

## White Paper

# An Introduction to Business Process and Enterprise Architecture

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He believes that achieving simplicity in business processes is the best way to reduce waste and to enable an agile response to market opportunities or threats. He applies experience from a wide range of industries and from knowledge areas including 6 Sigma, business analysis and quality systems.

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**The purpose of Enterprise Architecture is to identify and manage the people, process and technology elements of an organization so that these are clearly understood and available in an interactive model which can then be used to evaluate existing operations and manage change. An Enterprise Architecture model provides a common foundation for discussion and exploration of the business and supports alignment of IT and business functions.**

These elements or components can be categorized under operational (i.e. value chain) and supporting processes (see Figure 7: APQC Process Classification Framework and Figure 8: Porter's Value Chain Model). However, as knowledge of the location, effectiveness, completeness and connections between processes, people and technology are often incomplete, inaccurate or outdated an enterprise wide analysis and discovery phase has to be part of implementing an Enterprise Architecture.

This analysis phase requires classifying the processes and functions within the enterprise by identifying what processes fit with what, the purpose of these processes, how they are named and referenced, who owns them and associated performance metrics and other relevant attributes. Business processes cannot exist in isolation; they connect to internal or external customers and suppliers, controls and resources. These connections, or lack of them, are made visible within an enterprise architecture model and during the enterprise analysis stage.

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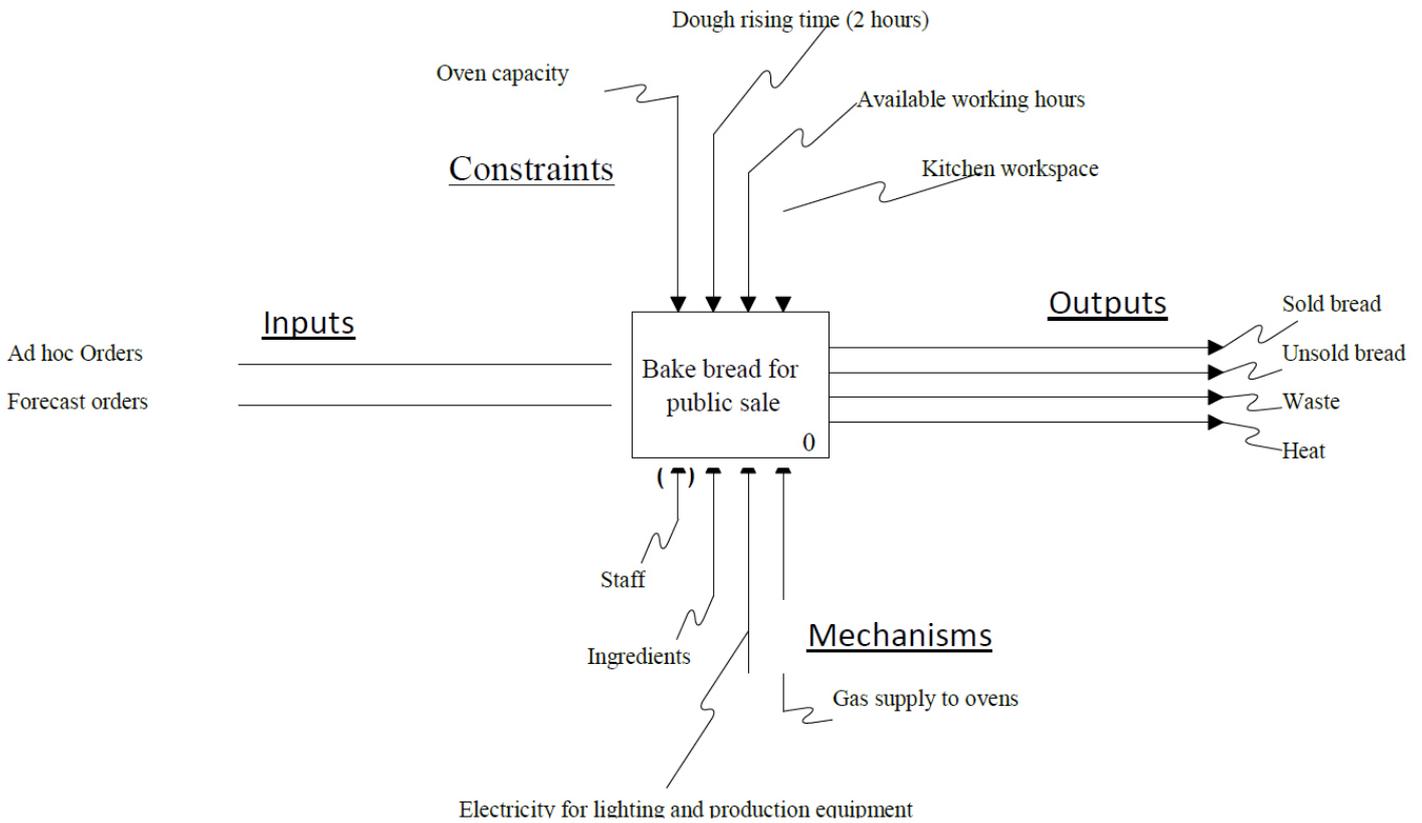


