



Quality Service and Accessibility Review

G-Cloud 14 Service Definition Document

**gravity9: Building Digital Platforms, Turning Legacy Complexity
into Digital Agility**



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Introduction to gravity9

It's never too early to modernize, but it can be too late!

Legacy complexity is a by-product of your success; your organization has grown and your applications and platforms have grown to keep up and support your ever-changing needs. However, many established organisations initiated their operations before modern solution architectures emerged, while today's proven patterns and practices offer efficiency and longevity.

- **74%** of organizations that experience data breaches are due to vulnerabilities in legacy systems - Ponemon Institute
- **52%** of fortune 500 in 2003 no longer exist today
- **45%** improvement in customer satisfaction for organizations that prioritize modernizing applications - Forrester Consulting

Don't become a statistic!

Legacy systems often struggle with the volume of digital transactions, fail to store necessary data for insightful analysis, and face challenges in meeting regulatory compliance. This hinders innovation and agility, resulting in slower time-to-market. New organisations, unencumbered by legacy systems, possess native agility but lack your expertise, breadth of services, resources, and trusted brand. Imagine leveraging modern architecture to enhance your wealth of experience and capabilities.

gravity9 propels you beyond complex, outdated legacy solutions to a sleek AI-led, micro-service, micro-UI platform enabling continuous innovation.

Our application modernization approach leverages cutting-edge AI technologies and microservices architecture to streamline your operations and drive continuous innovation. With our sleek micro-UI platform, we empower your business to adapt and thrive in today's dynamic market landscape, ensuring agility, scalability, and sustained competitive advantage. Say goodbye to the constraints of the past and embrace a future where innovation knows no bounds with gravity9.

Cloud Technology

For organisations not in the cloud, transitioning to a cloud-based infrastructure is fundamental for modernizing as it offers unparalleled scalability, flexibility, and accessibility. By leveraging cloud technologies, businesses can streamline workflows, improve collaboration among teams, and enhance overall efficiency. Moreover, cloud-based solutions enable real-time data analytics, empowering organizations to make informed decisions swiftly. Embracing the cloud also ensures better resilience against disruptions, as data and applications are securely stored and accessible from anywhere, providing continuity even in challenging circumstances.

Don't just modernize – revolutionize!

gravity9 understand the challenges of legacy systems and with our experience and expertise will, pave the way for your organization's digital revolution. We guide you through the labyrinth of legacy complexity, identifying inefficiencies, bottlenecks, and opportunities to innovate.

By strategically modernizing and optimizing your systems, we streamline operations, reduce technical debt, and empower your organization to thrive in the digital age. Our approach goes beyond mere

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modernization; we prioritize future-proofing your architecture with an emphasis on AI integration and product insulation, ensuring it's scalable and adaptable to evolving technologies and market demands. Through meticulous planning and implementation, we transition your organization from legacy constraints to agile, best-practice solutions.

CORE TO OUR APPROACH



AI

Harness AI to revolutionize operational efficiency and decision-making. Our expertise in AI development empowers organizations to innovate and gain a competitive edge, optimizing performance and profitability through tailored, intelligent system integration.

Engineering

Modernize your applications with confidence and precision. Our expert team specializes in seamlessly transitioning legacy systems to agile, future-proof solutions, ensuring your business stays ahead in today's fast-paced digital landscape.

Product

We are constantly inventing new digital products, services, and revenue streams for our clients by designing, prototyping and building experiences for the next market leaders. We research and define customer journeys by thinking human first to enable technologies fullest potential and build better products.

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Global Presence

Highlighting our global presence, gravity9 has teams located in multiple offices worldwide, bringing a wealth of benefits. This international footprint allows us to tap into a diverse talent pool, ensuring we have the right expertise for any challenge. It also enables us to offer round-the-clock development and support, thanks to the different time zones our teams operate in. Furthermore, our global perspective enriches our understanding of various markets and cultures, which is invaluable in crafting digital solutions that resonate worldwide. Ultimately, our widespread teams enhance our agility, foster innovation, and ensure we can meet our clients' needs with unparalleled efficiency and effectiveness.

