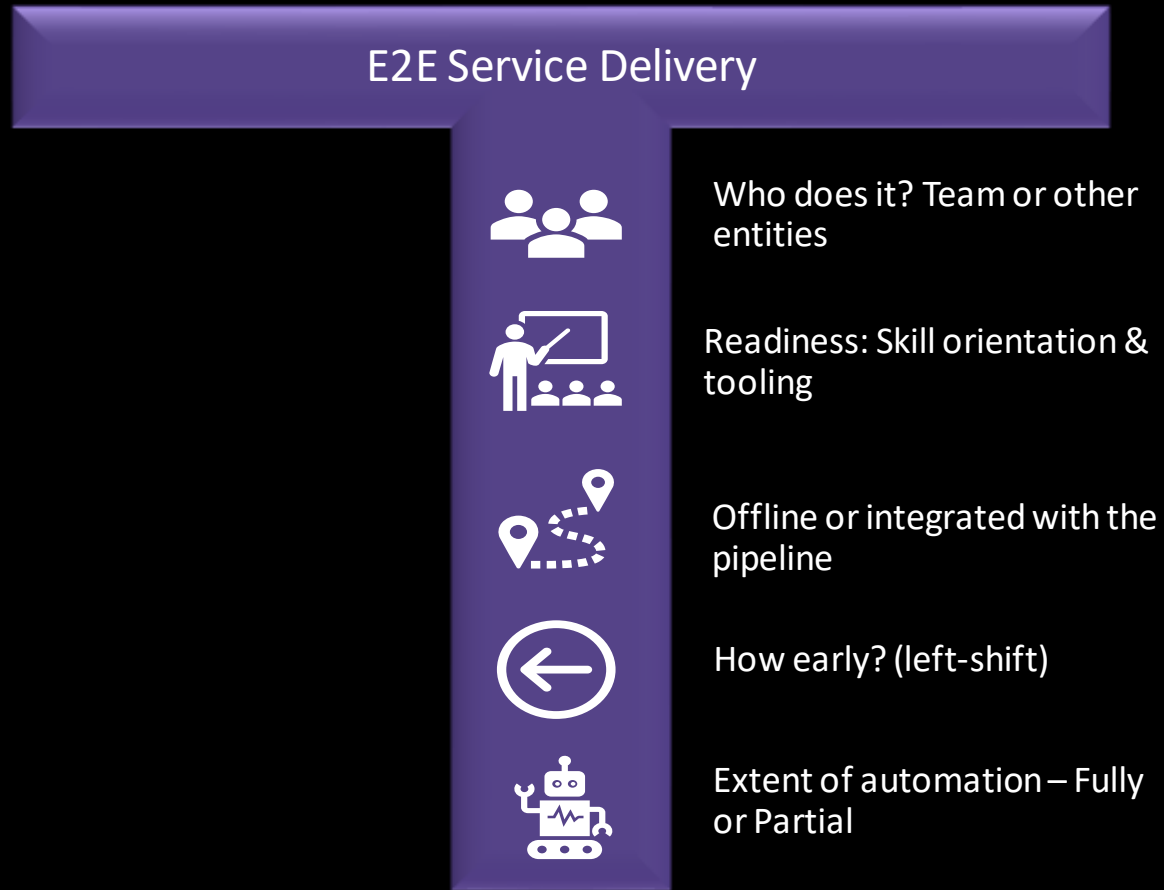
Designed with Best Practices from TCS matured Accounts and Industry

...A multi-dimensional Framework



Consideration of various dimensions for achieving the goals

... that covers the breadth and depth of Service Delivery



Example: Static Application Security Testing

Breadth and Depth determine the Maturity of the Practice

Assisted Assessments conducted to gauge Adoption Maturity . . .

Stakeholders

- Assessment Team
- Product Team (PO, SM, Engineers, Architects, etc.)