Figure 1: Context diagram for small bakers

*"Enterprise Architecture presently appears to be a grossly misunderstood concept among management. It is NOT an Information Technology issue. It is an ENTERPRISE issue. ... it is not about building models. It is about solving Enterprise problems while building the inventory of reusable, Primitive components (Enterprise Architecture)."*

**Enterprise Architecture - Enterprise Physics 101**  
**John Zachman**

## Enterprise Architecture is not an IT issue

These components (you can ignore the term 'Primitive' for the purposes of this article) are the building blocks of the enterprise. Identifying and maintaining reusable or adaptable processes and procedures supports continual development of best practice and reduces "reinvention of the wheel" and is a fundamental

requirement of the TOGAF (The Open Group Architecture Framework) ADM (Architecture Development Model).

Building blocks are the defined functions and processes that support an enterprise. *Figure 1* illustrates an example where the enterprise is a small bakers which produces bread available for public sale.

This enterprise requires the supporting functions shown in *Figure 2* on the following page. The holistic view achieved in an enterprise architecture model shows how processes connect together as a sequence of activities that produce the outcome of bread available for public sale.

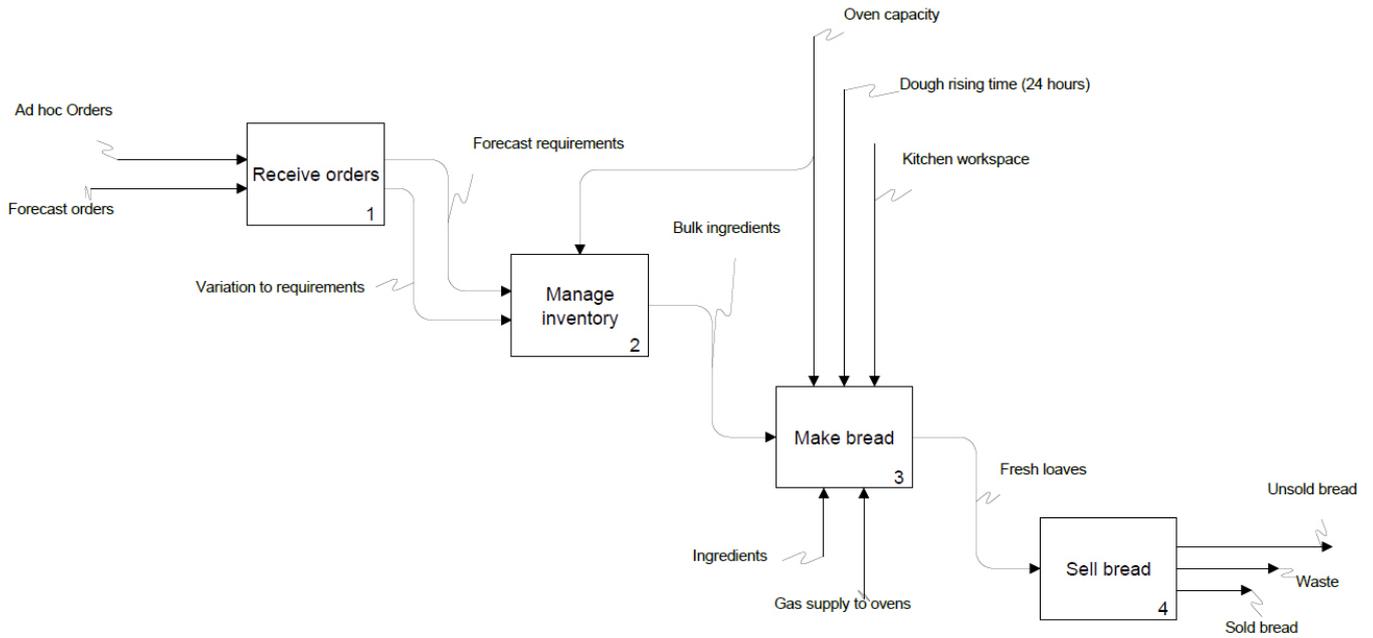


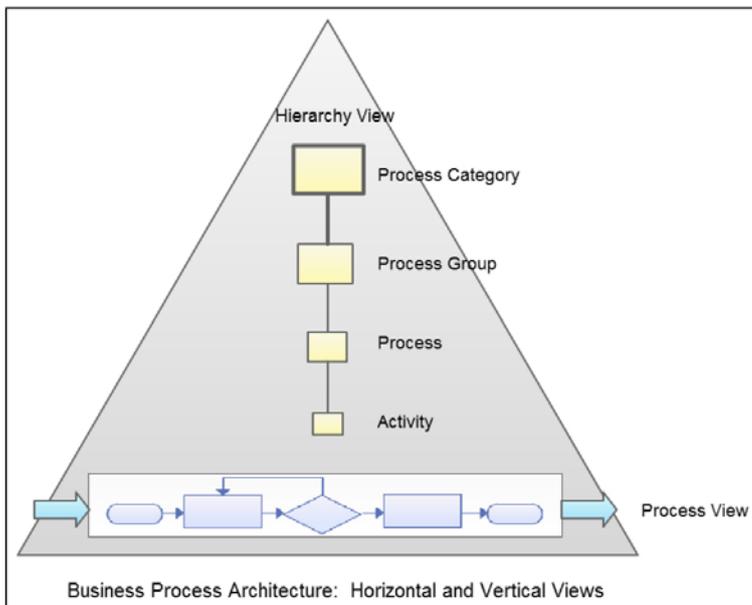
Figure 2: Supporting functions for small bakers

## Numbering of Enterprise Components

An EA model clearly defines enterprise components and their location. The model should provide views at desired levels of decomposition e.g. from Atlas – Country – County – Street – House. All components must have unique reference (similar to a postcode) which allows them to be placed in their own unique location.



Figure 3: Enterprise component address example



**Figure 4: From BABOK V3 Draft.**  
**This diagram may not be the final version**

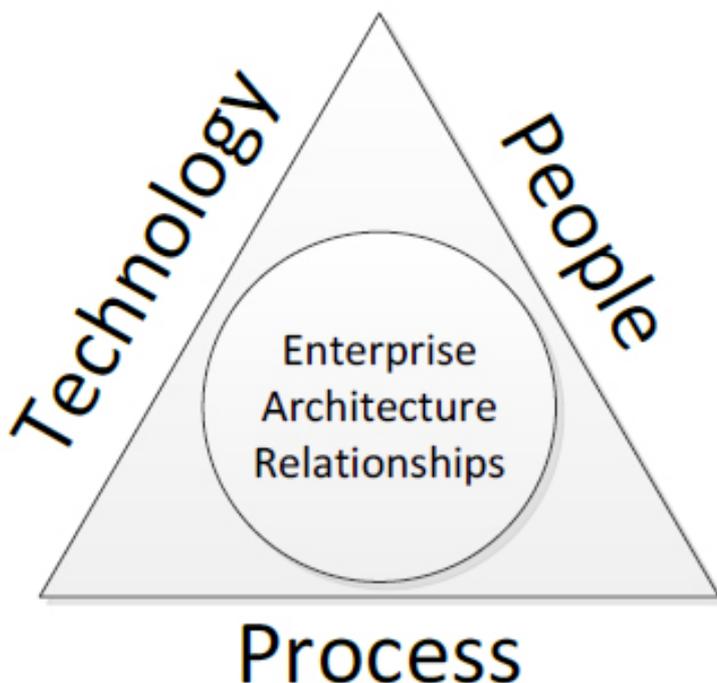
An enterprise model allows a user to navigate vertically and horizontally through the business processes, selecting the desired level of detail or stepping through the processes from start to finish. This navigation capability is one of the most powerful aspects of an Enterprise Architecture model as it makes the operation of the enterprise as a system more visible and understandable than a set of disconnected Visio maps. This does mean that process maps must be created in accordance with the defined naming and numbering scheme. Unless this discipline is consistently enforced, maps produced by a group of process modelers may not be usable in an Enterprise Architecture model until redrafted.

