Platform
Rationalization
Model & Methodology

To become efficient and remain competitive organizations have invested on strategic as well as tactical initiatives involving new technologies. However when compared to expectations of business the return on investments have not been satisfactory. Meanwhile the IT projects have lead to IT environment becoming a maze of applications and platforms of different ages, sizes, types and in all probability with overlapping functionalities, fortunes being spent on their maintenance. All this does not do any good for an organization.

In a dynamic and competitive environment it is essential for an enterprise to achieve state of Efficiency, Agility, and Adaptability, what we define as Self Optimizing enterprise. Rationalization programmes if done in a holistic manner taking into account the proliferation in Processes, Applications, Information, Technology and Infrastructure will take organization on the Self-optimizing path. To arrive at the rationale behind the such initiative this paper proposes enterprises to take a Cost, Criticality, and Coalition view (3-C View) of their IT environment (people, process, technology) and also tries to address key challenges by providing 5-E phase execution (Explore, Envision, Empower, Enable, and Excel) approach.
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## Acronyms and Abbreviations

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<thead>
<tr>
<th>Acronym</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>APM</td>
<td>Application Portfolio Management</td>
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<tr>
<td>BPM</td>
<td>Business Process Management</td>
</tr>
<tr>
<td>CDI</td>
<td>Customer Data Integration</td>
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<tr>
<td>CIF</td>
<td>Customer Information File</td>
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<tr>
<td>CRM</td>
<td>Customer Relationship Management</td>
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<tr>
<td>CXO</td>
<td>Chief (Technology, Operations, executive, inform)</td>
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<tr>
<td>EAI</td>
<td>Enterprise Application Integration</td>
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<tr>
<td>EDI</td>
<td>Electronic Data Interchange</td>
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<tr>
<td>EII</td>
<td>Enterprise Information Integration</td>
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<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<td>ESB</td>
<td>Enterprise Service Bus</td>
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<tr>
<td>ETL</td>
<td>Extract Transform Load</td>
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<td>KPI</td>
<td>Key Performance Indicator</td>
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<td>MDM</td>
<td>Master Data Management</td>
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<td>PDM</td>
<td>Project Data Management</td>
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<tr>
<td>PLM</td>
<td>Product Lifecycle Management</td>
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<td>SCM</td>
<td>Supply Chain Management</td>
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<tr>
<td>SLA</td>
<td>Service Level Agreement</td>
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<tr>
<td>SOA</td>
<td>Service Oriented Architecture</td>
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<td>SOBET</td>
<td>Service Oriented Business Engineering Team</td>
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<tr>
<td>TCO</td>
<td>Total cost of ownership</td>
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<td>TCS</td>
<td>Tata Consultancy Services</td>
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Preface
In past, IT organizations have done a commendable job in supporting a business to become efficient and competitive within realms of legacy applications and associated technologies. However today’s ever evolving technologies, global competition, and compliance requirements pose great challenges to a business. These challenges are further complicated when there is a lack of alignment or disconnect between IT and business objectives.

This has resulted in organizations investing on strategic as well as tactical initiatives involving new technologies but yielding in lower return on investments (compared to expectations of business). In turn IT organizations have become a maze of numerous applications and platforms of different ages, sizes, types and in all probability with overlapping functionalities, fortunes being spent on their maintenance.

All this does not do any good for an organization. In a dynamic and competitive environment it is essential for an enterprise to achieve state of Efficiency, Agility, and Adaptability, what we define as Self Optimizing enterprise. Rationalization programs if done in a holistic manner taking into account the proliferation in Processes, Applications, Information, Technology and Infrastructure will take organization on the Self-optimizing path.

To arrive at the rationale behind the such initiative this paper proposes enterprises to take a Cost, Criticality, and Coalition view (3-C View) of their IT environment (people, process, technology) and also tries to address key challenges by providing 5-E phase execution (Explore, Envision, Empower, Enable, and Excel) approach. This methodological approach based on 3-C views for platform rationalization enables the enterprise to move towards a vision of Self-optimizing enterprise in incremental steps with due considerations to risks and their mitigation.
Introduction

The dictionary definition of rationalization is, “making changes to a business, system, etc. in order to make it more efficient, especially by spending less money”. The same definition applies aptly within the IT context.

Business models have evolved with time, from being country specific businesses (local) to transforming into global organizations (in fact the term g-local is more appropriate as enterprises, though global in nature, are more keen to customize their services and products to local culture and also regulations). Businesses have always looked at technology as a key aspect to enable its vision.

Technology in turn has kept pace with these business requirements as IT has also evolved from monolithic mainframe applications (local business models) to relational databases, client-server technologies, multi-tier systems and now distributed web based technologies (global business models). These advancements in technology have been used effectively to provide solutions that are the need-of-the-hour.

