

DXC Technology Quality Engineering

G-Cloud 15:
Service Definition Document

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1 Company Overview

DXC Technology is a Fortune 500 global IT services leader. Our more than 130,000 people in 70-plus countries are entrusted by our customers to deliver what matters most. We use the power of technology to deliver mission critical IT services across the Enterprise Technology Stack to drive business impact. DXC is an employer of choice with strong values, and fosters a culture of inclusion, belonging and corporate citizenship.

We deliver the IT services our customers need to modernise operations and drive innovation across their entire IT estate. We provide services across the Enterprise Technology Stack for business process outsourcing, analytics and engineering, applications, security, cloud, IT outsourcing and modern workplace.

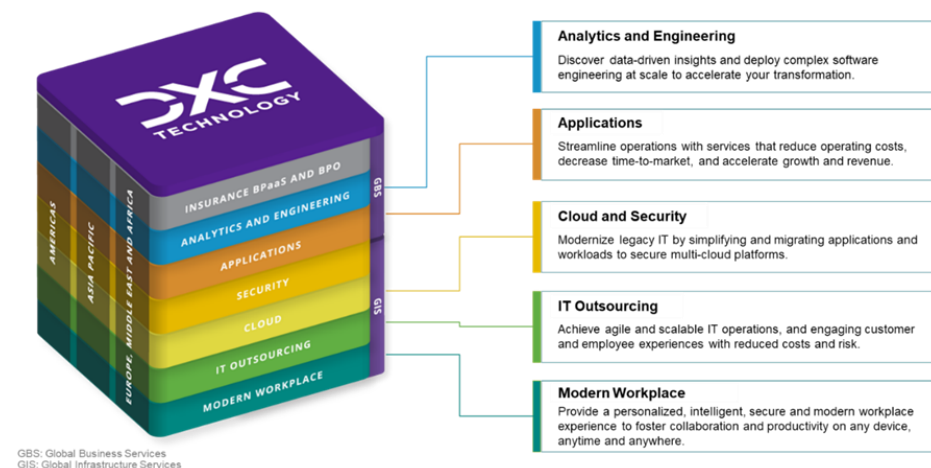


Figure 1. DXC Technology stack

Every day, we earn our customers' trust by delivering transformative technologies to ensure the success, safety and well-being of businesses and people worldwide. Our globally connected centres enable us to solve complex technology challenges and transform our customers' businesses through our dedicated delivery workforce.

With globally distributed teams and rich engineering skills, DXC offers competitive solutions to address customers' cost, regulatory, language and business continuity requirements. We leverage the power of partnerships through our curated DXC ecosystem of technology leaders. By combining strengths and expertise globally, we create solutions and deliver greater outcomes for customers across the Enterprise Technology Stack.

Our values are the fabric of DXC. They bind us together regardless of where or how we work and position us to succeed on our transformation journey:



Deliver

We do what we say we are going to do.



Care

We take care of each other and foster a culture of inclusion and belonging.



Do the right thing

We act with integrity.



Collaborate

We work as a team – globally and locally.



Community

We believe in stewardship and building a sustainable company that supports our communities.

2 DXC Quality Engineering

DXC Quality Engineering provides end-to-end testing services and quality management solutions that support our clients as with a comprehensive set of services needed as an enabler for successful digital transformation.

This service is for clients in the following situations:

- Need to **improve the quality of their testing approach**
- Need to be **deliver change faster into production** with confidence that this will not compromise quality and affect the customer experience
- Need **additional testing capacity** for change programmes across their organisation
- Need to **improve the cost effectiveness** of their testing
- Need to **improve levels of automation** across their testing packs.

2.1 Key Service conditions

- The service is provided as a dedicated squad comprising a minimum of 4 resources.
- Options for on-shore security cleared, mixed or off-shore teams are provided.
- Pricing for this service is billed monthly.
- Other engagement options can be discussed and priced via the SFIA rate-card.

2.2 Why DXC?

- **DXC has years of experience in the UK Public Sector** – with a very strong public sector heritage across:



- **Global Trusted Scale** - DXC brings over 50 years of experience, global reach with 17 global and regional delivery centres, 10,000 + testing experts, and a large roster of satisfied customers who trust our work.
- **DXC provides unique IP**, Testing as a Service models, advanced test automation assets (frameworks and acceleration tools)
- We **collaborate across a cohesive partner ecosystem** to help clients understand the most effective tooling to deliver faster and optimum costed solutions.
- **DXC have been able to achieve** for our clients:
 - Savings of £2.1 Million over 2 years for a UK Insurer.
 - 3X increase in the number of releases per month through DevOps
 - 50% reduction in testing effort through automation, resulting in > 40% cost saving
 - 20% e-commerce growth rate maintained despite increase in traffic during holiday sales post performance testing and optimisation engagement

3 Service overview

DXC Quality Engineering delivers end-to-end testing services and quality management solutions that help our clients achieve seamless technology transformation from traditional to digital enterprise.