## Scope

Enterprise Architecture involves more than the IT activities of the organization. It covers all people, process and technology components of the organization and how these are interconnected and managed. This includes the business rules and resource requirements such as people, finance and materials.

Achieving an accurate Enterprise Architecture requires using definitions and descriptions in language that both business users and IT specialists can understand. Technical accuracy is less important than using terms

which are commonly understood and avoiding jargon. For example, when interviewing people across the business to gain an understanding of the architecture, using everyday terms such as “how activities or processes connect together, what they do and what is in them” can be more effective than using the terms such as Enterprise Architecture and process decomposition. If jargon creates a barrier, communication will be ineffective.



**Figure 5: Enterprise Architecture Relationships**

Classification	What	How	Where	Who	When	Why
<b>Perspective</b>						
Executive	<b>Definitions of Who, What, Where, When, Why, How for all business perspectives</b>					
Business Management						
Business Architect						
Engineer						
Technician						

Figure 6: Zachman Framework Summary

## Enterprise Architecture Frameworks

One of the original and simplest Enterprise Architecture models is the Zachman Framework which uses the well known Who, What, Why, When, Where, Why and How question set at six perspectives from business to technology implementation. This is quick to understand and apply and identifies stakeholders, processes and organizational structure. Further details and the current version of this framework are on the Zachman website at <http://www.zachman.com/about-the-zachman-framework>

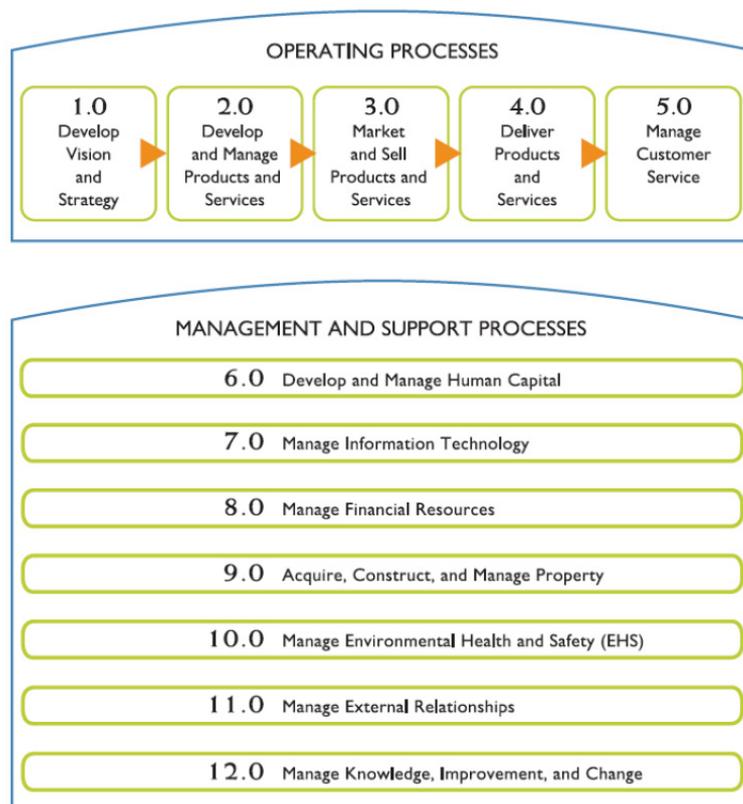


Figure 7: APQC Process Classification Framework (<http://apqc.org>)

Answering these questions for each perspective will identify how the organization is structured and operated, in other words, it will reveal the Enterprise Architecture.

A more complex but well publicized architecture framework is TOGAF 9. However, in the author's view, this methodology can be too complex for organizations that are in the early stages of understanding and optimizing their business processes and organizational systems. This framework includes four architecture frameworks, business, application, data and technology. Further information on TOGAF (The Open Group Architecture Framework) can be found at: <http://www.togaf.org/>

The use of a published enterprise framework is not essential in creating an Enterprise Architecture. What is important is to identify and define the architecture elements and their

location within a framework that allows them to be correctly classified, categorized and easy to find.