Method

- Preliminary Information
- Interviews
- Demos

Reporting

- Draft findings
- Final report (Strengths & OFIs)



Sample Assessment Report

Assessment Area	Assessment Criteria	Assessment Status	Assessment Comments
Assessment Area 1	Assessment Criteria 1.1	Practised	Assessment Comments 1.1
Assessment Area 1	Assessment Criteria 1.2	Alternately practised	Assessment Comments 1.2
Assessment Area 1	Assessment Criteria 1.3	Partially practised	Assessment Comments 1.3
Assessment Area 1	Assessment Criteria 1.4	Customer controlled (Practised)	Assessment Comments 1.4
Assessment Area 1	Assessment Criteria 1.5	Not Practised	Assessment Comments 1.5
Assessment Area 2	Assessment Criteria 2.1	Practised	Assessment Comments 2.1
Assessment Area 2	Assessment Criteria 2.2	Alternately practised	Assessment Comments 2.2
Assessment Area 2	Assessment Criteria 2.3	Partially practised	Assessment Comments 2.3
Assessment Area 2	Assessment Criteria 2.4	Customer controlled (Practised)	Assessment Comments 2.4
Assessment Area 2	Assessment Criteria 2.5	Not Practised	Assessment Comments 2.5

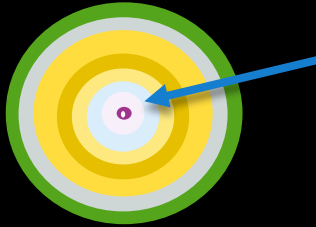
Assessment of 20
Teams in 7 months

Issues faced with this conventional method

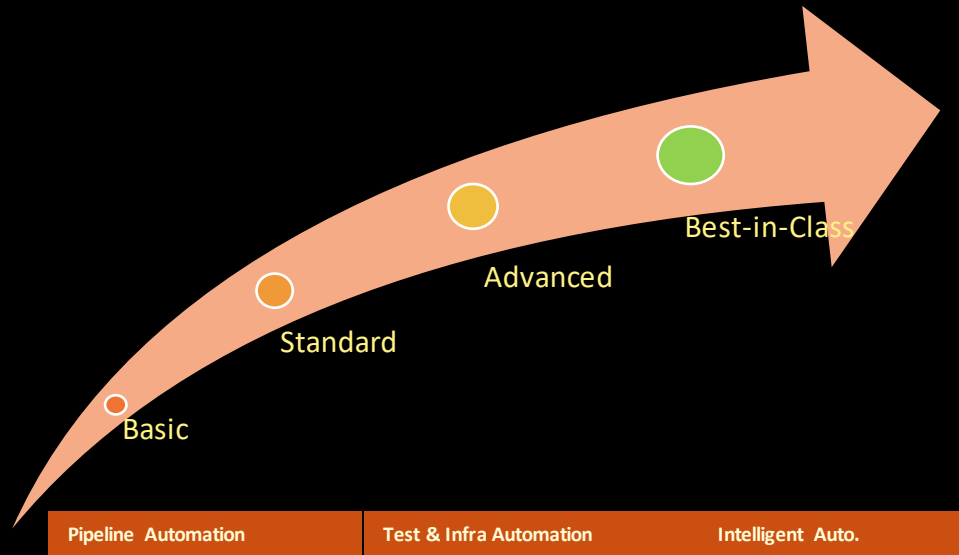
- Stakeholders' availability
- Effort intensive, High cycle time
- Not scalable
- High reliance on the assessor's skill
- Requires a large assessor pool

Conventional Method was Not Sustainable or Scalable – Necessitated Machine-First Approach

Framework abstracted into a Self-paced, Digitized Assessment method



DevSecOps Rapid Assessment Tool



- **Maturity levels:** Basic, Standard, Advanced, **Best-in-Class**
- 500+ Response options
- **Dimensions:** People, Process, Technology, Culture, Automation, Security
- Built-in Knowledge base
- **Quantification and Automated Report**
- Roadmap towards continuous maturity improvement

Enables adopting best-in-class modern engineering practices for **Reliability @ Speed**