Though these advancements in technology help show a sense of stability, the IT organization is constantly at struggle with the business with regard to the management of their portfolio of systems and infrastructure. In providing solutions that are a need-of-the-hour, there has been a surge in IT portfolios which can be viewed as a valid, although uncontrolled reality, depending on which side of the table one sits. An increase in the IT portfolio can be primarily attributed to the following events:

- New systems to take care of the business growth and diversification needs
- Increase in IT portfolio due to mergers and acquisitions
- Technology advancements which bring in new features but in addition this also means new version releases by product vendors (and accompanying threat of stopping support)
- Usage of niche technology/domain rich products for special needs (which may no longer be niche in present context)

This diversity is predominant in two areas:

Applications

Many old/legacy applications were written in silos primarily addressing their line of business functionality. These have undergone many modifications, and upgradations to keep up with business process that have been changed or been reengineered to match business requirements. Packaged applications (ERP, CRM, PDM, PLM and SCM prominent amongst them) changed this scenario by bringing in some consolidation. However, many of the legacy applications continue to this day as business deems it too risky to retire them (e.g. Customer Information File, CIF, in many of the leading financial institutions is still based on the Mainframe platform). This is because organizations have lost track of the business requirements (original and their updations) that have driven changes to the applications over the years.

Platforms

Organization have used different products suites i.e. web servers, application servers, EAI, ETL for building enterprise platforms that support applications and their integration (data and process) needs as there is no universal standard or single product that can meet all requirements. However, there needs to be an agreement of the fact that, a lack of effective IT governance gave rise to divergence even amongst business units of an enterprise when it came to choosing a single platform for e.g. EAI.

In an earlier paper on SOA (SOA – An Enterprise Perspective, available on www.tcs.com), TCS had put forward its vision of a Self-Optimizing Enterprise that has superior ability to sense and respond to market opportunities with Agility (responsiveness), Efficiency (cost containment) and Adaptability (resilience). In this paper, we define an approach to reach such a state through Platform Rationalization. We describe a mathematical model (3-C View Model) which can be used to take decisions on Continue-Upgrade-Consolidate-Retire for Systems and Infrastructure falling within the gamut of IT Portfolio.
1.1 Rationalization and Value Measurement Framework

Rationalization programmes are typically initiated by organizations to take stock of what they own and to analyse their IT portfolio to check on its alignment with the organizations business goals. These programmes play a vital role in redefining the enterprise architecture in incremental steps towards architectural vision without disturbing the business operations.

However, rationalization must not be taken only for the explicit purpose of easing the management of IT Portfolio with a big bang / step wise approach. Rather a vision and accompanying rigour to give value to all the stakeholders’ viz. Business, Technology and Infrastructure must be used. We use the Value Measurement Framework (that was proposed in the aforementioned paper) to the rationalization approach we propose. The following chart juxtaposes the role rationalization plays in achieving Agility, Efficiency and Adaptability, with the Value measurement framework.

<table>
<thead>
<tr>
<th>Value Measure</th>
<th>Rationalization Role</th>
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<tbody>
<tr>
<td></td>
<td>Business</td>
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<tr>
<td>Agility</td>
<td>Process standardization and harmonization across business units</td>
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<tr>
<td>Efficiency</td>
<td>Define KPI for each component of the portfolio</td>
</tr>
<tr>
<td>Adaptability</td>
<td>3-C Model for prioritization of applications and infrastructure (from rationalization perspective)</td>
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</table>

**Agility**
Rationalization programmes enhance an organization’s ability to respond quickly to changes. Process standardization and harmonization across business units implies changes can be rolled out across the units in a consistent manner with the required speed. In the same manner, manageable and standards based set of applications implies changes to the solutions/infrastructure can be done easily (for e.g. allocation of additional resources to a newly launched product). Such a standard based application and infrastructure environment is also amenable towards incorporating monitoring standards that enable centralized monitoring, thus making proactive administration and control possible.

**Efficiency**
Rationalization programmes highlight redundancy in the IT structure existing across the enterprise. This can lead to inventory of old-ineffective applications, projects, unused process and obsolete assets. Rationalizing these IT assets can free budgets and resources (hardware, human, finance) to be utilized elsewhere or to be returned to the business as increased margins. The proposed 3-C model will help organizations in right sizing their IT portfolios.

**Adaptability**
Effective Technology Management: It enables optimal use of existing technology infrastructure to the extent possible with incremental transition path from legacy infrastructure to target vision architecture. This will improve reusability, manageability, flexibility and scalability.
Manage Risks: Systematic rationalization programmes help in creating risk matrices for each component in the IT environment i.e. application, platform, people and processes, which can then be monitored based on risk assessment criteria. Enhanced knowledge of IT spending/portfolio can help prioritizing new requirements to be initiated with an immediate understanding of the effect on other elements of the IT environment.

To manage the risks and challenges associated with a rationalization programme, the paper proposes 5-E phase execution (Explore, Envision, Empower, Enable, and Excel) approach revolving around 3-C views for IT rationalization enabling enterprise towards SOA driven vision.

**Traditional Rationalization Approaches**

Traditionally organizations have been doing rationalization on various fronts i.e. applications, infrastructure, networking, platforms etc. to lower operational cost and consolidate their IT infrastructure. All these programmes were initiated independently at different time depending on the need of the hour to deliver specific results. Many a times they used primitive methods of data collection and were limited to interactions with application owners only.

The subsequent paragraphs briefly describe various types of rationalization programmes initiated by organizations.

### 2.1 Infrastructure Consolidation

Platform and application proliferation have cascading effects on the IT infrastructure. For many organizations, server consolidation initiatives invariably end up in replacing numerous smaller servers with fewer powerful high end servers or consolidating infrastructure at a single location, leading to cost savings and improved efficiency.

