

HCL Technologies

# Service Management Architecture and The Gold Blue Print

White Paper

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## 1 INTRODUCTION

In addition to focus on technology architecture (network Architecture, application Architecture and so on) and manage the technology, HCL has a special focus on technology independent Service Management architecture to manage the services and ***Gold Blue Print (GBP) is the practical implementation of HCL Service Management Architecture.***

### 1.1 The need of Service Management Architecture

In today's world, the multi vendor service has become an integral part of all Enterprise Information Technology Landscape at all level. In fact as an enterprise starts adopting the Cloud technology, by default embrace a multivendor service.

When we have multiple service providers, the Service Integration becomes an essential part of Service Management and need enterprise architecture for that. Service Management Architecture is also needed for the following considerations

- IT Service costs too much
- Multi Vendor Service Integration Complexity
- Growing IT ecosystem with emerging Cloud architecture
- Outsourcing becoming routine
- Future-proofing

While TOGAF has provided enormous guidance on Enterprise Architecture, it does not mention anything about the Service Management Architecture. HCL is not only the pioneer in the industry to focus on SM architecture but also leading this area with the established products like HCL Gold Blue Print. The business justification for TOGAF focus on business architecture and technology architecture very well explained and all those reasons apply for focus on SM architecture as well.

### 1.2 Service Integration and Service Management Architecture

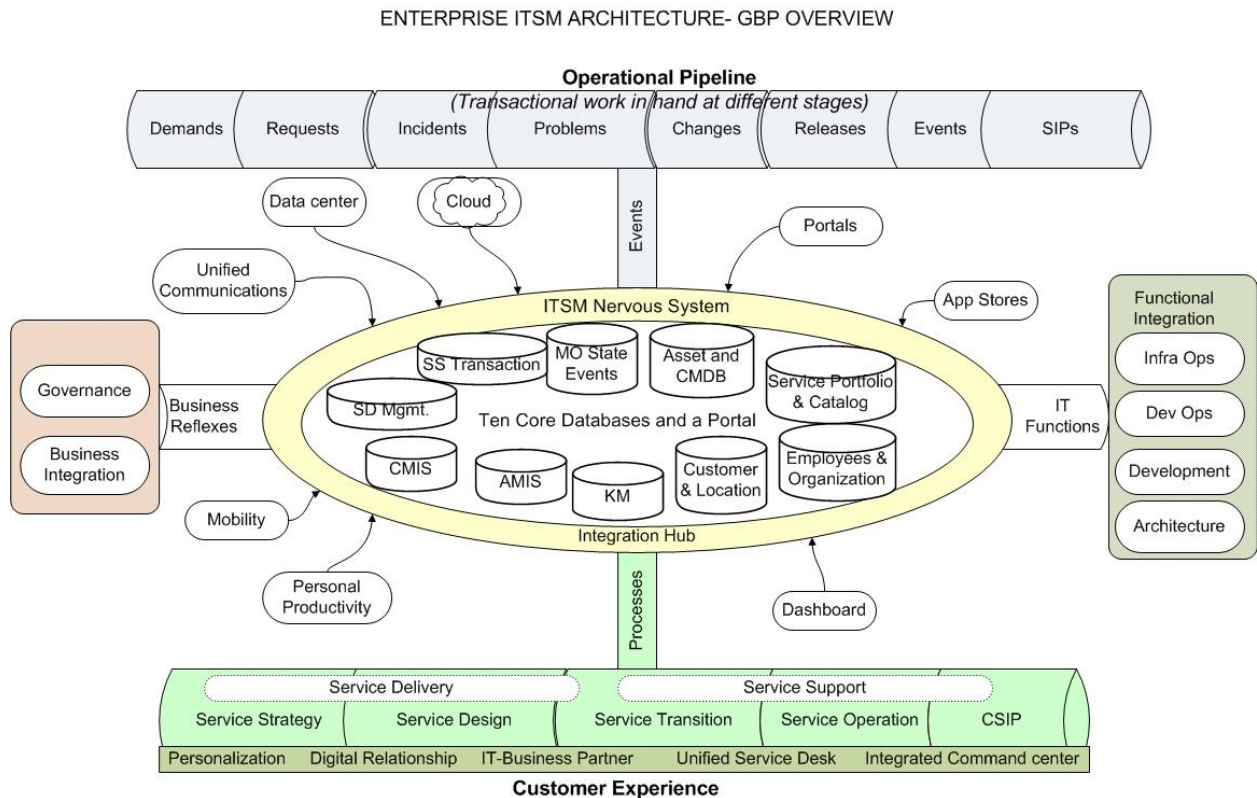
IT world very well understands the importance of application architecture and that how the application architecture sets the framework for the application integration.

In Service Management world, same equations apply. A good Service Management architecture enables Service Integration in the following manner

- Service Management architecture will help to avoid the mixing of technology service and business service
- Service Management Architecture will segregate the Technology management with Service Management
- Service Management Architecture will establish the service as the manageable entity
- Segregate the vendor management function and Service Management function

## 2 THE GOLD BLUE PRINT ARCHITECTURE

The following picture represents the overview of the architecture. It is important to note that this is not the service management system architecture but rather the service management system is the consequence of this Service Management Architecture. Further, the service management system is not a single system and GBP is composed of multiple systems.



The Architecture consists of **10 core databases**. These hold the “Master Data “and the “Transaction data” of the Service Management processes. The “Service Management Nervous System” that consists of set of middleware and interfaces that allows everything in and out of these databases and tap in the system surrounding the database.

- 1 Service Support Transactions
- 2 Service Delivery management
- 3 CMIS- Capacity Management Information System
- 4 AMIS- Availability Management Information System
- 5 KM- Knowledge Management
- 6 Event management MO Data
- 7 Customer and Location
- 8 Employees and Organization
- 9 Service Portfolio and Catalogue
- 10 Asset and CMDB

This also includes a portal that is the point of entry for all kind of users and customers into the system and conducts their business.

## **Operational Pipeline**

Operational pipeline represents the operational work – “to do” things – the pieces of work at various stages. Each work transaction generates an event and transmitted into this nervous system. For example a user log into the portal and place a demand for some service or report an incident will generate an event that will enter into the nervous system.

## **Service Phases and Customer experience**

Service Phases from strategy to CSIP consist of set of processes as defined by ITIL. These will capture the events in the nervous system generated by the operational pipeline and trigger the appropriate processes. For example Demand management process or Request Fulfillment process as stated in earlier example. The customer experience is enhanced by the personalization and functions like unified service desk and integrated command center. Service phases are also classified into Service Delivery and service Support groups to simplify the understanding.

## **Connections to the nervous system**

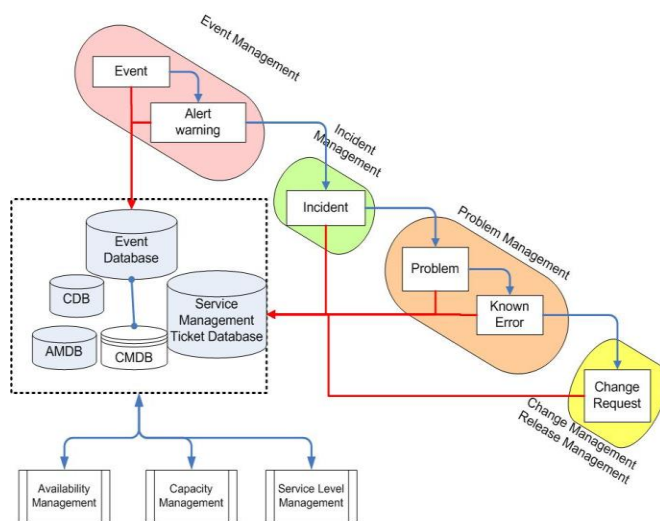
All people, thru appropriate device tap into the system for the service related interactions. Personal Productivity Devices like Desk top/Laptop, Mobile devices, Unified Communication represents Voice, Video and Chat interaction.