Organizations can define their own models e.g. based on the APQC Process Classification Framework (see Figure 7) using leading applications such as Orbus Software's iServer APQC out-of-the-box solution. Porter's Value Chain (See Figure 8) is another example of many alternatives which may be appropriate. The purpose of all of these models is to provide a consistent method for the classification and management of the processes and functions within the enterprise, and the interaction of people, processes and technology. Different users of an Enterprise Architecture tool should be able to view the EA repository from their specific perspective e.g. a HR Perspective, IT Services Perspective, Financial Perspective etc.

## Managing The Enterprise Architecture Model

Populating an Enterprise Architecture Model with process maps is not the end of creating an Enterprise Architecture.

Any organization or enterprise that is not dead will change. This change should be managed by an appropriate management system and understood as part of implementing Enterprise Architecture. Making processes and their linkages and performance metrics visible can be used to encourage change and development, especially when the model is made accessible to all employees by being published to a company intranet. Enterprise Architecture maintenance must be provided for by allocation and training of people as required.

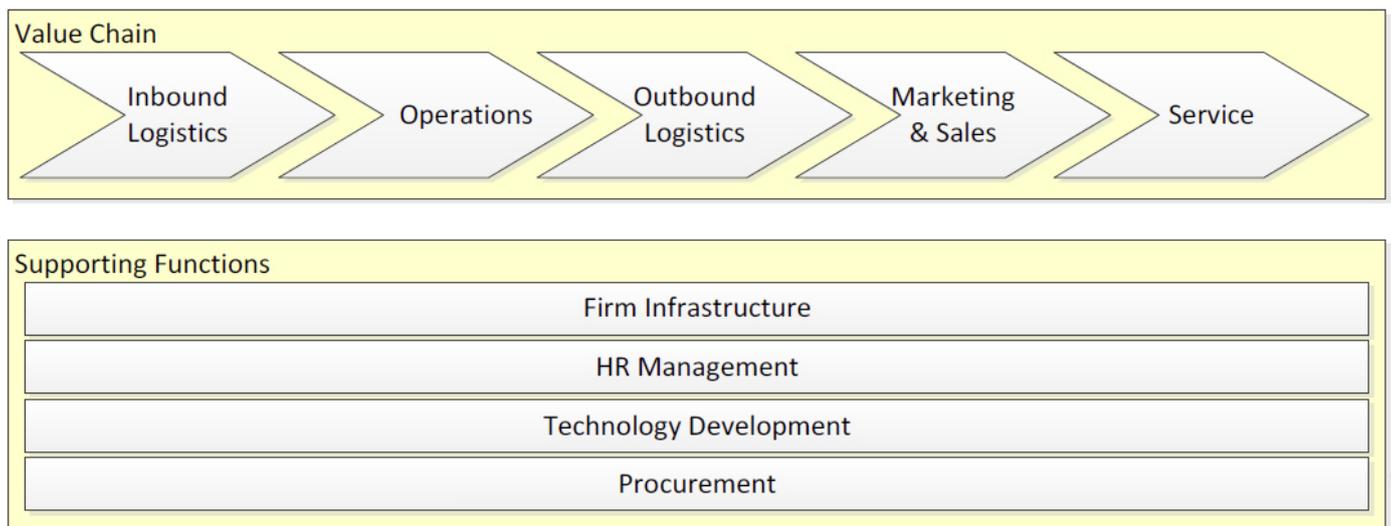
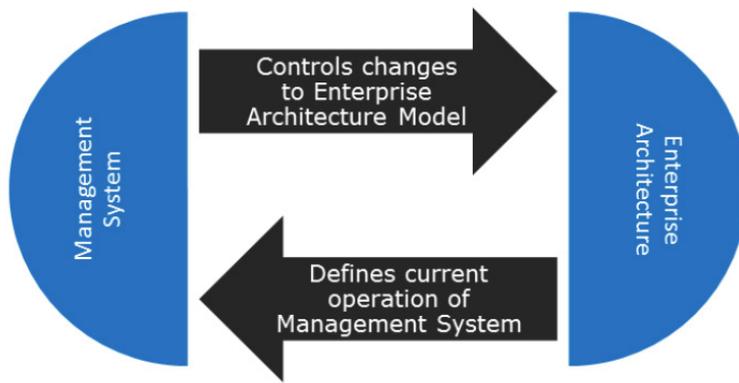


Figure 8: Porter's Value Chain Model



**Figure 9: Interaction of Management System and Enterprise Architecture**

The contents of the Enterprise Architecture model must be validated so that it remains accurate and complete and also provides a repository of potentially reusable or adaptable processes and functions. This validation can be provided by a business management system such as ISO9001:2008.