Clients improve the quality of their applications through **faster, better, continuous and more cost-effective** testing of their software.

The diagram below details all DXC Quality Engineering and Testing Services. This GFCLOUD 15 service description focusses on group **02 AI-Powered Test Automation** and group **04 Application Security on Demand**

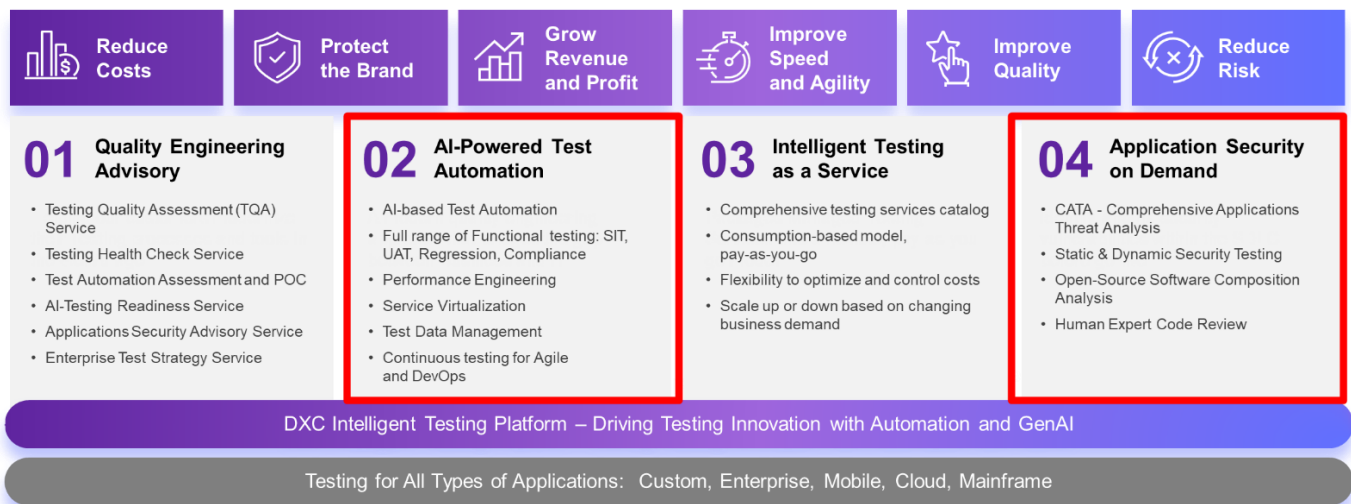


Figure 2. Service Summary

Testing services and options to be discussed upon engagement.

DXC Quality Engineering services are tooling agnostic and are supported by Partnership with all leading providers to select and use the best tooling for the clients circumstance; we can also use the existing client tools.

Examples of partners with DXC to facilitate and expedite the services are shown below.



Figure 3. Example Service Partnerships

Each tool is designed to address different aspects of modernization, from rapid assessments and application portfolio optimization to cloud-native accelerators and mainframe transformation.

3.1 AI-Powered Test Automation

DXC's AI-Powered Test Automation Services is an independent testing offering of cross-industry testing services, including functional, non-functional and test automation services. These testing services are designed to support the client's business applications, enterprise applications, custom applications /product development and maintenance, compliance and regulatory requirements.

3.1.1 AI-based Test Automation

Government agencies two biggest challenges when it comes to testing are time and cost. Automation addresses both of those challenges, but on average today only ~50% of testing is automated versus manual across industries.

Many customers have only 20-30% of their testing automated, and for some testing is completely manual.

DXC lead with innovation and automation and were an early adopter of AI in testing more than 5 years ago. AI allows us to automate testing faster and more efficiently. You still need people, but it makes our people more productive, so that we're able to do more with fewer – and this allows our customers to realize greater return on their automation investment.

DXC AI-Powered Test Automation now impacts the whole testing lifecycle – not just the automation of test execution as shown below.