Infrastructure consolidation can broadly be classified into three categories

**Workload Consolidation**

Workload consolidation means using fewer, larger servers to perform the tasks previously accomplished by multiple, smaller servers. When reducing the number of servers, organizations can follow two distinct paths. The easier and more common approach is to continue dedicating each server to a specific application, but to use fewer servers by taking advantage of the latest multiprocessor technology. The other, more complex path is to run disparate applications on the same server. This type of consolidation can significantly reduce costs, but it is also more difficult to plan and implement.

![Fig 1 Workload Consolidation](image)
**Data centre Consolidation**
When an organization grows organically and inorganically, more emphasis is put on the application rationalization rather than infrastructure consolidation, resulting in redundant hardware (also as a result of application rationalization) across multiple locations. Hence, there is need for data centre consolidation. This type of consolidation involves consolidating components of the IT infrastructure at one physical location. This programme yields many benefits i.e. enhanced security, simple networking, better power management, and back up strategies. Centralized infrastructure also helps in achieving higher availability for business with business continuity plan.

![Data Centre Consolidation Diagram](image)

**Logical Consolidation**
Modern day technologies such as IP telephony, remote desktop access, web based applications etc. and a cheaper network bandwidth have made logical consolidation feasible to implement. In this approach, the entire control in the IT infrastructure is assigned to a single administrative team which can either be located at a single location or at multiple locations as a virtual team rather than consolidating the entire infrastructure at a single location. The IT infrastructure remain dispersed, while local operations are reduced or eliminated and management functions such as backup, restore, recovery, maintenance, and user support are performed remotely.
2.2 Middleware Rationalization

It is not possible and also not required for large enterprises, to achieve complete standardization in middleware platforms (application servers, web servers, EAI amongst others). Organizations must strive to standardize as much as possible and differentiate as much as necessary – in all aspects of business (data, service & process) and technology (platforms and toolset usage).

Following are various drivers for middleware platform rationalizations programmes:

- **Higher development and operational costs**: A tactical approach by organizations to cater to their application, process and data integration needs, result in higher licensing, development and maintenance costs.

- **Middleware products with planned end of life**: Like all software platforms, systems integration platforms change relatively rapidly. Upgraded versions of new platforms are emerging often every year, while old versions are being phased out of support by platform vendors.

- **Reduced effectiveness of existing middleware platform**: The usage of multiple proprietary tools for servicing requirements across enterprise, result in tightly coupled integrations with lower quotient of reusability. Newer architecture like Enterprise Service Bus (ESB) and SOA provide many new features which enable open-interoperable-extendable solutions within and across the boundaries of an enterprise. Similarly, moving away from messaging centric integration to process centric integration is the current industry norm to achieve process driven enterprise (“managing by business process and not by transactions”), which are better suited to management and monitoring requires new platforms with enhanced features.
**Integration types consolidations by vendor:** Different methods of integration (Data, Message, Process - ETL, EAI, EII, EDI, BPM & Workflow, and Portals) are being consolidated into a single product offering by product vendors to enhance the functionality of their products.

**Support to open standards:** Adoption of new products which are supporting open standards that improves interoperability of middleware platforms.

2.3 ERP Consolidation

ERP consolidation must not be considered as a consolidation of applications but instead taken on as an opportunity to also work on process standardization and harmonization (define and implement a standard set of business processes across the business units/geographies with appropriate change management to ensure that the new processes are accepted across the board). The benefits of ERP consolidation cannot be considered only as an IT cost saving, the real payoff is better business performance due to streamlined business processes and organization.

In recent years, leading analysts have observed a consistent trend towards minimizing the number of application instances within any organization. There are three main drivers:

- It is more expensive to build, operate and maintain multiple production systems.
- Application functionality across multiple systems diverges over time, making it difficult to get consistent views of vital business data. This causes duplication of master data describing customers, materials and products, and it increases the number of reports and the need for reconciliation across systems.
- Globalization is a reality and challenge for many enterprises. This requires standardized business processes whenever possible. It is simpler to harmonize and standardize business processes on a smaller number of production systems, using a centralized approach.

Most enterprises conclude that it is more cost-effective and of higher business value to consolidate along a more-centralized approach, unless:

- The business units already have a number of separate ERP systems and are happy with those solutions including the associated costs
- The enterprise prefers a highly autonomous approach to running various business units, which would make it difficult to re-centralize
- The enterprise will achieve minimal business value from standardized ERP business processes (for example, if corporate reporting for separate divisions is not a priority)

2.4 Data Consolidation

Drivers for redefining information management strategy for modern enterprise are analogous to application rationalization. To highlight them within the information management perspective would include

- Consistence and timely response to business requests
- Better performance and process improvement
- Compliance with regulatory requirements

Industry wide organizations are embarking on two different types of data management initiatives i.e. Master Data Management (MDM) and Customer Data Integration (CDI).

**Customer Data Integration:** Globalization and enhancement in technologies have lead to multiple customer interfaces (Call Centres, e-mails, ATMs, company portal etc.) for supporting various business transactions, leading to explosion of customer data, strewn across scores of application databases, data warehouses, data marts and legacy systems. This customer data is being created, updated, and maintained continuously in many systems, resulting in erroneous and inconsistent data across the organization.