Unmanaged processes waste time and money and contribute to customer and employee dissatisfaction.

### **Some questions before starting on enterprise analysis**

1. Why do you want to implement Enterprise Architecture?
2. Do you have sponsorship at executive level? Without this, the necessary support and resources required to manage the resulting requirements for organizational review and change may be resisted.
3. Is your organizational culture ready for it? Making the architecture visible may result in making waste and inefficiency visible and lead to questioning the current ways of working. Without an open culture, the full benefits of Enterprise Architecture are unlikely to be achieved.
4. Do you have the business and IT skills to perform business analysis and then create and maintain an enterprise model?
5. Do you realize that it may take at least a year to see the benefits of organizational Enterprise Architecture?
6. Are your business functions and processes known and controlled? A gap analysis may be required to answer this question. This will help to identify what is in place and how well it is working to meet the requirements of the organization. The gap analysis could be against a published quality management system or a model defined by the organization (e.g. from definition of what needs to be in place to meet vision/values that the organization wishes to develop).
7. Do you have a common business language and numbering scheme for your business process maps and supporting documents? Without these, you cannot build a coherent Enterprise Architecture model.

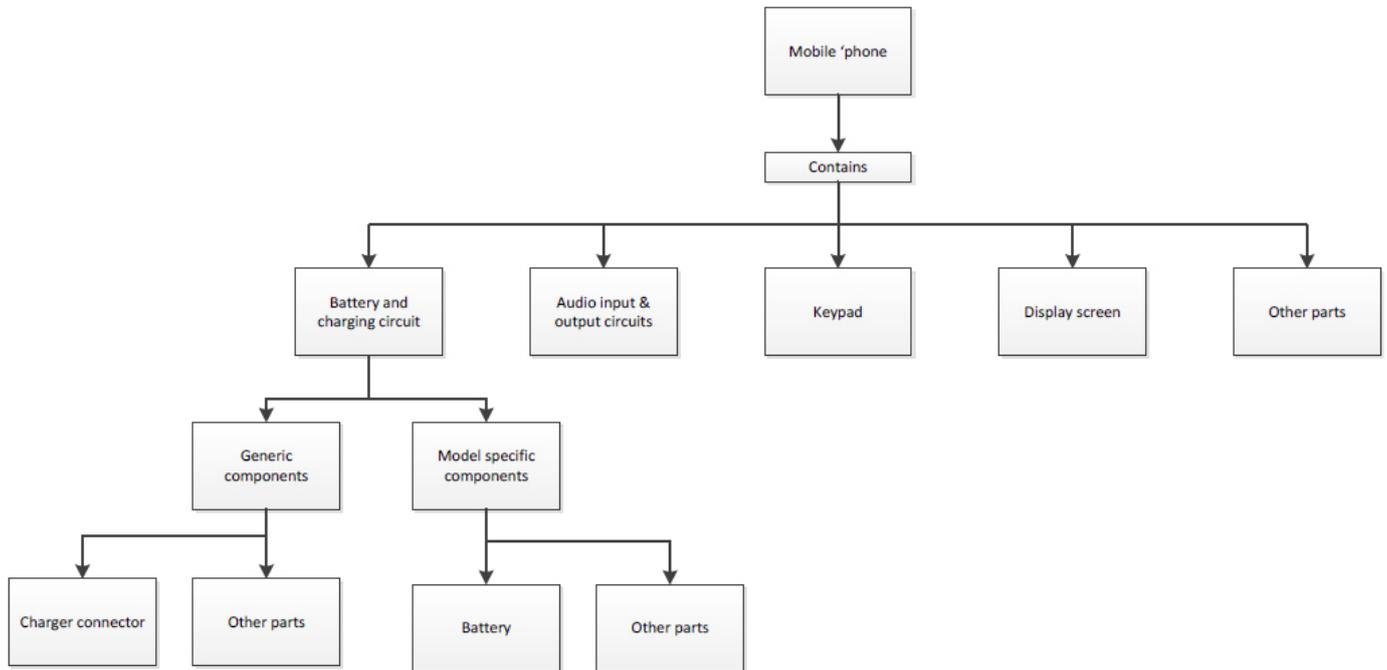
## Appendix: Definitions

Architecture	<p>“The general term architecture is defined as the design of any type of structure whether physical or conceptual, real or virtual” (O’Rourke et al. 2003ii).</p> <p>An architecture is any assembly that performs a function. The example of a mobile phone is given at the end of this document.</p>
Architecture Framework	Architecture Frameworks provide a formal way of classifying and structuring the components of an enterprise and explaining how it works
Customer value chain	The sequence of activities that deliver a service or product to a customer. Each step should be adding value that the customer recognizes and is happy to pay for. See Figure 8: Porter’s Value Chain Model
Enterprise	<p>Basically, enterprise is another term for business. The terms business, organization and enterprise can be used interchangeably.</p> <p>People, processes, technology, resources and knowledge organized for a common purpose are the components of an organization or enterprise. What they are, their characteristics, how they connect together and how they are used defines the organizations operation.</p>
Enterprise analysis	<p>The Business Analysis Body of Knowledge (BABOK) Version 2, published by the International Institute of Business Analysis (IIBA) defines enterprise analysis as “...how business analysts identify a business need, refine and clarify the definition of that need, and define a solution scope that can feasibly be implemented by the business”. This knowledge area describes problem definition and analysis, business case development, feasibility studies, and the definition of solution scope.</p> <p>Enterprise business analysis identifies and verifies the integration and coordination of business functions and processes as a whole and not as individual components of the enterprise. This holistic view makes visible the current, strategic, tactical and operational structures, business rules, resources (including financial and human), functions, and processes of the organization so that their operation can be optimized as a system working to meet a common purpose.</p>