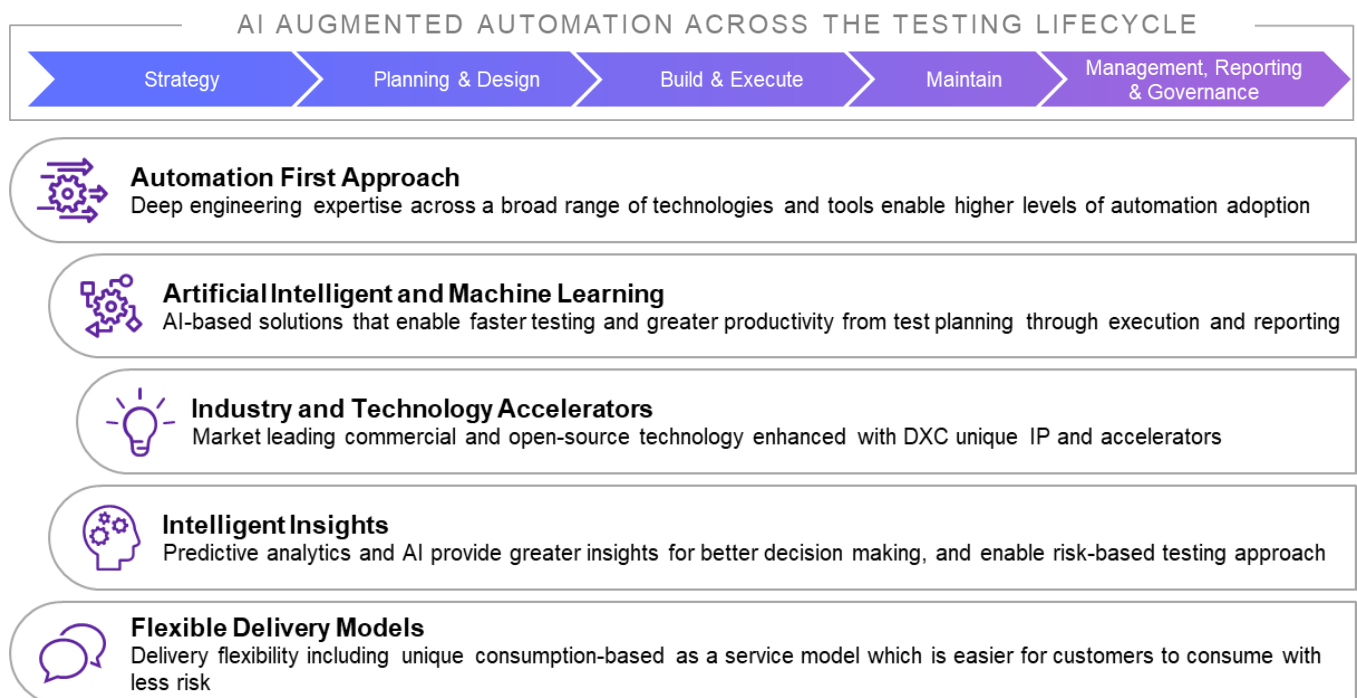


Figure 4. AI augmentation across the testing lifecycle

3.1.2 Support for all Test Stages and Types

DXC have ready made and fully documented processes to support all testing stages and types. These processes are defined in DXC's Enabling Delivery and Global Excellence (EDGE) platform and its Enterprise Testing framework.

The following diagram shows the supported test stages and types aligned to the delivery sequencing and management processes.