There could be additional portals or app stores as well and finally dashboard consolidates all the data from various sources and displays the holistic picture to enable the management decision.

### 3 GOLD BLUE PRINT – THE PROCESS ECOSYSTEM

**The Gold Blue Print (GBP) is the Process Ecosystem of HCL Best Practice processes.** It is designed, used and maintained for HCL Infrastructure Management and Application Management Services

GBP is a group of Service Management processes together with their operating environment, viewed as a system of interacting and interdependent relationships and including such processes as the flow of “activity and data” through appropriate hierarchal as well as peer structure.



The adjoining diagram illustrates the basic example of process ecosystem. In the hierarchy Event is the source in the supply chain of all transaction. Event feeds to alert and incident that feed up in the process chain. Of course there is an implied feedback where a problem can produce events and event manifest that problem.

Events of usage pattern and non availability events feed to Capacity management and Availability

Management system. Just like any ecosystem, any one process in this process ecosystem can pull up or pull down the maturity and therefore the efficiency and effectiveness of another process.

In next sections we shall elaborate this process ecosystem system functionality bin more details.

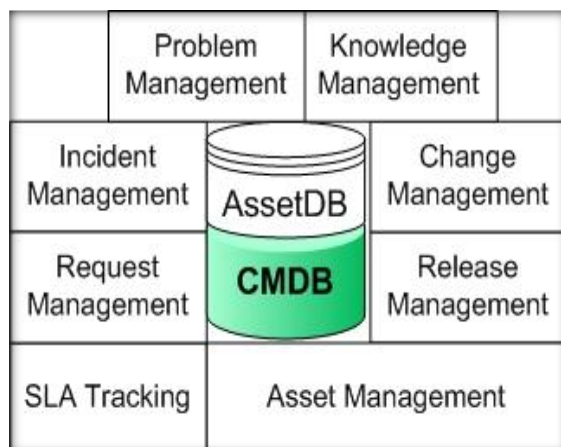
## 4 GOLD BLUE PRINT – THE SYSTEM IMAGE

**Gold Blue Print is an implemented image** (in HCL Standardized platform) of HCL Gold Standard Processes for HCL Operations. Key GBP features include

- In Cloud System Image
- Enabled for Cloud Service Management
- Base Implemented on Service-Now platform with
- Well defined Service Management Data Model and Taxonomy
- Predefined policies and business rules that comply with HCL Gold Standards
- Customer Independent Process Master Data
- Detailed guidance to implement, operate and manage process

### 4.1 The Base Image in Service Now Platform

The base image consists of 8 processes as shown in the adjoining diagram. CMDB and Asset Data Base is the information provider for every process.



Service Management database is not shown here but that is primarily a transaction database consisting of multiple tables for multiple processes. There is also Service Request catalogue and that is different than the service catalogue. Request Catalogue represents the transactional service.

Even Though the Knowledge Management is a separate process by itself, a portion of it – the Known Error Database (KEDB) is created and maintained by the Problem Management process. Other contents of KM systems are independently created and maintained by KM process. All processes are tightly coupled as we shall see late in this document. SLA tracking is a partial SLM process and designed to track the SLA for each transaction. It can be applied to any kind of “ticket” but in GBP it is primarily applied on Incident and Request transactions.

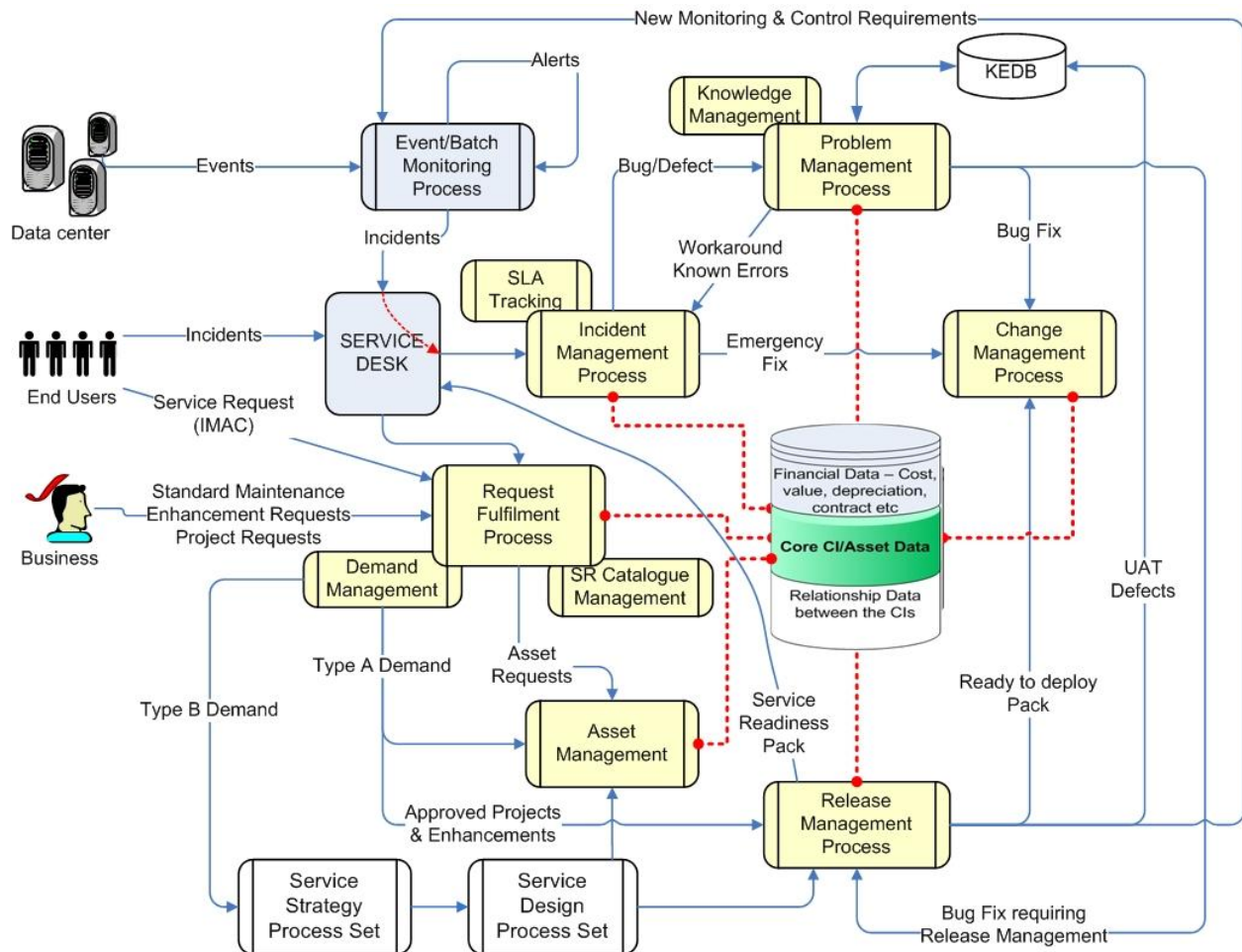
### 4.2 Base Image Process Ecosystem

In any IT operations, there are only three points of origination for anything to happen and those three are

1. In the data enter the health of a managed object is deteriorated/deteriorating or something is happening that is pointing a risk to the service. This is detected by an event and monitored objects could be a batch job, service, device, application condition etc. (Events/Alerts/Incidents)

2. An end user of the service has some issues with the service, require some fix or need some non break fix service such as access to application, new desk top/laptop etc (Incident or Service Request)
3. Business is seeking enhancements/amendments in existing systems/services or asking for new services. (Demands/Projects/Enhancement Requests). There could be two kinds of demands – one that impacts the portfolio and other that does not.