WE ARE GLOBAL

Our Locations

UK & IRELAND

London
Birmingham
Dublin

POLAND

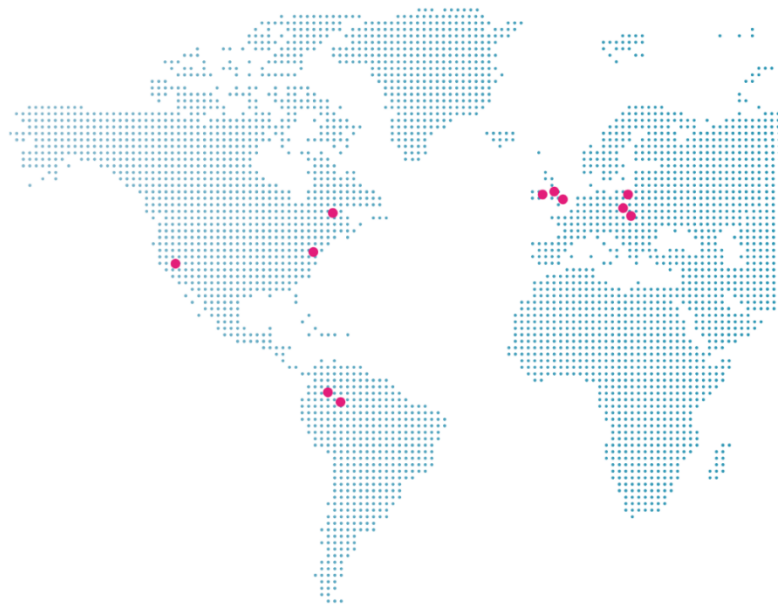
Kraków
Wrocław
Gdańsk

USA

New York City
North Carolina
California

COLOMBIA

Medellin
Bogota





Quality Service Summary

gravity9 offers complex QA services to our clients. We act with a “Shift-Left” testing approach, which allows us to involve QA specialists from the beginning of the Software Development Life Cycle. We ensure the quality of different levels of testing including integration, system and acceptance testing, including both manual and automation versions.

Service Description

In the modern IT world, quality is king. Good Quality Assurance processes ensure that all developed software meets the specified requirements and functions correctly. It helps identify software defects, bugs, or errors before user deployment. This provides a higher quality product and enhances user satisfaction. Our Quality Services are crafted to guide your organisation through the nuances of digital transformation. Today tools for the development of IT services are more accessible than ever - many solutions are available to help build software, but simultaneously that proliferation of tools may lead to gaps in quality.

Users expect software to be reliable and perform consistently under varied conditions. Our comprehensive approach to quality allows us to make the user journey smooth and efficient. The complex Quality Assurance solutions we offer help identify potential issues that may lead to system failures or crashes, enhancing the reliability of the deployed software.

Fixing defects and issues in the software after deploying to production can be significantly more expensive and time-consuming than addressing them during the development and testing phase. Testing helps identify issues early in the development lifecycle, reducing the cost of fixing defects later. This is why we always try to use a “Shift-Left” testing approach.

Shift-left testing is a progressive approach to software testing with an emphasis on conducting testing activities earlier in the software development lifecycle, ideally as early as possible. Using this methodology, testing begins at the earliest stages of development, optimally during requirement gathering and design phases, continuing throughout the development process.

The term "shift-left" refers to moving the testing process to an earlier phase in the traditional development timeline, which typically follows a linear progression from requirements gathering to development to testing and finally to deployment. By shifting testing leftward, defects and issues can be identified and addressed earlier in the development process, reducing the likelihood of costly fixes and rework later in the process.

Critical aspects of shift-left testing include:

- **Early Involvement:** Testing activities involve stakeholders, including testers, developers, and business analysts from the outset of the project to ensure that quality considerations are integrated into every stage of development.
- **Continuous Testing:** Testing is conducted continuously throughout the development process, with automated tests running alongside code changes to provide rapid feedback on the quality of the software.
- **Test Automation:** Automation tools are employed to streamline the testing process, allowing for the execution of tests more frequently and efficiently. Automated tests cover a wide range of test scenarios including unit tests, integration tests, and functional tests.