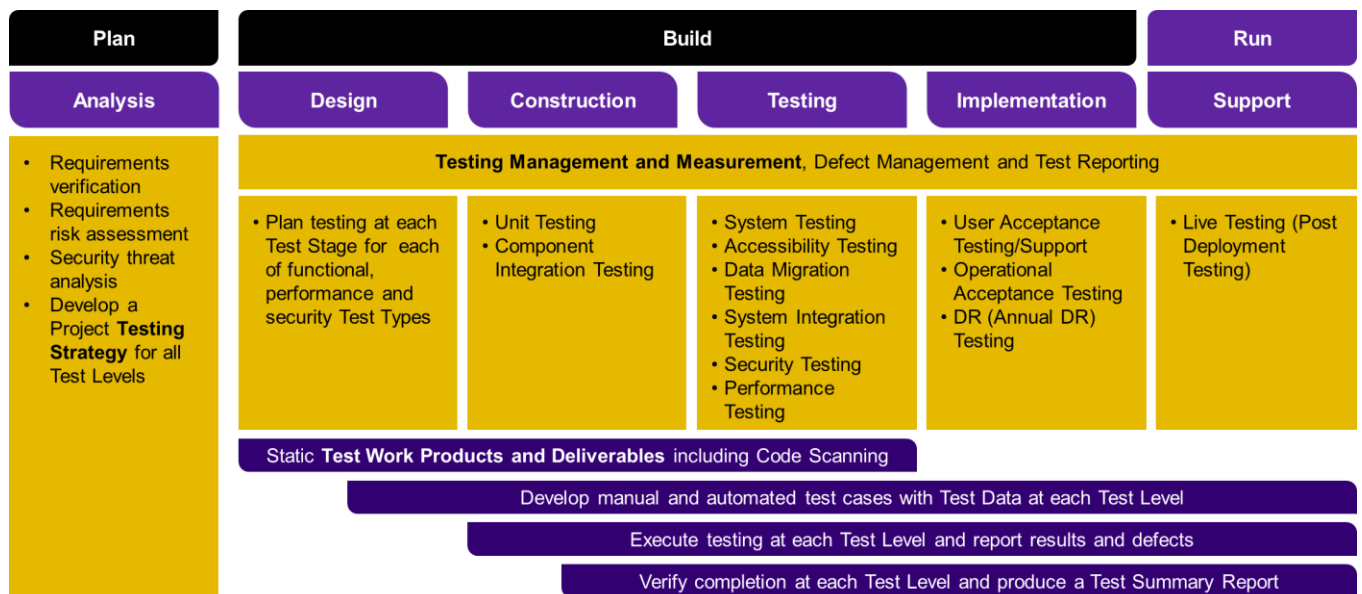


Figure 5. DXC Enterprise Testing

3.1.3 Performance Engineering

DXC provides Performance Engineering service that extends support for traditional Performance Testing during the release cycles to the whole Design > Development > Testing > Release > Production lifecycle.

During design and development the DXC Quality Engineering team supports design/development teams during performance requirements & architecture reviews then incremental targeted performance tests as components of systems are developed.

During release and production the DXC Quality Engineering team supports operations teams in observability & monitoring review of live performance metrics. Any live scenarios indicating potential performance issues can be replicated and support proactive resolution and then added to to performance regression testing.

3.1.4 Service Virtualisation

Practically software development, testing, and operations teams do not work in synch, and each team often has to wait for others to have components ready.

This causes delays in workflows and may deliver an inferior product.

Service Virtualization (SV) is a method that helps you to emulate the integration behaviours of a component in a Service Oriented Architecture (Microservice). Using SV during Integration testing, System Testing and System Integration Testing, DXC Quality Engineering team shifts left integration testing discovering defects earlier in the lifecycles.

With Service Virtualization, DevOps teams use virtual services instead of production services, so they can test the system even when key components are not ready or simply not available.

Integrating testing of applications starts earlier in the development cycle thereby reducing time and cost to fix errors.

3.1.5 Test Data Management

Test data is a cornerstone of effective testing. Creation, management and refresh of high quality test data is a critical asset in testing services with large volumes of application or user data.

DXC Quality Engineering partner with test data management tool partners to provide the most effective processes and tools for a clients circumstances.

DXC analyse clients test data management process requirements in 6 aspects:

- **Synthetic Data Generation:** Creates accurate, non-sensitive data that mimics production data for End-to- end testing needs
- **Data Masking:** Protects sensitive information by masking, ensuring compliance with privacy regulations
- **Subset and Scaling up:** Extracts subsets of data from larger datasets to reduce complexity and improve efficiency by covering all the possible variation of Data. Expanding Volume of Data from existing dataset
- **Integration with CI/CD Pipeline and Automation Testing tools:** Integrate generated synthetic test data with Automated testing tools for enabling a robust execution covering all the variation of data
- **Security:** Implements robust security measures to protect test data from unauthorized access and users
- **Automated Workspaces:** Automate the set of test data cases which includes negative, edge and all variations cases which will kick off generating test data by extracting data from Source and loads in to target destination

3.1.6 Continuous Testing for Agile and DevOps Support

The future of test automation brings a high degree of efficiency and quality while radically improving the deployment speed for enterprise system updates.