In order to manage customer data successfully, the creation of comprehensive customer views from disparate data sources such as CRM, ERP, legacy and external sources is required. Once integrated, these unified views provide authentic customer data for performing many operations for business.
**Master Data Management**: IT Definition of Master data is - collection of business objects, definitions, classifications, and terminologies that describe business information. Master data includes reference data and relationship data. Typically, business entities like customer, product, supplier and channel are treated as master data for enterprise. Multi-channel touch-points, complex distribution channels and integrated supply chains exacerbate the need for reliable master data within and between enterprises.

MDM is the complex process employed to define and manage frequently shared business information across multiple systems to achieve integrity and consistency of data.

MDM initiatives have several goals:
- Create a single version of the truth, for consistency
- Define Information Owners and assign responsibility
- Create a standard, shared vocabulary
- Build a comprehensive view across applications systems. (Single Customer view)
- Standardise and streamline access to information
- Simplify data management and standardize interoperability as part of an SOA migration

2.5 Technology Categorization

In pursuit of consolidating the various deployed technology platforms towards becoming strategic platforms, deployed technologies needs to be grouped in accordance with the technology lifecycle as – Emerging, Core, Specialized and Declining. These are described as below:

1. **Emerging Technologies**
   - Technology under evaluation - may obtain a future role of a core, specialized, or never become viable
   - Typically deployed to a limited “pilot” user group
   - Emerging technologies might compete with other emerging technologies

2. **Core Technologies**
   - Technologies and solutions representing the strategic infrastructure direction and which can be replicated throughout the organization
   - New projects should choose and implement solutions based only on these core technologies
   - Projects seeking to deviate from the core architecture have to justify why core technology cannot be used

3. **Specialized/Stabilized Infrastructure**
   - Isolated infrastructure uniquely capable of meeting a specific business need usually having limited user population
   - Will not be replicated as a standard throughout the organization; but may be revised where opportunity matches a defined situation
   - Requires business justification as deviation from core
   - Management and support is typically the responsibility of the “owning” organization

4. **Declining Technologies**
   - Broadly deployed infrastructure, but not a choice for future applications
   - Should avoid activities that increase dependency on this technology
   - Continues to receive whatever technology services are currently provided until retired
   - Technology will be supported until retirement or until it evolves into a limited, specialized role, OR Needs a retirement strategy
In addition to the approaches described in this section, in recent years, Application Portfolio Management (APM) tools have risen on the IT horizon to support rationalization programmes. These tools provide a means to perform application inventories, their interdependencies and related documentation. But factual data collected using APM tools are often not sufficient to chart a rationalization roadmap due to lack of understanding of corporate initiatives, business requirements, user perspectives etc.

We have seen various approaches to Rationalization that are being adopted by organizations. However, such approaches have limited and local impact and do not always lead to business benefits other than simplifications of IT management. What we need is an approach which is holistic in nature taking into account all the three dimensions of an enterprise viz. People, Process and Technology so that rationalization does not remain a routine IT activity but a programme to achieve organizations vision of Self-optimizing enterprise.

3-C Views – A Rationalisation Model

3.1 Principles for Rationalization
Rationalization principles are reflections of architectural principles which should be simple, direct statements of how an organization wants to use IT in the long term. Architecture principles are derived primarily from business drivers, but also may be influenced by organizational practices and policies, existing architecture, strategic business decisions, and trends in information technology. In this section we define the principles which should guide Rationalization programmes in organizations. Later we follow this up with our approach (Chapter 4) describing how these principles are implemented.

Reduction in Total cost of ownership (TCO)
TCO for IT must balance development, support, disaster recovery and retirement costs along with the costs of flexibility, scalability, ease of use/support over the life cycle of the technology or application.

Standardized Processes
Business processes must be standardized as much as possible across the business units to achieve efficiency and flexibility. A standardized services repository which underpins the business processes and accessible across organization will enable organizations to achieve desired agility by enabling orchestration of new business processes from such services.

Adopt proven standards and technology
Information Systems must adhere to industry standards and open architecture, for example, interoperability standards. This allows flexibility and adaptability in product replacement.

More Reusability and Interoperability
By service orienting the IT environment based on business needs, enhance reusability and interoperability of information systems, not only within and across organizations, but also across jurisdictions.

Single Source of Information
Information for performing business transaction must be secured, accessible and available for reuse by any application or business entity. This ensures that data owners are accountable for the definition and quality of the data.

Compliance with Regulatory bodies and standards
Ensure legacy systems and business process operational in the enterprise are in compliance with regulatory norms and standards.
3.2 3-C Views Approach
Before we make dive deeper into the details of the 3-C Views approach, we define the key constituents of the IT portfolio as:

<table>
<thead>
<tr>
<th>People</th>
<th>Management team, Architects, Competency Centre, Project teams, Support groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>Business Processes, Governance Process</td>
</tr>
<tr>
<td>Technology</td>
<td>Software, platforms, hardware infrastructure</td>
</tr>
</tbody>
</table>

This section describes the proposed 3-C Views approach (Cost, Criticality and Coalition) which uses a bottom-up approach for rationalization of an organization' IT portfolio (people, process, technology).

To formulate rationalization principles one has to understand, enterprise principles i.e. architecture, operational, technology principles, which provide a basis for decision making throughout an enterprise. These principles define the underlying general rules and guidelines for the use and deployment of all IT portfolios across the enterprise.