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- Collaborative Approach: Shift-left testing encourages collaboration between developers, testers, and other stakeholders to identify and address issues early, fostering a quality culture throughout the organisation.

Many modern industries have regulatory requirements and standards that software must adhere to. The requirements often come from the government or other legal apparatus. The most common are:

- Web Content Accessibility Guidelines (WCAG): Developed by the World Wide Web Consortium (W3C), WCAG provides comprehensive guidelines for making web content accessible to individuals with disabilities. It comprises four principles: Perceivable, Operable, Understandable, and Robust. WCAG is the most widely accepted standard for web accessibility. The software must meet various accessibility levels in the scope of WCA standards. WCAG 2.2 became a W3C Recommendation on 5 October 2023,
- Section 508: Section 508 of the Rehabilitation Act mandates that federal agencies in the United States ensure their electronic and information technology is accessible to people with disabilities. The Section 508 standards outline specific requirements for software, websites, and other digital content federal agencies use.

All the above testing types and levels will be considered candidates for regression testing, verifying that recent changes or enhancements to the software have not introduced new defects or impacted existing functionality. The Regression testing will be integrated into the CI/CD pipeline to execute this on the regular basics.

Our experts are doing their best to be up to date with modern solutions, so we have a dedicated group of QA engineers specialized in AI in the testing area. We know how to boost testing with AI-augmented tools and frameworks and how to test AI solutions based on Azure OpenAI Services.



Accessibility Review

Service Description

Digital accessibility is not a buzzword. World Health Authority “More than 1 billion people in the world live with some form of disability. With the rise of inclusive design and the increasing demand for online services, making digital content accessible to all users has become a business imperative. Digital accessibility makes digital content accessible to people with disabilities: vision, hearing loss and cognitive impairments. Accessibility also creates better user experiences for everyone. It’s principles make content easier to use for all users regardless of their abilities.

Accessibility benefits not only individuals with disabilities but also a wide range of users, including those with temporary impairments, older adults and individuals using different devices or environments. Sometimes it does not need much to achieve better accessibility.

At gravity9 we research why people struggle with a challenge then offer accessible solutions. Starting with design we add WCAG standards and use accessibility libraries. Our Accessibility practice promotes adoption and responsibility in all product aspects. We make accessibility easy to understand and translate into easy guides for all company members or non-English speakers. We are exploring new areas of neurodiversity in product design standards of “Perceivable, Operable, Understandable and Robust”. We have created an accessibility review to put this into practice.

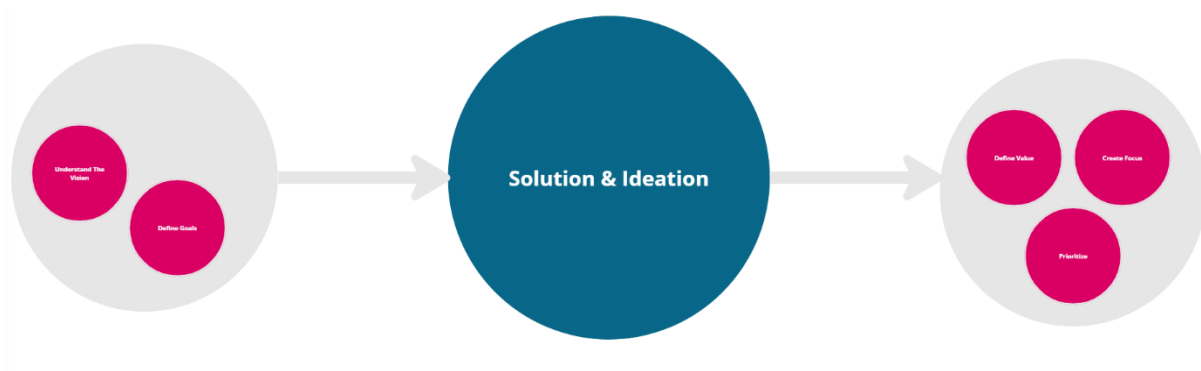
Our QA specialists, besides the regular accessibility testing, may provide your company with an advanced accessibility audit, which will check how your product meets the accessibility standards.