Our approach will layout a vision and kickstart your capabilities for First Quality to mature toward a modern testing competency supported by advanced automation:

- **Business Requirements drive Scenario and Test Case Creation.** Tight collaboration on testing from the start by leveraging modern approaches to testing like test driven development (TDD) and behavior driven development (BDD)
- **Test Data is realistic and verified BEFORE Testing starts.** Get to source code bugs faster, test with the right data
- **Automated Regression is Continuously triggered**, improving speed and quality (and therefore cost).
- **Test Bed is continuously enriched** with new Test Cases and new working, reusable, realistic data.
- Any minimal **defect leakage is analyzed and added to the Test Suite**

The following diagram illisutrates our approach:

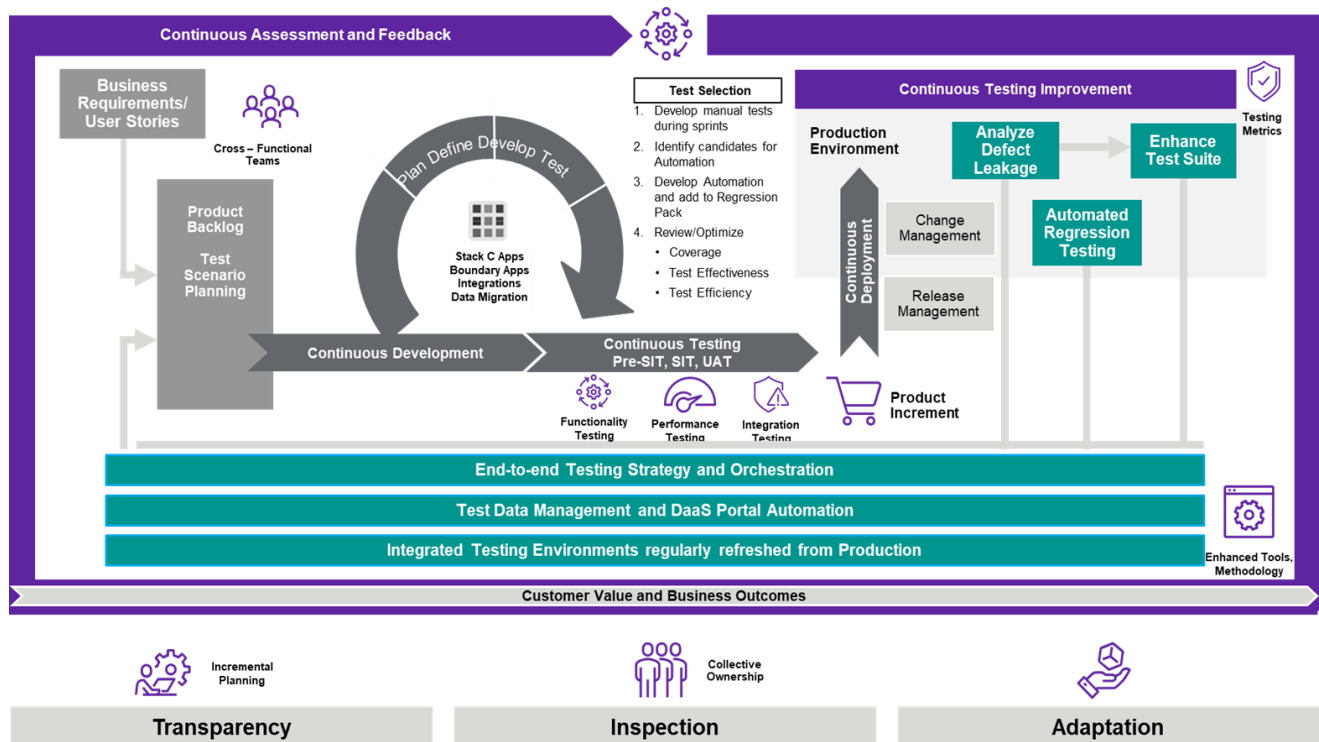


Figure 6. DXC Continuous Testing for DevOps and Agile

3.2 Applications Security Testing

3.2.1 Application Security on Demand

DXC provides consumption-based applications security testing using automated testing tools backed by DXC experts who audit the test results to remove false positives. The Applications Security on Demand services include:

- **Static Security Testing:** Static assessments provide security scanning, auditing, and reporting on different programming languages. Using the industry-leading tool, source code analysis of applications is completed with expert validation and reporting. Static Security Testing reviews applications in a non-runtime environment, examining the software's input and outputs that cannot be seen through dynamic web scanning. It currently supports a variety of development languages. Users can simply and securely upload source code files.
- **Dynamic Security Testing:** Dynamic assessments provide security scanning, auditing, and reporting for any web-based application in an active environment. Dynamic scan and analysis, or black-box testing can be performed on applications developed in all web languages. Dynamic security testing is used on active web applications during runtime to identify vulnerabilities and security issues.
- **Software Composition Analysis:** This service can be included as part of a static scan to identify vulnerabilities in open-source components and libraries used by the application.

