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Setting a project up for success - Solution Architecture

As businesses look to leverage investments in legacy technology and develop newer, more customer centric systems, we are no longer in the space where solutions impact just one platform.

SOLUTION ARCHITECTURE

Very often solutions span multiple applications and technologies, and the architect is expected to have a broader range of technical skills and competencies. In this paper we explore Impactive's view of what solution architecture is, why it is key to any successful project and map out an approach to creating the design.

WHAT IS SOLUTION ARCHITECTURE AND WHY IS IT IMPORTANT?

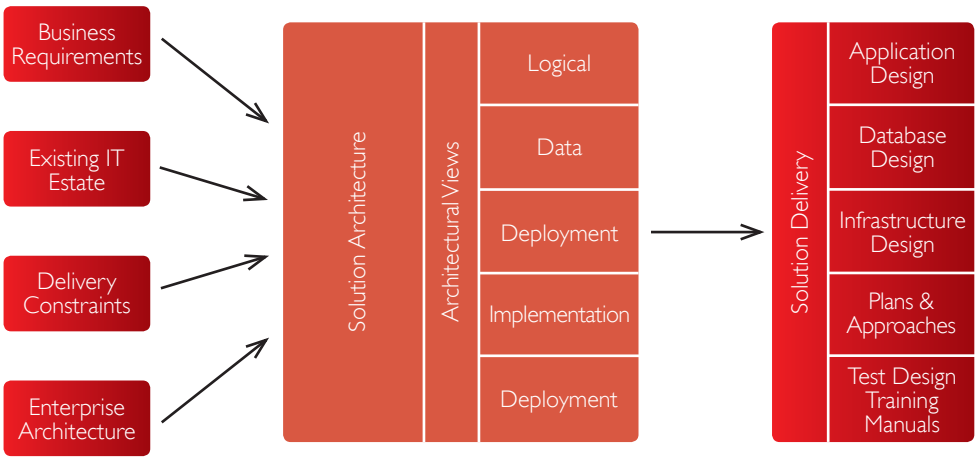
Solution Architecture is a phrase which is becoming more widely used but can mean different things to different people. Impactive believes that it can best be described as….."The high level system design which defines the technical solution to a single business or IT problem." It lays out the overall shape of the solution and specifies the necessary system level changes (or requirement for new implementation) in a set of "views" that can be understood by a wide range of audiences all of whom have differing information requirements. The solution design both draws from and contributes to the overall enterprise architecture.

THE ROLE OF THE SOLUTION ARCHITECT

The role of the solution architect is essential in not only producing this design, but ensuring that the project remains cohesive, the focus on business need and delivery is maintained and that the architectural integrity of the design is preserved to ensure best long term investment.

The final solution is often a compromise with the solution architect having played a crucial role in prioritising business requirements across multiple business units; understanding project constraints and negotiating scope changes accordingly; overcoming potential technical impediments across multiple systems in order to achieve a workable and valuable solution and ensuring that the final design fits within the overall enterprise architecture.

The architect needs input from each of the key stake holders in the form of business requirements; an understanding of the existing IT estate (e.g. system documentation, service risk assessments); delivery constraints (i.e. time, cost, mechanism) from the project manager; and enterprise architecture standards, guidelines, patterns and roadmaps for the problem domain.



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DELIVERABLES AND THE ORDER IN WHICH THEY ARE CREATED

Using these inputs, and working closely with the business analysts and application platform teams the architect assesses the requirements, defines what applications or components need to be amended or created, evaluates which enterprise architecture artefacts are applicable and determines what is achievable for the money and time that is available. Throughout the process the architect supports the project manager in the task of defining costs, resource requirement and detailed delivery plans and, of paramount importance, managing risk.

The focus of the architect's role changes over the course of the implementation. As described in more detail below, the majority of design effort takes place during the inception and elaboration phases, with the focus in construction and transition switching to technical leadership and design governance. We strongly believe that the critical success factor is that the architect maintains a high profile and is a focus point throughout the whole project.