In today's competitive market, organisations that deliver high-quality software with fewer defects and faster time-to-market gain a competitive edge. Quality Assurance plays a crucial role in achieving this by ensuring that the software meets quality standards and is delivered on time. Our team of experts will work closely with you to provide excellent quality that is tailored to your specific needs.

Engagement Process

To understand your needs better, we will

1. Align and understand the opportunities and challenges,
2. Define how the product could meet the opportunity or overcome the challenge
3. Prioritize and plan the product build



As mentioned earlier, there's a growing emphasis on the shift-left approach. This, in connection with the above engagement process, allows our QA specialists to understand your needs better. Once this is done, we will propose the complex Quality Assurance approach. This will include:

- Analyze on which levels the testing should be executed
 - Unit testing - the lowest level of testing and focuses on testing individual components or units of code in isolation
 - Integration testing - verifies the interactions and interfaces between integrated components or units of code
 - System testing - evaluates the behavior and functionality of the software as a whole.
 - Acceptance testing - validates whether the software meets the business requirements and is acceptable for delivery to end-users
- Analyze if the testing should cover the following layers
 - API, including contracts. We may use tools like Postman or Newman but also build the automation framework using RestAssured or Playwright frameworks,
 - UI: we will use modern UI testing frameworks like Cypress or Playwright, but we can also extend the tests written in older frameworks like Selenium,
 - Database: we may propose our dedicated framework written in Java and Karate, but we will also analyze your needs and decide what's the best solution
- Analyze if the testing should cover non-functional requirements
 - Performance testing
 - Load testing
 - Stress testing
 - Usability testing
 - Security testing
 - Compatibility testing
 - Portability testing

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- Scalability testing
- Maintainability testing
- Accessibility testing

Our expertise allows us to automate the above types of testing.

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How we do it

Understand

Our first task will be to understand your needs and goals regarding the conformance WCAG level (A, AA, AAA).

What we need:

- Product description and size
- User journeys and error paths
- Product actors
- Multimedia
- External app integration points
- Viewpoints
- Post-audit expectations

What we'll do:

- Create audit plan
- Host a context workshop to address questions on accessibility

Explore and Execute

Next, we'll execute automated and manual auditing processes.

What we need

- Access to the product/system

What we'll do (audit)

- Screen readers testing
- Keyboard navigation
- High contrast mode
- Labelling and error messaging
- Modal dialogs
- Interactive elements
- Page structure
- Forms
- User manuals
- Shortcut
- Screen magnifiers

Optional

- UX inspection

Share

Finally we'll share an overall score of WCAG conformance level.

What we'll do

- Report of issues mapped to WCAG level

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- Recommendations for low-cost fixes to accomplish as high a conformance level as possible
- Suggested priorities
- Quick wins and guidance on how to accomplish them with internal resources
- Overall score of how easy it is to get to the conformance level

Optional

- Execution plan

Minimum Team

- QA Lead
- Senior QA Engineer



Case Studies

Major Healthcare Provider

A major healthcare trust required a brand-new system designed and built to address critical issues with their existing process and better serve their needs in the medical technology space (the previous approach was inefficient, potentially inaccurate, and difficult to maintain or scale). Specifically, the client required a way for care providers to review medical technology products for suitability and to communicate with suppliers who needed an efficient way to provide up-to-date product information in relevant formats.

gravity9 won the project tender process, transforming the experience and delivering the “Technology Adoption Platform” by designing and building a highly scalable web-based solution with the potential to serve the entire healthcare provider. After initial conversations, the project began with executive team discovery meetings to map what is “truly” needed, followed by iterative event storming to ensure the product meets stakeholders’ needs.

Built around MongoDB, Azure, React and Java, it reduces maintenance workloads, provides a clear communication channel, and enables storing relevant and accurate product information.