These three triggers enter into the GBP process ecosystem and GBP processes them with one or more process set.

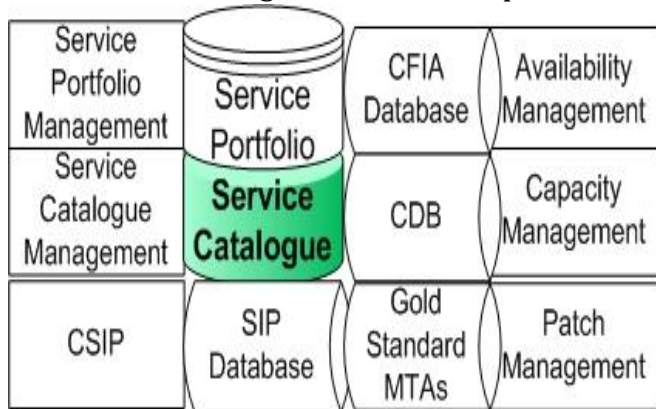


### 4.3 Extended Image in Service Now

The extended image consist of six processes and with additional data tables created to support these processes. Service Catalogue and Service Portfolio is one database with Service catalogue being a sub set of Service Portfolio and visible to all service consumers



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CSIP – Continual Service Improvement Process is responsible to create, pursue and close the SIP (Service Improvement Plans) and is supplemented by HCL Gold

Standard MTAs (Maturity Transition Action). HCL Gold Standard MTA plan is a program that makes maturity assessment of service operations and identifies the maturity improvement areas. It runs under a separate portal but the MTA records are transferred to GBP process sets and become an extended SIP record.

Patch Management is the customized version of GBP Class 2 Change Management Processes. In the base image, all patches are controlled and managed by Class 2 RFC, however in the extended image; patch management becomes a separate class of change by itself.

Availability Management Process is responsible to create, maintain the CFIA (Component Failure Impact Analysis) database and pursue the risk mitigation actions as derived from CFIA.

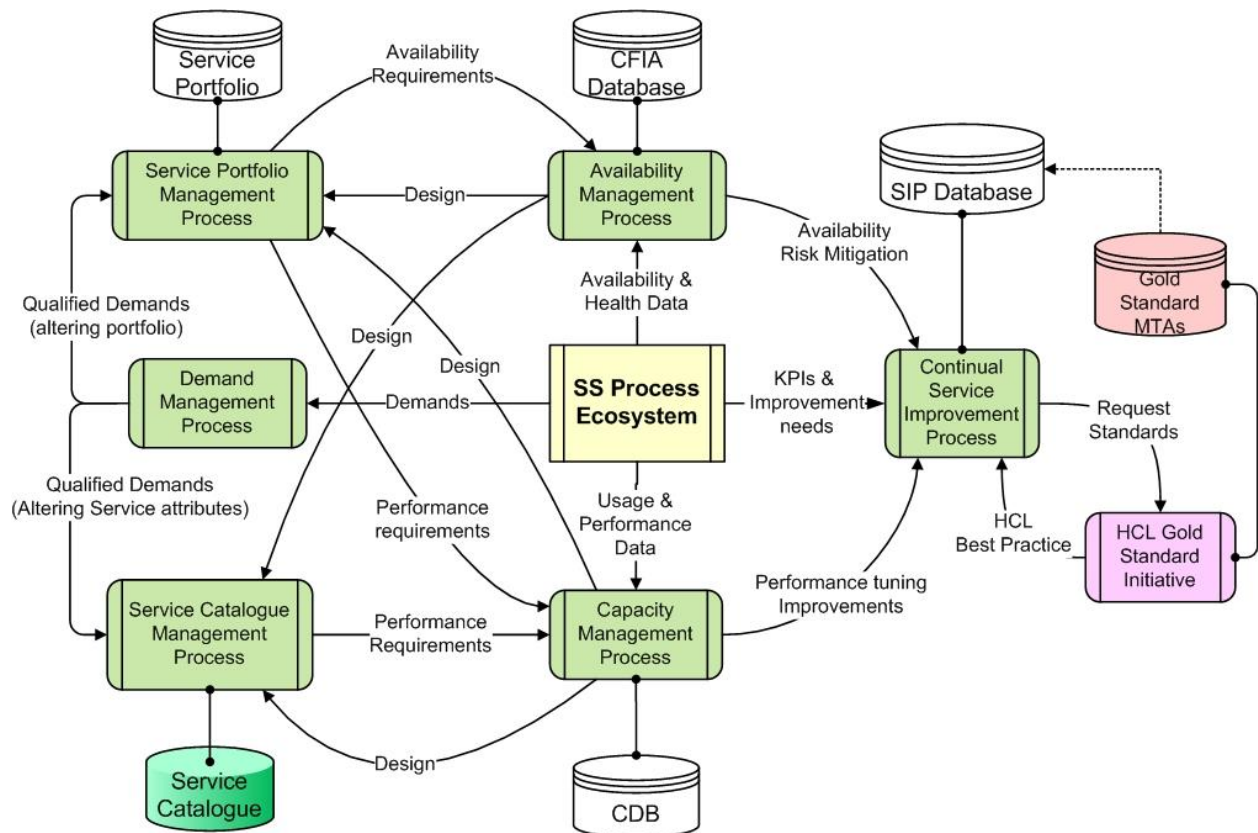
Capacity Management process is responsible to create and maintain the Capacity Database. It is also responsible to trigger, track and perform the required actions to balance the capacity against the demand.

#### 4.4 Extended Image Process Ecosystem

This provides the overview of how the processes are interconnected for extended system.

In Service Support process ecosystem, the origin of trigger is either a CI or a user or a business customer. In service Delivery process ecosystem, the process trigger comes from the Service Support Process ecosystem. Via request management process that receives the demand from the business, or provide the data for Availability Management, Capacity management and Continual service Improvement.

In the SNOW GBP part 2, the patch management is depicted as a separate process but in implementation, it is one of the class of Change Management specially designed to handle patch management.