TCS DevSecOps Maturity Assessment Report



Maturity Levels and Scores



Executive Summary



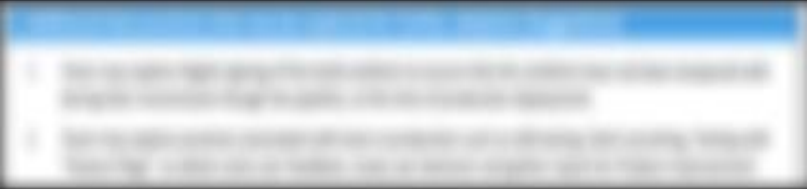
Detailed Findings - Strengths



Detailed Findings - Recommendations



Detailed Findings – Best Practices to Explore



DevSecOps Maturity Assessment Report for Insights to Improve

DevSecOps Rapid Assessment Tool



DevSecOps Maturity Assessment

DevSecOps Rapid Assessment Tool evaluates the engineering practices across the software delivery lifecycle in alignment to the DevSecOps principles, helps determine the maturity of the DevSecOps practices implemented in the team/s and identifies the areas of improvement.

*This Assessment is **TCS Confidential**. Please do not share, copy, reproduce or divulge any portion of the assessment.*

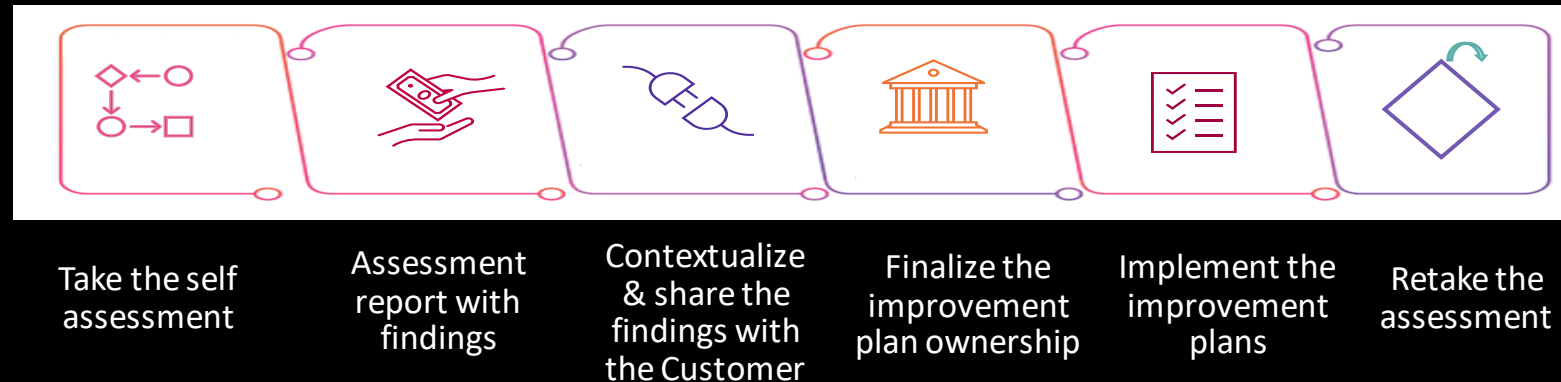
Points to note:

- It takes 2-3 hours to complete the assessment

82. Which of the Quality gate criteria are included for Build failure? *

- ☐ Compilation & Linkage
- ☐ Unit test results
- ☐ Code Coverage
- ☐ High-priority findings from Static code Quality Analysis tools such as SonarQube
- ☐ High-priority findings from SAST (Static Application Security Test) tools such as Fortify, Checkmarx
- ☐ High-priority findings from SCA (Software Composition Analysis) tools such as Blackduck, Nexus Lifecycle
- ☐ Quality gate/ criteria is not evaluated for Build failure

Assessment Flow



Benchmarking and Path towards Maturity Improvement

Evangelizing DevSecOps

Symposium, Knowledge-sharing sessions, Flyers, Recognition, Neighborhood, Blogs



tcs TATA CONSULTANCY SERVICES

AKIA Amplify knowledge in Agile

AKIA Event

A Retail MWC Unit Agile Initiative

Elevate your DevSecOps maturity with DevSecOps Rapid Assessment Tool

March 31, 2022
7 PM to 8 PM IST

Facebook icon, WhatsApp icon



What is your Software Engineering Maturity?