3-C views and enterprise rationalization principles collectively build a mathematical model based on which this paper provides a systematic and proactive approach to improve the business performance of an enterprise by quantifying the “3-C Value” of each IT portfolio constituent i.e. application, platforms, business process etc. This 3-C Value will decide the fate of the constituent i.e. Continue, Upgrade, Consolidate or Retire. In this model the weightings for the 3C values is decided based on Rationalization principles.
The 3-C views are plotted against People, Process and Technology constituents of IT within an Enterprise. Thus we obtain the matrix as follows:

<table>
<thead>
<tr>
<th></th>
<th>Cost (to the Enterprise)</th>
<th>Criticality (for Business)</th>
<th>Coalition (of applications with IT and Business Ecosystem)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>People</strong></td>
<td>Cost of staff to support</td>
<td>Number of Users of App</td>
<td>User Acceptance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Profile of Users of App</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Process (Business and Data)</strong></td>
<td>Cost of training</td>
<td>Number of Biz Operations supported</td>
<td>Biz Process Extensibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost of Data Mgmt (sync. cleansing, etc.)</td>
<td>Number of ‘critical’ Biz Operations supported</td>
<td>Data Model Deviation (Compliance with EDM)</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Skills Cost</td>
<td>End of Vendor Support Life</td>
<td>Support for Open Standards.</td>
</tr>
<tr>
<td></td>
<td>Support Fees</td>
<td>Age of Technology used</td>
<td>System Interoperability</td>
</tr>
<tr>
<td></td>
<td>Licence Fees</td>
<td></td>
<td></td>
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<tr>
<td><strong>Weighted Average</strong></td>
<td></td>
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</table>

**Fig 5 3-C Views - Rationalization Model**

The above matrix can be used to evaluate an application, platform or service in the context of the 3-C views to arrive at a decision to Continue, Upgrade, Consolidate or Retire the respective component. The three different views of 3-C – Views are detailed as follows:

**Cost View**

1) **People**
   The Cost view of people takes into account the cost incurred on people who support, maintain, develop or use the application. Following are certain sample guidelines that signify the impact of cost of people. An enterprise, based on the context of the component being evaluated (application, platform or service) can choose other aspects of cost of people that may be relevant for the evaluation.
   - Greater the variety in the set of legacy applications (multiple languages, platforms, etc.) larger the set of skills required to manage the IT
   - Greater the set of technologies / skill sets required to support the Enterprise IT systems, larger are the training costs associated with maintaining the support and maintenance of such a varied team

2) **Process**
   The Cost view of process describes the cost incurred on processes to manage the application / data / platform / service in question. This could include training process costs, data management process costs, etc. The following depicts sample guidelines that can be used to evaluate the measure for the process costs.
   - Multiple processes, due to redundancies across the enterprise makes management of these processes difficult and expensive (updates, changes, etc.)
   - Large variety in platforms, applications and technologies lead to huge costs on training to acquire the required skill sets to sustain the variation to support the business
3) Technology
This depicts the cost incurred on the existing technical infrastructure for the enterprise. Sample guidelines are as follows:

- Software / Hardware License fees – Greater the variation in the technology stack, greater the cost of licenses for products used to support the infrastructure
- Software / Hardware Vendor Support Costs – Large variations also lead to huge support cost when it comes to vendor support

Criticality View
1) People
The Criticality view of people within the enterprise takes into account the criticality of the application / platform / service in question to the consumers of these components within the enterprise. Some indicative guidelines to be followed are:

- Applications with a huge user base within the enterprise are critical entities to be analysed for rationalization
- In addition to the user base, it is also important to understand the profile of the users who use the applications. For e.g. in the case of Contact Centre solutions, it is important that Contact Centre users are available 24x7 and the applications that support such requirements need to adhere to the same
- Service Level Agreement (SLA) as well and hence are higher up in the criticality list

2) Process
In the process view, the criticality attribute of an application / platform / service indicates the importance of the component to the enterprise in terms of the business functions it supports. Guidelines to identify the criticality aspect are as follows:

- Applications that support a large number of business operations are highly critical components
- Applications that support business processes that need to sustain Business Operations are highly critical during evaluation of Rationalization opportunities
- Applications that support processes that ensure Business Continuity also classify as Critical candidates for Rationalization. These could include Disaster Recovery applications, backup applications, etc.

3) Technology
The technology view of criticality implies aspects such as end-of-support life, age of technology used v/s that evolved, etc. Some guidelines are as follows:

- Technologies that are in play within the enterprise and have stopped evolving in line with the market version of the technology are clear candidates for rationalization
- Technologies that prevent the ability to incorporate critical business changes are candidates for rationalization

Coalition View:
1) People
In a Coalition view of people, the rationalization attributes capture those aspects of the application / platform / service that indicate permeability within the enterprise of the respective component. Some guidelines related to this are as follows:

- Applications that enjoy wide acceptance by users are easier candidates to be carried forward (owing to resistance from customers for change). This needs to be evaluated based on the merits of either.
- The amount of time it takes to get a team onboard to start supporting an application / platform / service also indicates the degree to which the application is able to penetrate into an enterprise
2) Process
The Coalition view of a process depicts the ability of the application / platform / service to adhere to requirements such as regulatory compliance, process extensibility, etc. Some guidelines are as follows:
- Extensibility of business processes supported by the component being evaluated is critical in terms of the ability to integrate both within and outside the enterprise. This aspect is increasingly relevant in the context of a merger and acquisition scenario
- Diversity of the data model of the component (deviance from the Enterprise Data Model) is a critical aspect of determining the inter-operability and extensibility of the component