## 4.5 The GBP Event Management Architecture

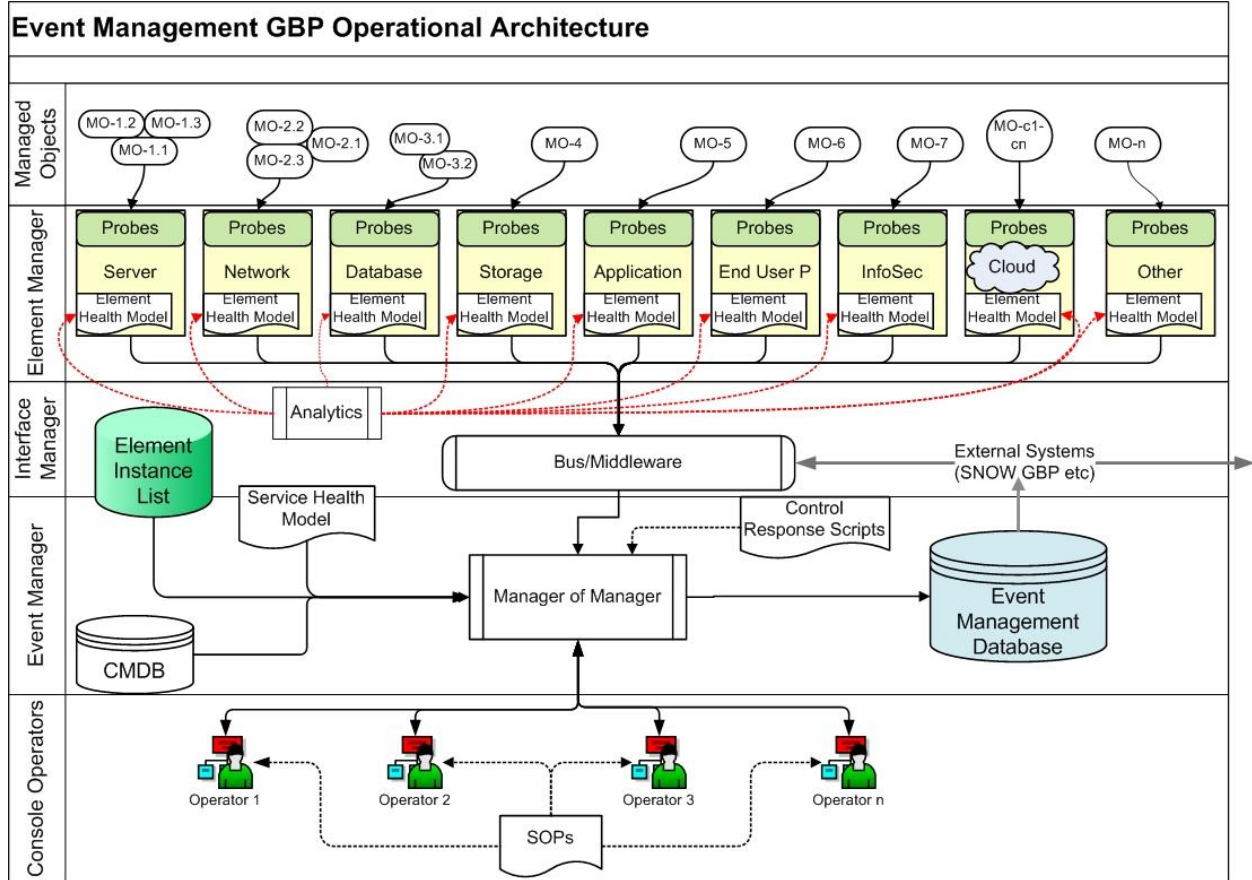
GBP defines, standardize and package the following components

1. **Managed Object:**  
Managed objects are the abstract representation of a resource that needs to be managed within a CI. GBP define each CI as the element in Event management and standardize it for the optimal monitoring.  
Each Managed object is monitored against the health model.
2. **Analytics:**  
GBP defines how the individual elements health model will be base lined and maintained for the effectiveness and performance of the Event management process. Analytics is the tool and method to develop and manage the health model and this can be manual as well as automated.
3. **Element managers:**  
GBP defines the standard element managers for the defined managed objects and how these element managers will function with GBP defined configurations. Customer can delete the element manager depending upon the scope
4. **Interface Bus/Middleware:**  
GBP defines the specific product and interfaces for the data exchange within GBP system and external to GBP Event management system. For example, SNOW GBP

that will be running Availability Management and capacity management processes will seek data from Event Management GBP via this bus.

5. Manager Of Manager:

GBP defines the product and full functional specifications and implement those functions in the chosen product

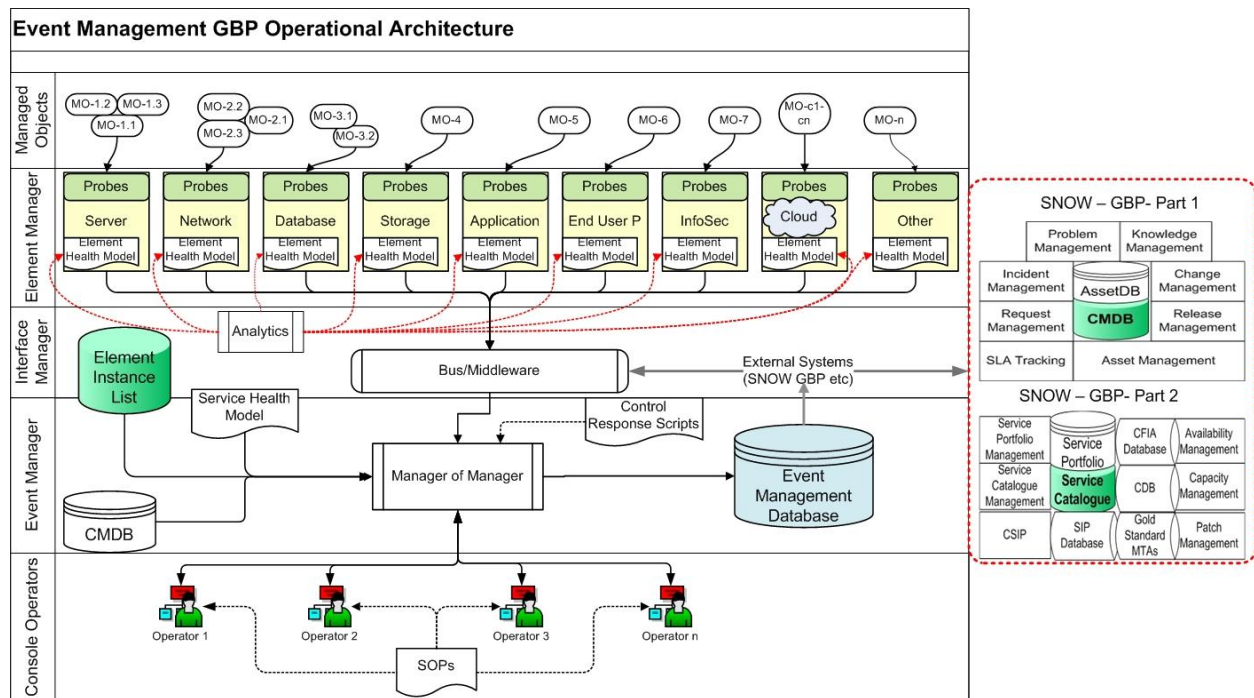


### 4.6 Holistic View of GBP

The Gold Blue Print holistic set consists of following products

1. GBP Base Image – 8 Processes
  - a. In Service Now Platform
2. GBP Extended Image -6 processes
  - a. In Service Now Platform
3. GBP Event Management process
  - a. In multiple toolset standardized by HCL

All of above fit into the GBP Enterprise architecture and form the picture given below.