Software Engineering Assessments provide a rapid and comprehensive assessment of your practices' maturity

DevSecOps Rapid Assessment Software Product Quality Assurance Assessment



DevSecOps Week - 13th Dec-17th Dec

Nothing Teaches us Better than our Experience

Please mark your calendars Knowledge Sharing sessions Mon - Fri (13th - 17th Dec 2021)

Time: 4:00 PM - 5:00 PM IST

Day 1: Monday 13th Dec 2021
DevSecOps framework, Practices and the Maturity Assessment.



Service Reliability
Engineering for Excellence

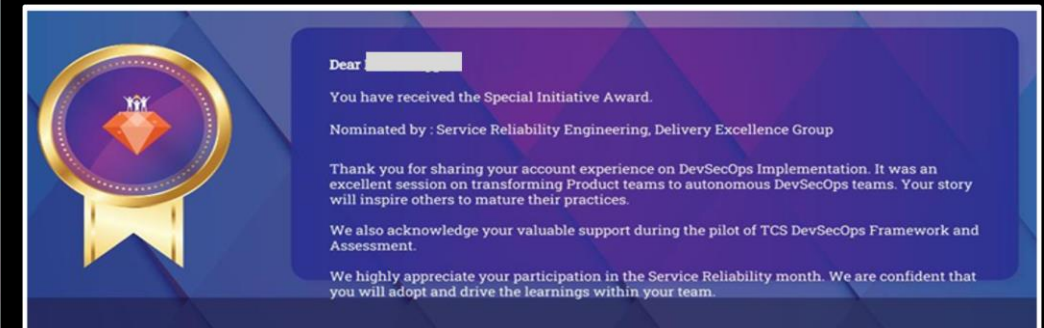
Embrace DevSecOps. What are you waiting for?

Real Customer Stories by

- Technical Architect, BFSI EU NW
- Consultant, TTH EU&UK
- Enterprise Agile Coach, CMI NA Media
- Lead, CMI NA Media
- Coach, Utilities
- Functional Lead, Service Reliability Eng.,

ISU Head, BFSI Europe NW Head, Delivery Excellence

Date: 7th February 2022



Dear [Name],

You have received the Special Initiative Award.

Nominated by : Service Reliability Engineering, Delivery Excellence Group

Thank you for sharing your account experience on DevSecOps Implementation. It was an excellent session on transforming Product teams to autonomous DevSecOps teams. Your story will inspire others to mature their practices.

We also acknowledge your valuable support during the pilot of TCS DevSecOps Framework and Assessment.

We highly appreciate your participation in the Service Reliability month. We are confident that you will adopt and drive the learnings within your team.

Spreading the DevSecOps Wisdom – Organizational Knowledge & Experience Sharing Drives

Governing DevSecOps Adoption



Respective DevSecOps SPOCs drive deployment at the business unit level



Weekly DevSecOps Assessment dashboards – Coverage, Maturity distribution and defaulters



DevSecOps Assessment Hour – Connect with DevSecOps SPOC to address any assessment issues and challenges