3) Technology
From a technical standpoint, coalition is determined by the support to open standards and system interoperability capabilities of the component. Some sample guidelines are as follows:
- The ability to use technology towards componentization enables better collaboration within the enterprise
- The componentization coupled with standard interface definitions are the basis for service orientation

The measures for each attribute within a cell vary from 1 to 5. The implication of the scores for the 3-Cs is:

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<th></th>
<th>1</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>High Cost</td>
<td>Low Cost</td>
</tr>
<tr>
<td>Criticality</td>
<td>Low Criticality</td>
<td>High Criticality</td>
</tr>
<tr>
<td>Coalition</td>
<td>Low Coalition</td>
<td>High Coalition</td>
</tr>
</tbody>
</table>

The definitions of the above scores are as follows:

<table>
<thead>
<tr>
<th></th>
<th>1+</th>
<th>5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Staff to Support</td>
<td>Very High Cost</td>
<td>Very Low Cost</td>
</tr>
<tr>
<td>Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Training</td>
<td>Very High Cost</td>
<td>Very Low Cost</td>
</tr>
<tr>
<td>Cost of Data Mgmt</td>
<td>Very High Cost</td>
<td>Very Low Cost</td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills Cost</td>
<td>Very High Cost</td>
<td>Very Low Cost</td>
</tr>
<tr>
<td>Support Fees</td>
<td>Very High Cost</td>
<td>Very Low Cost</td>
</tr>
<tr>
<td>License Fees</td>
<td>Very High Cost</td>
<td>Very Low Cost</td>
</tr>
<tr>
<td>Criticality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Users of Application</td>
<td>Low Usage</td>
<td>High Usage</td>
</tr>
<tr>
<td>Profile of Users*</td>
<td>Low Development Users</td>
<td>Corporate Executive Profiles</td>
</tr>
</tbody>
</table>

*This will depend on the context of the enterprise
### Process

<table>
<thead>
<tr>
<th></th>
<th>Less than 5</th>
<th>More than 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Biz Operations supported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of ‘critical’ Biz Operations supported</td>
<td>Less than 2</td>
<td>More than 10</td>
</tr>
</tbody>
</table>

### Technology

<table>
<thead>
<tr>
<th></th>
<th>Less than 1 yr</th>
<th>More than 5 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of Vendor Support Life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of Technology Used</td>
<td>Difference of 3 versions from latest</td>
<td>Latest version</td>
</tr>
</tbody>
</table>

### Coalition

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Acceptance</td>
<td>Low Acceptance</td>
<td>High Acceptance</td>
</tr>
<tr>
<td>On-boarding Time</td>
<td>More than 6 months</td>
<td>Less than 1 month</td>
</tr>
</tbody>
</table>

### Process

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Biz Process Extensibility</td>
<td>Will need customer development</td>
<td>Easy to extend</td>
</tr>
<tr>
<td>Data Model Deviation</td>
<td>Complete deviation</td>
<td>Aligned with EDM</td>
</tr>
</tbody>
</table>

### Technology

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Support for Open Standards</td>
<td>Very poor support</td>
<td>Aligned with Open Standard Strategy</td>
</tr>
<tr>
<td>System Interoperability</td>
<td>Difficult to connect</td>
<td>Easy to connect</td>
</tr>
</tbody>
</table>

*Fig 6 Measuring 3-C Views*

+ These are indicative measures for the attributes; however these will vary based on the context of the enterprise and the rationalization initiative.

3-C views provides a step-by-step approach and mathematical model for arriving unique business value (3-C Value) for each constituent of IT portfolio from Cost, Criticality and Coalition views scores. 3-C value derived from the mathematical model shall decide the fate of respective IT constituent.
SOA and Rationalisation – Natural Allies

Even though being around for the last 4-5 years, SOA has only now come of age due to maturity in tools and technology to make it a reality. SOA provides a platform-agnostic infrastructure for IT realization of modularized, loosely-coupled, interoperable and runtime-managed business services that underpin the business process management framework. These business services can be dynamically orchestrated in runtime environment to compose, execute and monitor end-to-end business processes.

With huge investments in the existing IT infrastructure, enterprises are adopting SOA as an architecture style which does not profess a complete Greenfield approach to systems development. It is a calculated investment that enterprises adopt by driving existing systems towards SOA orientation. Rationalization is therefore a vital aspect of any SOA initiative.

Earlier sections (Chapter 2) dealt with traditional rationalization approaches, which looked at infrastructure, applications and platforms, data separately and hence always had a relatively local impact. SOA brings in the need to take a re-look at these more holistically and take into account the convergence of technologies (e.g. data and process integration), openness and interoperability afforded by SOA.

4.1 SOA – Business Process perspective to rationalization

The Business Perspective of SOA aims at establishing an enterprise-wide decomposition of the business processes into re-usable modular services that have a fairly stable definition. The processes that utilize these services change more dynamically than the services themselves.

From a rationalization perspective however, what is important is the streamlining of the business processes that can be brought about across business units/geographies etc. Many a times, the processes are tied down to applications which support them; in such cases there is a need to rationalize these as well.

A top-down approach is employed to architect an enterprise-wide unified business process and data models that can be followed by IT realization via application and integration infrastructure to support the harmonized business processes.