#### 4.6.1 How Cloud Service Management is enabled

By virtue of the managed object definition, the instrumentation of the element manager, taxonomy of service, differentiation in physical and logical asset classes and such features, GBP is enabled for the cloud service management

It is prepared with the required instrumentation for Cloud; be it IaaS, PaaS or SaaS

Further, it is Multivendor framework enabled as well as Process Integration Enabled

#### 4.7 Benefits to HCL and HCL Customers

As mentioned earlier, corresponding to all the benefits that are delivered by any technology architecture in technology area, HCL derive the following benefits from Service Management Architecture in Service Management area from the GBP

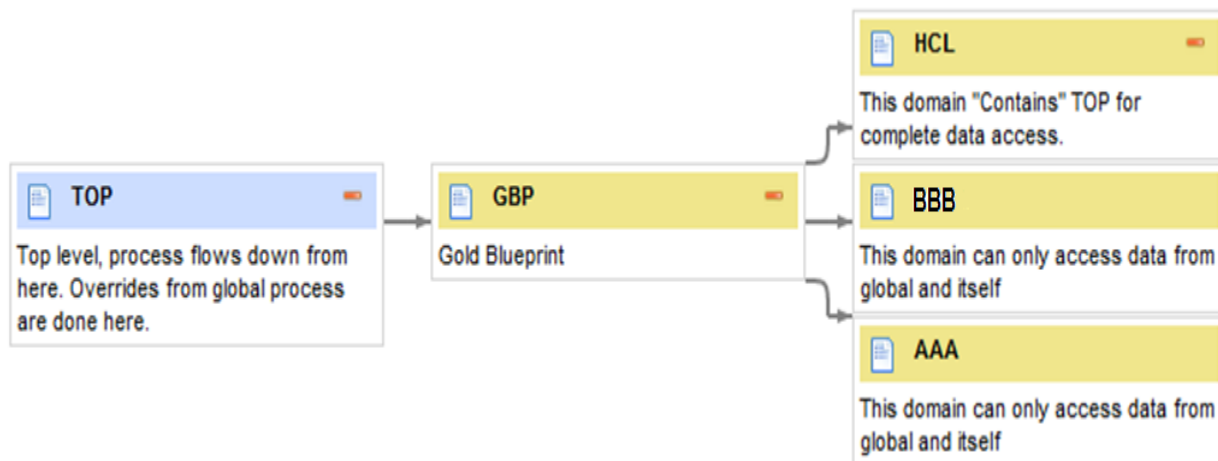
- A more efficient Service Delivery and service Support across all HCL OMC
- Lower Service costs
- More agile organization
- Business capabilities shared across the functional groups
- Lower change management costs
- More flexible workforce
- Improved productivity
- Lower software development, support, and maintenance costs
- Increased portability of applications
- Improved interoperability and easier Technology management

- Easier upgrade and exchange of system components
- Better return on existing investment, reduced risk for future investment:
- Reduced complexity
- The flexibility to make, buy, or out-source business and IT solutions
- Reduced risk overall in new investments and their cost of ownership
- Faster, simpler, and cheaper procurement
- Outsourcing is simpler, because the service governance is simplified
- The procurement process is faster
- The ability to procure heterogeneous, multi-vendor outsourcing

## 4.8 Deployment Models

GBP is available in two deployment models

- Dedicated Instance
  - Customer can configure and customize on top of GBP or have standard OOB instance
  - We implement process in line with customer's business requirements
- Multi tenant
  - Domain separated part on shared instance
  - Limits on customer's option to customize core functionality
  - We on-board customer on shared instance



## 4.9 Scalability

By virtue of the Enterprise Service Management Architecture GBP provided scalable processes that means

- Processes are designed to map roles according to scale of operations
- Roles can be centralized as well as distributed

Because of the GBO residing in Cloud, it automatically provides Scalable Platform and thus inherits the elasticity of clouds.

## 5 TENETS OF GOLD BLUE PRINT

Apart from the Service Management Enterprise architectures, there are several other tents that make GBP so powerful service management system.

### 5.1 HCL Service Management Expertise

HCL has a large dedicated IT Process Functional team and is the part of Cross Functional Services organization.

150+ Service Management implementations globally with experience across In-premise, HCL hosted and Public cloud SaaS.

Extremely rich experience of managing the operations of several hundred customers and thus learning across these engagements and HCL Gold Standard Best practice culminated into our Gold Blueprint.

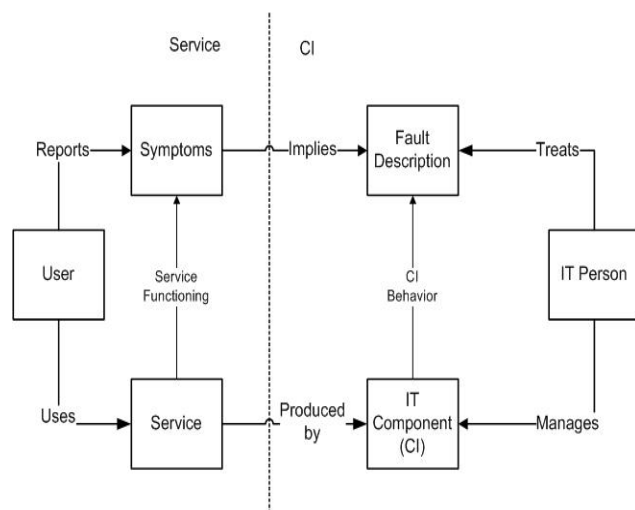
### 5.2 The Data Model

Data model primarily determines the structure of structured data. Process utilizes variety of data and generates transaction data. The transaction data will be useful only if it is structured and how you structure it is decided by the data model.

Badly designed data will have direct impact on process effectiveness. Tool will always work with bad configuration data but process will not be effective. The key weakness in tool implementations is caused by poor taxonomy or lack of taxonomy standards

GBP has a well defined data model and taxonomy across all the processes and CMDB including practical naming conventions

#### 5.2.1 The GBP Data Model Theme



In a typical IT world, the customer view (external works) revolves around “Service Catalogue, however, the internal world revolves around “Configuration Item”