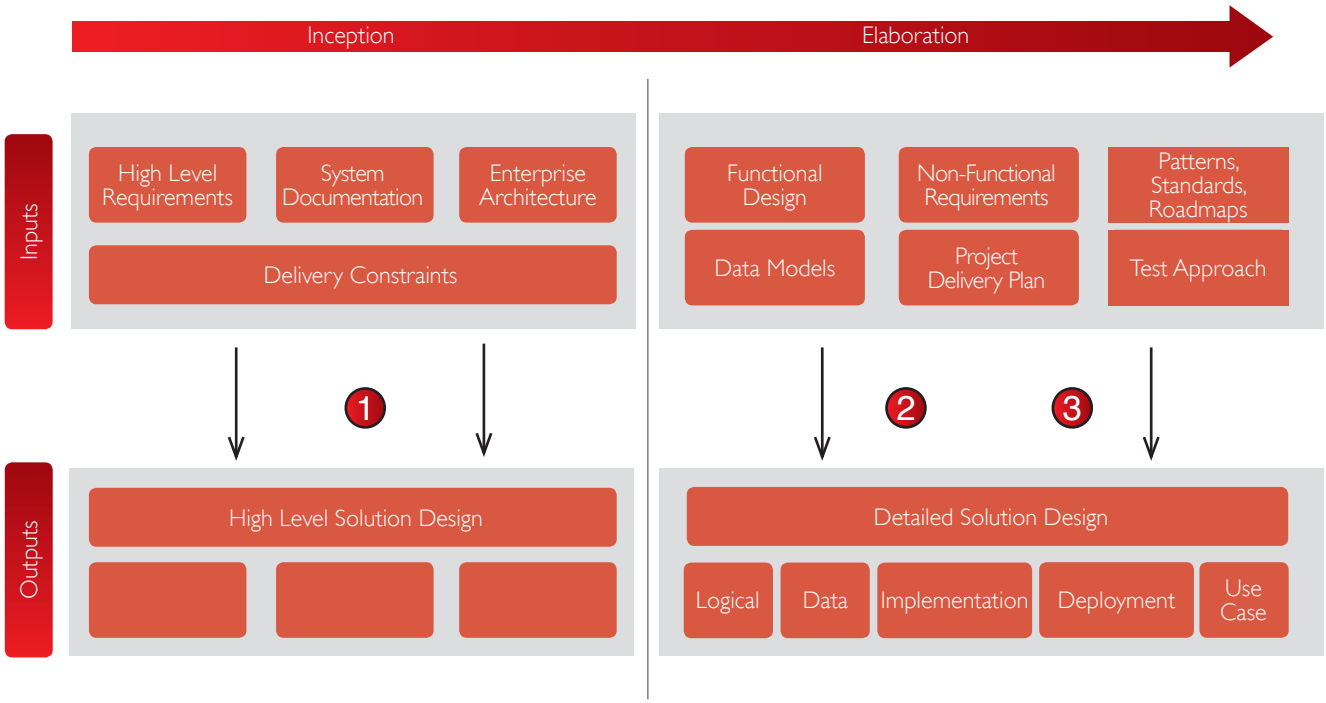
APPROACH TO SOLUTION ARCHITECTURE DESIGN

Now we will turn our attention to the approach to creating the design and the tasks required at each stage of the project. In the inception stage of the project the focus of the architect is on Architectural Analysis (1)

of the high-level business requirements to drive out the risks and issues at this early stage and come up with a high-level design that will satisfy all the key stakeholders on the project. The architect uses this opportunity to work with the business analyst to refine and influence the requirements.

Whilst performing this analysis the architect needs an understanding of the problem domain to determine what systems will be impacted by the design and what enterprise architecture needs to be adhered to or delivered. Finally, the architect needs input from the delivery managers to understand the project constraints, in terms of costs, dates and team dynamics.

The two key activities of this phase are the architectural investigation of the requirements to identify any architecturally significant requirements and architectural design to impact assess alternatives and create designs that resolve the impact of these significant requirements. The resolution of these issues is often captured in the form of Architectural Decisions. Any outstanding architectural issues or risks at the end of this stage may need to be mitigated through a proof of concept or architectural synthesis early on in the elaboration stage.



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In the elaboration stage of the project it is essential that the architect is interacting effectively with the business sponsor, business analyst, system subject matter experts and the project manager. As the architecture takes shape, the architect will record the detail of the design using a number of views (2) to describe the key areas of impact and capture the key architectural decisions that have influenced the design.

The logical architecture forms the largest part of the design and focuses on impacted components and their interaction. This is informed by the functional design and is typically described by interface catalogues, system sequence, collaboration and component interaction diagrams. The mapping of these components (3) to processors and nodes will be described in the deployment view. The flow of data through the impacted components will be described by the data view. The implementation view will pull all these together and describe how the components will be built and delivered.

As the project moves into the construction and transition phases the focus for the architect is on design assurance. The key competencies of technical leadership and communication skills are critical during these phases to ensure that the architecture is built and operated as design.

Design assurance comprises four main activities: design clarification, governance, risk/issue management and change management. Design clarification ensures that any queries with the design are answered in a clear and timely fashion and architectural governance ensures that all design artefacts are in line with the architectural design. Any outstanding architectural risks should now have a mitigation plan in place and all issues should be actively managed. Effective change management allows the architect to impact assess and change in scope against the architectural design.

Construction & Transition

View	Purpose	Contributors	Inputs	Who does it inform
Logical	Describes the software layers, packages and behaviour of significant components	Developers, Enterprise Architects	System Designs, Patterns, Standards	Application Developers, Application Support
Data	Describes the flow of data through the system, highlighting data stores, extracts, loads, mappings, etc	Developers, Data Modellers	Data Models, Logical Interface Definitions, Business Object Models, Screen Specifications	Application Developers, Database Administrators
Deployment	Describes how components will be physically deployed (e.g. what are you deploying and where are you deploying it to?)	Infrastructure Specialists	Infrastructure Patterns, Deployment Models, Non-functional Requirements	Infrastructure Delivery, Third Parties, Operations Support, Nonfunctional Testers
Implementation	Describes how the solution will be built in the form of deliverables and those deliverables will be created	Project Manager, Lead Developer	Delivery Plan, Resource Plan, Development Environments, Test Approach	Technical Delivery Managers, Implementation Managers, Application Support
Use Case	Describes the functional design in the form of use cases, process maps, business rules and screen designs	Business Analyst	Use Cases, Business Rules, Process Flows, Screen Specifications, Print Specifications	Application Developers, Business Trainers, System Testers

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THE IMPACTIVE APPROACH

As IT systems become more complex and integrated, the role of the architect will become ever more important in driving simplification, de-risking IT estates and providing innovative thought leadership. At Impactive we encourage customers to place great emphasis on the solution architecture as a means to de-risk projects, unify and inform often disparate teams and technically lead projects to successful delivery.

ENQUIRIES

To find out more about Impactive, why not check out our website www.impactiveltd.com
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