Dedicated Teams channel to collaborate on best practices

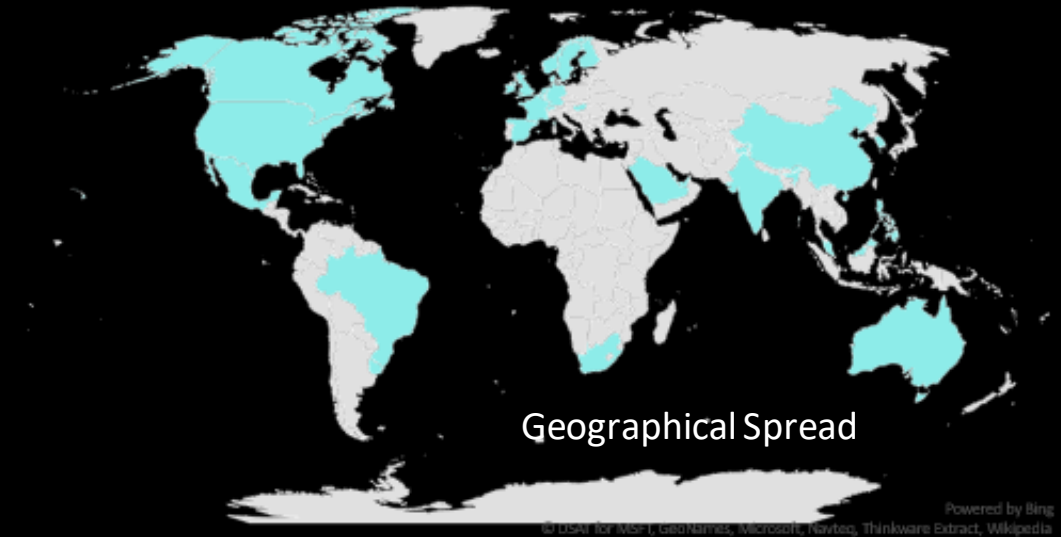
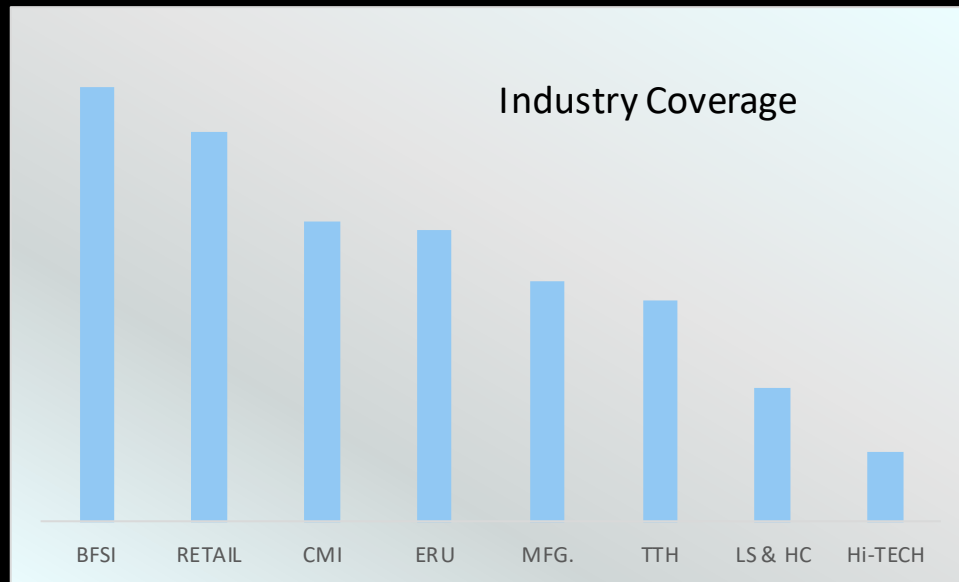


Monthly Open House

Monitoring and Governance for improved DevSecOps coverage and maturity

Scaling DevSecOps Adoption – Assessment Coverage

700+ assessments in 200+ Customer accounts across geographies



*“It is **good to see that TCS is looking at DevOps holistically, including infra and monitoring**”*

*“**Customer was happy** to see the effort TCS is putting to come up with such an assessment.”*

*“The report helped to **identify the gaps in the process very clearly and effectively**”*

The Assessment provides organizational insights for further improvement

Best-In-Class

High performant teams

- AIOps for smart alerts, self-heal and self-defense actions
- Zero-downtime strategies
- A/B Testing, Dark launching techniques for testing in production

Advanced

Higher capability for Continuous delivery

- Matured Testing Practices (TDD, BDD, In-Sprint automation)
- Self-sufficient to provision infrastructure using IAC
- Strong focus on Monitoring and Observability
- Security integration early in the pipeline
- Real time detection and protection from security threats (RASP)

Standard

Continuous Integration capabilities

Key focus areas for improvement:

- Cross-functional skills in test automation, infrastructure-as-code and security tools
- Development practices of TDD, BDD
- Proactive Event and Threat management
- Threat modelling and Architecture analysis

Process, Technology and Culture transformation for Maturity Elevation

Benefits



- Customer delight and appreciation
- Frequent Releases
- Faster response and recovery
- Low failure rates
- Reduced security incidents

Thank you