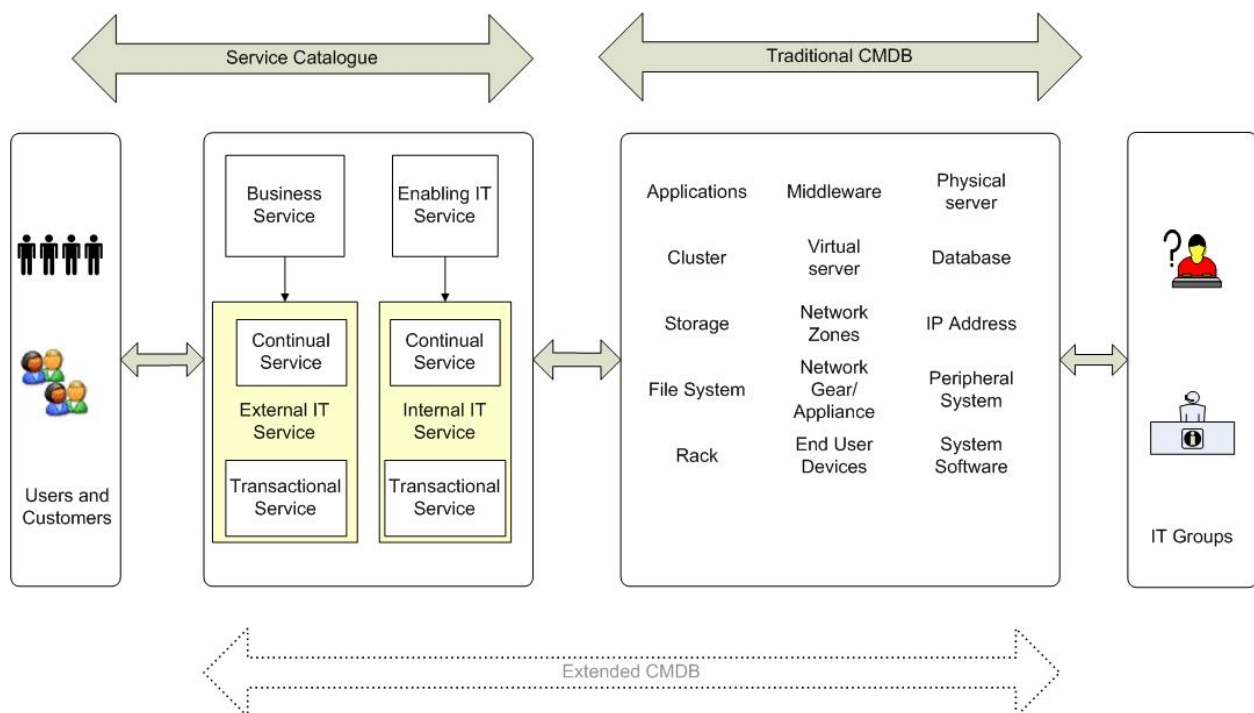
User will always deal with a service and report the symptom or observation about the service performance. Something is not working or working but not to the standards. The issue with the warranty and utility of the service originates from the customer.

Technical people who are managing the CIs that produce the service are focused on CI and always talk in context of CI. They relate symptom to the CI fault description and treat the fault based on that relation.

In order to make the support effective, fault description much match with the symptom. Fault description is derived from the behavior of the CI while symptom is derived from the service functioning. GBP data model accounts for both the considerations.

### 5.2.2 The GBP Data Model

The GBP CMDB include Service Catalogue on top of the CI based CMDB. Although service is a CI, the reason to show them separately is to provide a better understand and allow dealing with them in separate manner (internal vs external considerations).



The extreme left block of the diagram represents the community of Business employees who are the users of the business services that the IT department produces and manages. These users of IT depend upon the Business Services that IT department manages for such community of users, which is a collective representation of various other non-IT departments.

The bi-directional arrow, labelled as 'Service Catalogue' shows that the block underneath covers the information that should be documented in the Catalogue of Services rendered by IT to the business, commonly known as 'Service Catalogue'.

IT department is structured by the technical domains that it supports, for example: Application Management team, Network Management Team, Database Management teams



etc. These teams enable jointly enable the Business Services. For example: The Business Service called 'Email' is supported by Server Management team, Application Management Team, Network Management team, End User Computing team jointly for their respective technical infrastructure to be running. This is why the services rendered by such IT groups within the IT organization can be understood as Enabling IT Services.

These IT groups also perform certain technical tasks continually, in order to maintain and manage their respective IT Infrastructure. These technical tasks like application or network monitoring, backup etc can therefore be considered as Continual Enabling IT Services. These tasks and activities are performed using Standard Operating Procedures or daily/weekly/monthly checklists, for which they do not require any work requests internally from within the IT department or from the Business user community.

The key features are

1. Differentiation between classes of services: Internal, External, Transactional, Continual, Business, Enabling IT etc
2. Predefined Services: In infrastructure domains services are universally the same just like servers and GBP standardizes them.
3. IT Environment layer based classes: 18 classes and each class has one or more sub class
4. Dual characteristic of certain class (For example IP is a class but displayed as an attribute)
5. Differentiation between Asset and CI: Explained in detail in next section

### 5.2.3 Asset DB vs CMDB

Asset is hardware product or software license that need to be managed because it has some **economic value** and Asset DB is the Database that provided information about IT assets. Asset DB will have information about **economic attributes** such as cost, depreciation, contract, purchase date etc but NO information about relationship with other asset

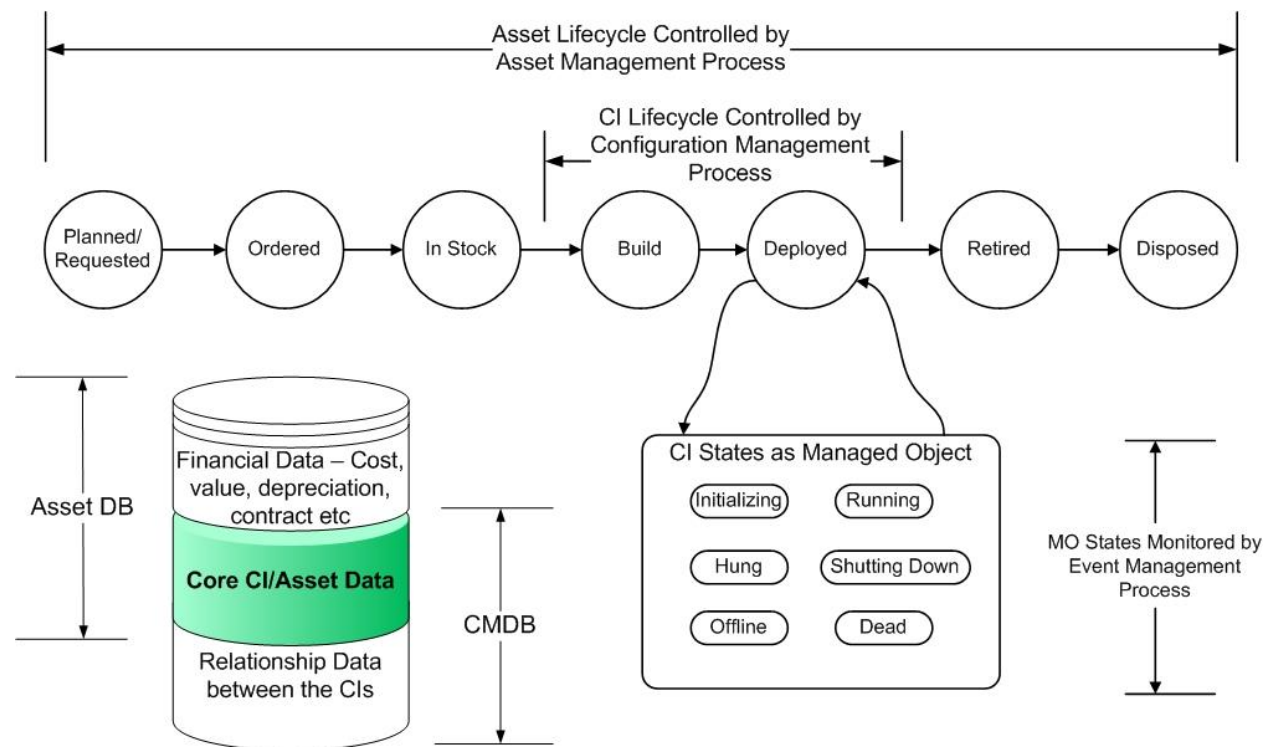
Configuration Item is a component of IT infrastructure that needs to be managed because it has **impact on IT Service**. CMDB will have information about **technical attribute/configuration** such as host name, IP address, AND relationship with other CI but NO information about economic value

An asset may or may not be a CI; conversely a CI may or may not be an asset; Asset DB and CMDB may share some common items for example Data center devices but different attributes. Some items may be included only in Asset DB but not in CMDB for example end user devices and software licenses.