The top-down functional decomposition produces a list of potential business services at varying degree of granularities. At the highest level, these would be the coarse-grained business-centric services (process macro-flows) that are typically composite services and are usually the ones which are exposed on an integration platform. Further, functional decomposition of business process to lower level of granularity would provide a list of fine-grained services (process micro-flows) that are more application or platform or domain centric and have greater potential for reuse from IT perspective.

A typical service provider or manufacturing enterprise would have a portfolio of multiple billing systems, multiple customer activation channels, distributed product catalog and customer information and a complex system of interconnected applications across the enterprise. Typical issues faced by such entity are:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Correlation to SOA Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Data Ownership; No Unified view of the customer</td>
<td>Loss of sales representative’ productivity and increased customer churn rate</td>
</tr>
<tr>
<td>Redundant Functionalities scattered across multiple systems</td>
<td>Hit on operational efficiency in tracking and reporting enterprise processes</td>
</tr>
<tr>
<td>No Error Management</td>
<td>Inability to adapt and change to business events dynamically</td>
</tr>
</tbody>
</table>
Complex applications with tightly integrated point-to-point connectivity | Lack of process level view of business operations with most of the business rules embedded within applications

Distributed product catalog information required changes across multiple systems for launching new products | Lack of modularization affecting GTM of new initiatives

Enabling the enterprise to overcome the above issues would require the following steps that advocate a top-down approach towards Service Orientation:

- Defining enterprise wide process models such as Order Processing, Prospect Management, Billing Processes, Acquisition and Fulfillment processes as a set of business services. This can be termed as rationalization at the business process level that will encompass organization structure, department functions, roles, etc., most often requiring a Business Process Re-engineering exercise.
- Re-factoring the business services (to the appropriate level of granularity) to complete the service repository definition. This can be termed as rationalization at the business services level to define the service mosaic of the enterprise.
- Mapping services to existing applications by enabling wrapping existing functionalities (or add on new) to provide the required services. This can be termed as rationalization at the interface level to enable existing application portfolio to support the service definitions without any major enhancements or addition of new applications to the existing portfolio where gaps exist.

4.2 SOA – Technology perspective to rationalization

The technology perspective of SOA stems from the need to simplify, classify and assemble IT operational support to business functions. The objective is to enable enterprise-scale services as a means of technical building blocks. The focus is on system maintainability, optimization of resource sharing, loose coupling and lowered cost.

This brings to fore a pertinent need to rationalize technical infrastructure at various levels of capabilities viz. business capabilities (services that encapsulate business functionality), infrastructure capabilities (services that encapsulate system and operational support to business) and utility capabilities (services that encapsulate support functionalities that are different from the core business functionalities). In addition there are reference services which need to ensure that the right version of data is received by the service consumers.

In the paper, SOA – An enterprise perspective, the authors had proposed an architecture framework at the macro level which encapsulated the convergence of integration, information and knowledge management. Tata Consultancy Services (TCS) has taken this view further and we propose a logical architecture framework which must be the vision architecture of enterprises who are taking up SOA and Rationalization initiatives.
In the past, IT organizations have done a commendable job in supporting a business to be efficient and competitive within the realms of legacy applications and associated technologies, but present day’s ever evolving technologies, global competition, compliance requirements and many other factors are posing great challenges in following forms:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Correlation to SOA Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems built mostly with point-to-point integration as new applications were added over time</td>
<td>Custom proprietary integrations mean lack of interoperability standards leading to expensive changes</td>
</tr>
<tr>
<td>Monolithic applications</td>
<td>Long and expensive Change Management cycles</td>
</tr>
<tr>
<td>Heterogeneous Technology Stack varying from the old Mainframe systems to the latest web based applications</td>
<td>Without a standard interface and tools definitions, development tasks require wide knowledge of systems / technologies affecting cost and time for development</td>
</tr>
<tr>
<td>No enterprise wide data model</td>
<td>Lack of common data model resulting in data duplication expensive data transformation techniques to move data between systems</td>
</tr>
<tr>
<td>Too many applications doing too many things with overlapping functionalities</td>
<td>Maintenance and enhancement of systems is an issues due to lack of modular re-use affecting scalability of existing systems</td>
</tr>
</tbody>
</table>

![Fig 7 SOLAR™ View](image-url)
Approaching the topic of Service Oriented Enterprise from a technology perspective advocates the following approach:

- Classifying applications into Business, Infrastructure and Utility applications
- Isolating encapsulated functionality under each classification within applications and eliminating redundancy. This is the rationalization at the application portfolio level
- Defining enterprise wide integration infrastructure with standard interface definitions to hook the rationalized applications together
- Defining an enterprise wide common data model (messaging data dictionary) to establish the communication language between the “application services”. This is the rationalization at the data level
- Establishing common development and deployment platform to support the “application services” to enable standard development of new services. This is rationalization at the infrastructure level
- Mapping business services to these rationalized “application services”

4.3 SOA – People perspective to rationalization

Based on 3-C Views analysis fate of IT portfolio constituents are decided i.e. continue, upgrade, consolidate and retire, which has direct impacts on “People” who run and use these applications not to speak of customers and partners. Change is often disruptive, and even traumatic. These people may be apprehensive about new roles, the need to acquire new skills, and changes to rules & operating procedures. This can lead to resistance and can even kill rationalization projects.