Utilised Technology Stack

- Cloud: Azure, Azure AD B2C, Terraform
- Database: MongoDB Atlas
- Backend: Java, Spring Boot
- Frontend: React, NextJS, MUI component

Employee Wellbeing Provider

Our client provides technical employee wellbeing solutions for physical, mental, and financial health. The client approached gravity9 and spoke with Founder Noel Ady to discuss a new module to their existing Mental Health solution that would enable communication between domain microservices and CRM (Customer Relationship Management) in a multicloud environment. Additionally, we would provide additional security, improve system performance, and provide domain separation.

The initial solution uncovered additional requirements, which gravity9 designed and built into the second iteration before conducting a final optimisation pass to streamline further, displaying an evolutionary architecture approach. The client was delighted with the overall result, especially gravity9’s ability to adapt and implement event-driven architecture.

gravity9 achieved a remarkable outcome that met all the client’s expectations, demonstrating expertise in designing and deploying event-driven architecture and delivering a solution that supports asynchronous communication and facilitates evolutionary changes in response to the dynamic business environment.

Utilised Technology Stack

- Cloud: Multi-Cloud
- QA: SpecFlow, Living Documentation
- Development: .NET Core

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National Defence Organisational

A major defence organisation sought to reform how they generate useful analytics for gauging and reacting to public opinion to NATO operations in specific geographic areas. Their previous approach was to research and generate reports manually, which was resource-intensive, delay-prone, and at risk of accuracy issues. Partnering with MongoDB, gravity9 scoped, developed, and delivered a replacement cloud-based system over a three-week period.

The delivered system can collate data from multiple sources, allowing easy, customisable generation of data-rich reports based on up-to-date information plotted against any number of data points, including GIS. Built around React.js, Node.js, MongoDB, and Microsoft Azure, this system has reduced resource overheads and enabled rapid delivery of relevant and accurate information to decision-makers within the organisation. Resource and actual costs have also been reduced as a result.

Utilised Technology Stack

- Cloud: Microsoft Azure
- Database: MongoDB
- Backend: Node.js
- Frontend: React.js

Beauty & Pharmaceutical Retailer

As part of a fast-track ideation and rapid-build development project, gravity9 partnered with MongoDB to help a popular health and beauty retailer and pharmacy build a new Beauty Concierge application to increase customer loyalty and encourage repeat business in the retail domain. Prior to gravity9's involvement, no history of customer consultations or recommendations was stored, meaning returning customers would have to "start over" be re-interviewed, providing them no advantage at this vendor versus their competitors. The client outlined the project requirements, providing a starting point for a more profound consultation process in which gravity9 challenged, revised, and reached a consensus on the form and shape of the project.

A web-based solution was created, tailoring the customer experience via an accessible in-store app. The app maintains customer profiles and preferences allowing consultants to access this information as well as sales logs and KPI's, creating a more personalised, bespoke service unique to the client. The product is built with a .NET Core backend, Angular frontend, and MongoDB database.

The solution has been delivered to the client and initial reception has been extremely positive, with scope for additional functionality, integration, and quality-of-life improvements to be added later. Customers can enjoy a more intimate shopping experience which encourages trust, brand loyalty, repeat business, and increased footfall versus competitors.

Utilised Technology Stack

- Cloud: Microsoft Azure
- Database: MongoDB
- Backend: .NET Core
- Frontend: React



How To Get Started? What We Need From You

We start our process with a simple conversation, discussing the challenges and opportunities that lie ahead of you, touching on potential solutions and how best to proceed. Every scenario is slightly different and we provide a range of offerings that our agile project delivery process supports. As part of this initial step, we may request information from you to get a better understanding of your current set up. This may include information on your technology set up, infrastructure, size and type of data in your system as well as high-level business context.

To get started on a project, our team members will most likely have to be onboarded to your systems. We follow your requirements as part of the onboarding process. It is also common that we ask you to share any kind of documentation that provides a detailed view into your business and technology set up. Any baseline information in terms of the KPIs you are trying to meet would also be considered helpful.

At the core of our process are individuals with deep experience of a range of subjects and methodologies. We discuss any additional needs to get started on a project at the beginning and then aim to make change happen one step at a time in a transparent and tangible fashion.



Enquiries

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