Some items may be included only in CMDB but not in Asset DB for example logical system (cluster and virtual machine but note –in cloud computing, a virtual machine is a candidate for asset item as well)

**Asset lifecycle is significantly longer.** (A server can exist in Asset DB in status “in stock” but will not exist in CMDB till the asset status transits to “deployed” similarly a decommissioned asset will not exist in CMDB but exists in Asset DB)

Asset Management Process and Configuration management processes are not the same. Asset management process is the **control process build around Asset DB** and deals with accounting, purchase, depreciation, disposal processes. Configuration management process is the **control processes around CMDB** and deals with the technical configuration changes such as port change or route change and relationship changes



Further, each CI will have one or more managed object that will be monitored under Event management process. For example a server has no value if it may be up and running and the service is hung.

### 5.3 HCL’s Process Integration Framework

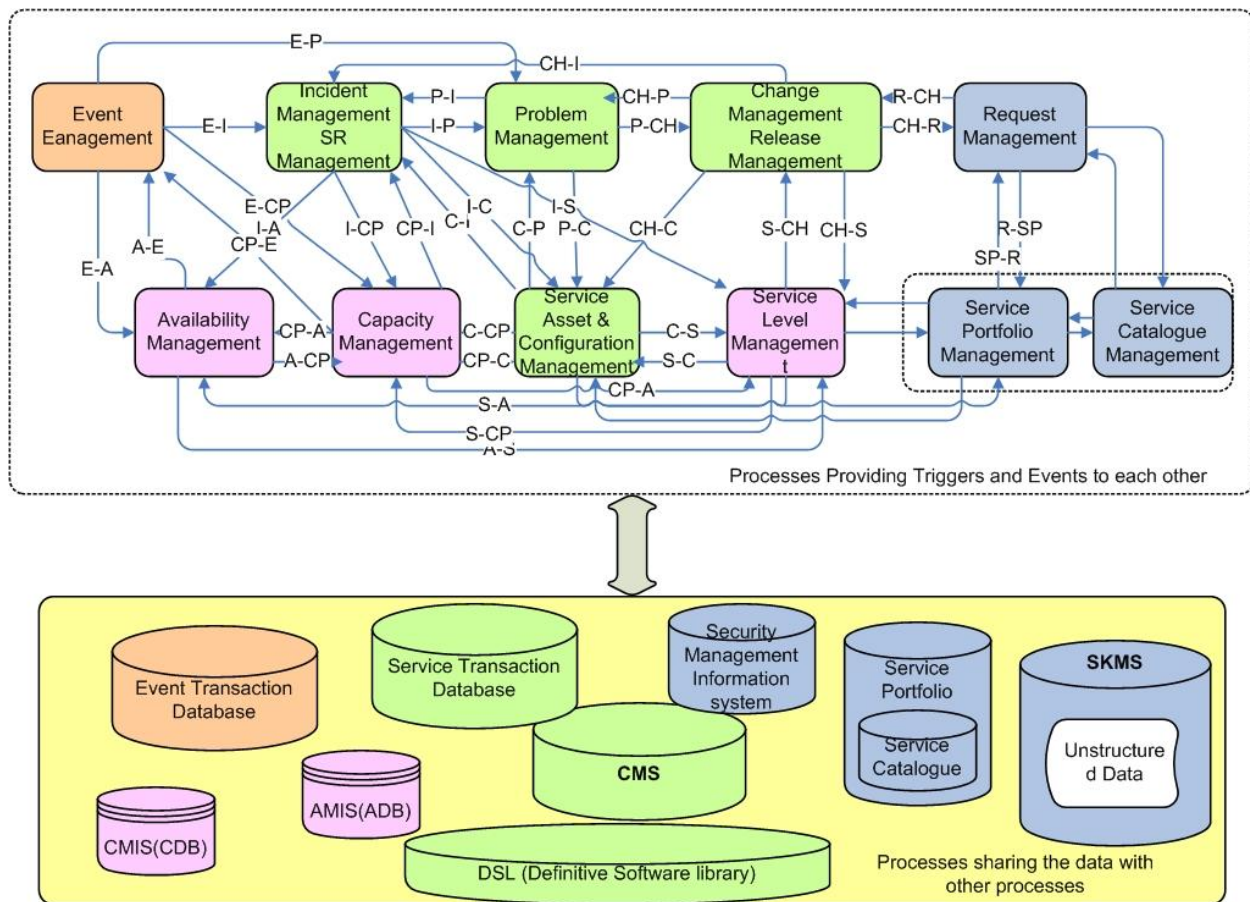
**Process Integration is one of the key elements of the Gold Blue Print.**

Process Integration is a technique of attaining close and seamless coordination and interaction of processes

Process Integration is the connection of two or more processes in harmony and logical manner as the tasks within the process are connected in logical manner; Process can share the data and even actions with each other

Integrated Processes are significantly more effective than sum of individual process in isolation

Following picture provides the overview of the process integration.



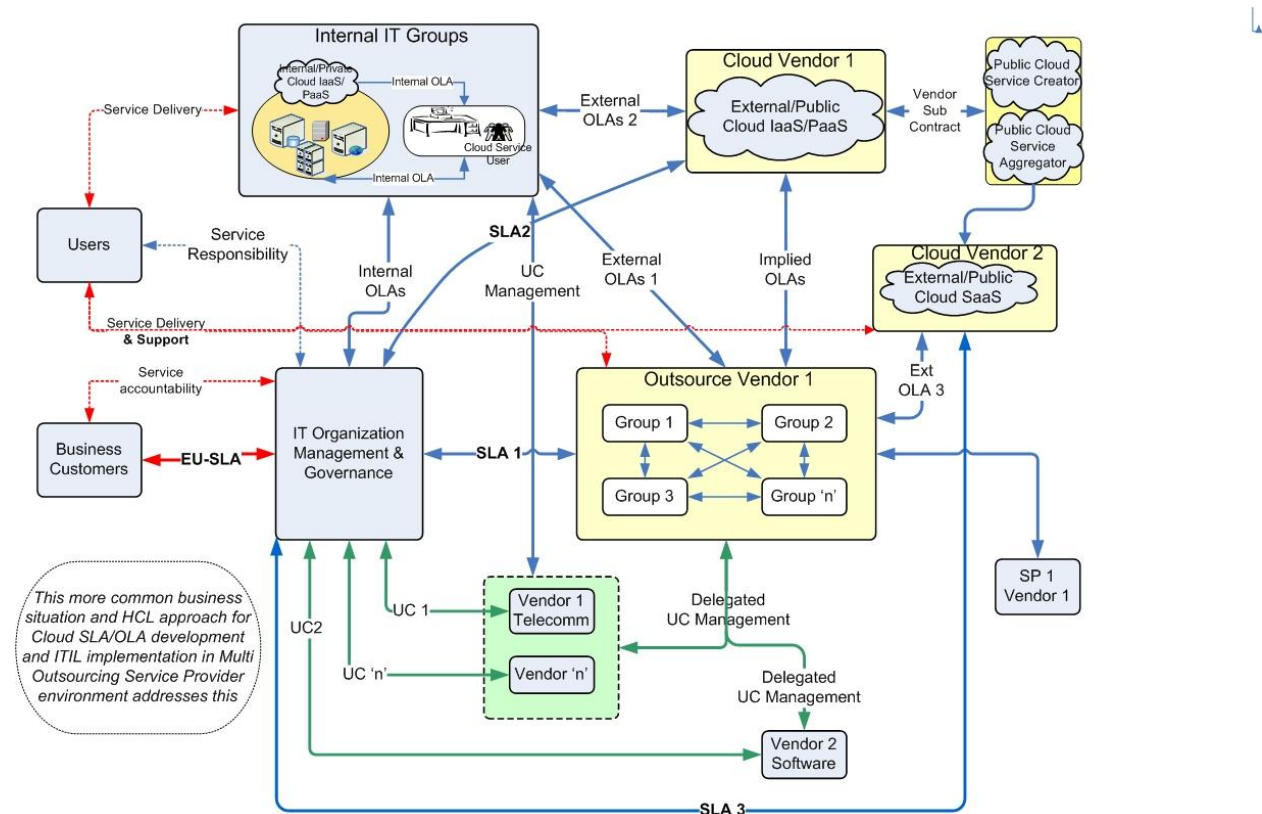
Key points of the process integration framework are