Enterprise Architecture Model	<p>Provides a repository for all organizational components and their relationships, dependencies and interconnections.</p> <p>Shows all organizational information associated with a process or function.</p> <p>Shows interactions between components.</p>
Enterprise Architecture (EA)	How the organization of the enterprise is formalized within an architecture framework.
Enterprise components	People, processes, technology, resources, knowledge, business rules etc. In other words, all the resources, knowledge and activities that the organization needs in place to fulfil its function as a system.
Model	A way of representing reality. This can be a diagram, sketch on a whiteboard or a populated Enterprise Architecture tool.
System	The interconnection of organizational components to achieve a desired purpose.

## Appendix: A Simple Explanation of Architecture

“The general term architecture is defined as the design of any type of structure whether physical or conceptual, real or virtual” (O’Rourke et al. 2003iii). Basically, this means any assembly designed to perform a function.

As a simple example, *Figure 10* below shows the components contained in a mobile phone.



**Figure 10: Mobile phone example of architecture**

Some components will be specific to that model of mobile phone. These may include the battery, the circuit boards and other model specific parts. The architecture of the ‘phone defines what parts fit where and the characteristics of these parts. If the battery is the wrong size or the display screen cannot be connected to the circuit board, the ‘phone cannot work. Each part will have a unique identifier which allows it to be selected and reused. For example, the charger connector and display screen may be used in other models. To allow this, they are registered using a consistent name, in a repository with their relevant design critical information (e.g. size, performance, power rating etc).

This architecture concept also applies to an enterprise. For a mobile phone, all components and their purpose are specified and organized to support the required functionality of a mobile phone. For an enterprise, all processes and procedures are combined to enable the purpose of the organization and to identify validated improvement processes and functions that can be adapted or reused rather than be reinvented.

All processes must be named and numbered according to an agreed process classification framework. This is vital due to the large number of processes needed to be mapped within a full architecture model.

- i “I keep six honest serving-men, (They taught me all I knew); Their names are What and Why and When, And How and Where and Who”  
From The Elephant’s Child, Rudyard Kipling
- ii O’Rourke, C., N. Fishman, and W. Selkow (2003), Enterprise Architecture, Using the Zachman Framework, Thomson Course Technology, 2003.
- iii O’Rourke, C., N. Fishman, and W. Selkow (2003), Enterprise Architecture, Using the Zachman Framework, Thomson Course Technology, 2003.

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