3.2.2 Comprehensive Applications Threat Analysis service (CATA)

DXC's CATA service reduces the risk of introducing undiscovered (latent) vulnerabilities and security defects during the application development lifecycle. It can also be applied after development to identify future security updates that can be applied to the application or to provide an assessment of security vulnerabilities at the requirements, architecture, and design level. As more vulnerabilities and exploits of those vulnerabilities are discovered, protecting your critical data becomes a never-ending battle. CATA reviews are necessary to determine if the current application architecture and high-level design remain secure.

DXC's security consultants leverage proprietary framework and toolkits to deliver CATA services. CATA begins with a Security Requirements Gap Analysis (SRGA), which is an analysis of an application to map often-missed regulatory security requirements into technical security requirements. The output is a prioritised and vetted list of security requirements, control gaps, and an action plan to remediate.

The next CATA step is an Architectural Threat Analysis (ATA), an analysis of an application architecture and high-level design to identify changes to reduce the risk of latent security defects to a uniform acceptable level. The output of this step is a prioritised and vetted list of threats and an action plan to remediate.

4 Benefits of DXC's service

DXC offers an independent view for testing and is tool and vendor agnostic. Our continuous innovation and differentiated solutions maximise the value we provide to organisations.

Following are the typical business challenges and needs that our clients face, and corresponding DXC solutions that were implemented, and benefits achieved.

Table 1. Benefits of DXC's service

Business Challenges and Needs	DXC Solutions and Benefits
Reduce Costs • Quality at speed with lower costs • Minimised start-up costs • Testing for business value, not cost overhead	Solutions • Test organisation assessment • Testing center of excellence • Test strategy • Test automation • Service virtualisation in testing Benefits • Quality at speed with lower costs • Start-up costs minimised • Testing for business value, not as a cost overhead
Quality • End-to-end performance and reliability • Brand protection and customer satisfaction	Solutions • Functional and automation testing • Testing in DevOps • Compliance and white box testing • Application modernisation • Performance and security testing Benefits • End-to-end performance and reliability • Brand protection and client satisfaction
Growth/Agility • Digital business transformation • Emerging technologies and complexity such as SMAC, AI, RPA, and microservices • Support for Omnichannel and customer experience • Validation for modernisation projects • Addressing cybersecurity threats • Faster time to market and shorter cycle time requirements	Solutions • TaaS • Functional and automation testing • Testing in DevOps • Compliance and white box testing • Application modernisation Benefits • Digital business transformation • Emerging technologies and complexity such as SMAC, AI, RPA, and microservices • Support for Omnichannel and customer experience • Validation for modernisation projects • Addressing cybersecurity threats • Faster time to market and shorter cycle time requirements

Business Challenges and Needs	DXC Solutions and Benefits
Risk/Compliance • Skills shortages • Multiple channels, devices, and technologies niche skills need • Diversified regulatory and compliance requirements	Solutions • Comprehensive Applications Threat Analysis (CATA) • Static and dynamic application security testing • Application security On Demand • Mobile apps testing • Big data and analytics testing • Performance testing • Crowd testing • Usability testing Benefits • Multiple channels, devices, and technologies niche skills needs • Diversified regulatory and requirements compliance

5 Case Studies

5.1 Leading airline company

DXC helped a leading airline achieve the following through continuous innovation and automation:

- 45 percent reduction in execution cycle time
- 80 percent reduction in manual effort
- 150+ reusable business processes that saved 500+ person hours for every iteration

5.2 Large airline company

DXC helped a large airline company adopt DevOps and continuous integration and testing, enabling them to achieve the following benefits:

- 78 percent reduction in execution effort — from 28 hours to six hours
- 83 percent reduction in deployment time
- 300 percent increase in the average number of releases per month

5.3 Tier 1 telecom service provider

A Tier 1 telecom service provider needed to improve its customer experience and time to market, as well as reduce its operational and IT expenditures. They also needed to decommission legacy systems. DXC provided testing services to achieve the results listed below:

- 12x reduction in deployment time
- 75 percent reduction in cost
- 10x reduction in time for regression testing
- Six percent efficiency improvement year-on-year