1. Each Process owns at least one data set and is responsible to create and maintain that data set
2. The Data may be used by other processes as well
3. Each process also mandates certain set of activities
4. Some activities in a process can be outsourced to other process
5. Each process has some obligation to provide data and possible some deliverable to other process as agreed by the interface definition
6. Likewise each process has some rights to demand the data or deliverable from other process as defined by the interface

## 5.4 Multi Vendor ITIL Enabled

**Multivendor ITIL** is the seamless implementation of the same and one logical ITIL process across multiple service provider companies as if those companies were the department of the customer company

**Multivendor ITIL** unifies the effort of all towers within a company as well as ALL service providers towards ONE single process goal – the process goal written for the customer company and not for the service provider company



GBP defines additional taxonomy –rather enhances ITIL taxonomy to manage the multivendor SLA OLA management

Internal OLA is the OLA among the towers retained by the IT organization.

External OLA is the OLA between groups of retained IT organization and outsourced vendor.

Delegated UC Management is management of the underpinning contract (UC) signed between the IT organization and the third parties that mean the outsourced vendor will use the service provided by the third party vendors and deliver the SLA to the IT organization. This will also allow the outsourced vendor to enforce the contractual terms on behalf of the IT organization.

Outsourced vendor may also have its own vendors which will not be visible to IT organization. Outsourced vendor may subcontract some part of the service to its own vendor. However, the contractual obligations will remain with outsourced vendor.

EU SLA is the SLA between IT organization and the customer in IT organization. This is usually non-contractual.

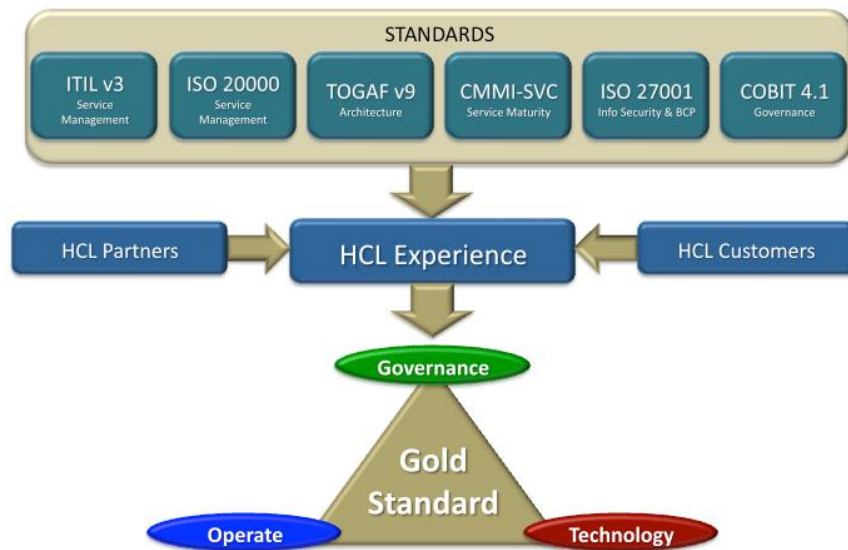
SLA: SLA in the co sourcing model will usually refer to the contractual SLA between IT organization and outsourcing vendor.

IT organization will still be accountable for the services to customers and end-user although, outsourced vendor will assume the responsibility.

### 5.5 HCL Gold Standard

HCL’s Gold Standard is a practical, strategic, and modular methodology for the positive transformation of IT Service Management.

One thing is certain. Tomorrow’s IT will not look like today’s IT. Tomorrow’s IT will move steadily toward the insulation of customers from the complexity of the IT infrastructure. To achieve this level of infrastructure abstraction requires automation, integration, and above all else, an intelligently designed and managed flow of processes within a framework of superior taxonomy.



HCL, as a premier provider of ITSM framework integration, surmounts the strategic and tactical obstacles that have traditionally defeated the best attempts of talented organizations to improve Service Management. Think of us as a shortcut – same outcome, shorter path, lower cost. It’s really that simple.

### 5.6 HCL Gold Process Set

Learning from the rich experience of Infrastructure Management Operations and the industry frameworks, HCL has developed a set of customer service centric and pragmatic processes to manage its own operation. The Gold Process attributes are

1. Standards of the process content

2. Publishing Standards
3. Process maintenance standards

Each Process design is robust and defines the following

1. The process operating standard environment
2. Goals and scope of the process
3. Inputs and outputs to and from the process
4. Process tasks and workflow
5. Process policies and guidelines
6. Roles and Responsibilities
7. KPI Measurements and reporting
8. Interfaces with other processes

### **5.7 Process Implementation Approach**

HCL has established a strong process driven implementation approach that treats the Service management process truly as the “business process”. The process implementation approach highlights are

1. Process down approach - Rule before tool
2. The role of functional consultant and technical consultant
3. Maintainability of the process (and thus the underlying tool)

## 6 SOME ILLUSTRATIONS OF VALUE ADD

Following are some examples of process value adds in Gold Blue Print

- Critical Incident Management bundled in Incident management
- Moment of Truth capitalization thru HCL Survey methodology
  - Designed to obtain feedback on processes not individuals
  - Survey pin pointing to SIP inputs
- KEDB creation and maintenance an integral part of Problem Management
- SR Catalogue Management an integral part of Request Fulfillment Process
  - Service Factory Model realized by templated SR models for publishing Catalogue
- Built in Change Catalogue and Change Catalogue Management process
- Change Controls Attributes defined to enforce configurable controls according to Organization's Control Policies
- Change Management designed as primary configuration control
- Tightly Coupled Change and Release Management
  - Every Release is a Change but every change is not a Release
- Dev Ops approach for Release Management enabled
- Software Licenses Management included in Asset Management