These issues can be effectively resolved by putting Change Management as part of the Rationalization efforts. Change Management offers comprehensive support to meet critical challenges of Business and IT Collaboration, bringing in a paradigm shift in project execution & solution delivery mechanism, competency development and partner support. The following will be the key aspects of Change Management which will have to be addressed during Rationalization programme implementation:

- **Organization Readiness Assessment and Change History:** The primary purpose of this stage is to determine whether or not the organisation is ready for Rationalization. A cultural assessment would have to be carried out to identify possible organizational roadblocks, and to plan for overcoming them. It is necessary is to look at the Change History of the organization, with a view to understand the shortfalls/failures and best practices that were implemented in the past. This will enable devising appropriate communication strategy for the roll-out of the new systems.

- **Stakeholder identification and analysis:** will be an integral process, since it will heavily influence the buy-in from key stakeholders and will enable effective communication required for the change initiative. It is imperative to identify all the stakeholders involved from Business including partners and IT, map them in terms of influences, and analyze them from their needs and benefits from the Rationalization programme.

- **Changing work practices:** business people need to adapt to an environment, where data is available in real-time and decisions can be implemented (in the form of changes to processes) almost instantaneously. As the technology grows more agile, the ability of employees to innovate becomes the primary constraint to organizational responsiveness, and excessively frequent changes and organizational and process instability become significant risks.

- **Conflict Resolution:** Related to conflicting objectives and priorities among different departments that participate in common processes. Similarly conflicts with partners who consume services provided by the firm, or provide services consumed by the business.
• **Competency Development:** It will be necessary to upgrade the skills of employees, to enable the roll-out of new applications & processes. People realize and at times do fear that with the new changes coming in the organization landscape, they have to develop their competencies to work in the improved environment with enhanced job profile. The programme governance should ensure the collation of training needs of people who will deploy or use the new systems.

### 4.4 5-E Methodology

A SOA based rationalization approach is an evolution path for IT convergence wherein, it leverages the existing IT infrastructure to a maximum extent based on business value they bring in. The programme deals with multiple generations of applications and associate technologies simultaneously to decide the fate of an individual component in the IT environment i.e. continue, upgrade, consolidate or retire in order to achieve SOLAR™ vision.

To achieve rationalization by successful SOA adoption in an enterprise, commitment of the top management is a critical factor towards ensuring participation from Business, IT and Infrastructure streams of the organization. Service orientation of an enterprise is a “Service Mosaic” which is the convergence of the top-down functional decomposition (Business Perspective) of business processes by process owners and bottom-up modularization and encapsulation (Technology & Infrastructure Perspective) of existing application functionality as services by application and data architects. (A detailed description of the organizational aspects which ensures managed change can be had is available in the paper on SOA Governance which is available on www.tcs.com)

Following is the suggested Engagement Model for implementing Platform Rationalization at an enterprise level taking into consideration the SOA needs of the enterprise.

**Fig 8 Engagement Model**

Based on this model following is the detailed description of the approach for rationalization. There are following 5 key phases of rationalization processes i.e. Explore, Envision, Empower, Employ and Excel.
4.4.1 Explore Phase

**Inputs:** Business Strategies, Corporate Initiatives and Architectural Principles

**Tasks:**
1. Conduct workshops: During this phase, the assessment team engages with various stakeholders by means of workshops, meetings and surveys in order to understand business strategies, corporate initiatives and architectural principles of the organization as well as infrastructure details such as Application components across servers, Server environments, Technologies, Application environments along with their overall IT strategy.
2. As a part of this engagement, the assessment team also look at the current adoption of Rationalization in the organization and drivers for future initiatives. Along with this, Application consolidation industry trends and best practices are also explored.

**Deliverables:**
1. Rationalization Principles
2. IT portfolios Catalogue: As a part of the assessment, as-is architecture of applications are collected along with product licensing and support costs. Interdependencies across products, processes and data are documented; Private/Public processes (Business/IT) are explored. While looking at partner integration processes, information related to Partner Profiles and Agreements is gathered. Detailed study of In-flight Rationalization/consolidation initiatives is done.
Following impacting factors are looked at while cataloguing the information,

- Application interdependencies/interfaces
- Application / platform wide support organization and cost involved
- Existing license policies and license types
- Existing security policies and groups
- Applications recovery time objectives /criticality /SLA
- Applications /infrastructure matrices for support related activities for present applications and platforms
- Application component version conflicts
- User spread across locations and concurrent users

4.4.2 Envision Phase

**Inputs:** IT portfolios catalogue

**Tasks:**
1. Workshops with project teams, business users and support group: These workshops are a must for understanding IT systems in greater detail from user, support and developer' perspectives
   a. Support activities and related historical data (Tickets, logs etc)
   b. Complexity of the code for applications
   c. User acceptance
2. 3-C Views Evaluation: 3-C– Views and enterprise principles based on the mathematical model is used for evaluating the “3-C Value” of each IT portfolio constituent i.e. application, platforms, business process etc. This 3-C Value decides the fate of the constituent i.e. Continue, Upgrade, Consolidate or Retire.
3. Rationalization Roadmap: As a part of the Rationalization process, a Consolidation Recommendation is given. The Consolidation Analysis results in determination of target architecture and provides a mapping between the current application components and target architecture. A roadmap for moving towards a, ‘To-be’ state is prepared with guidelines for IT constituent’ fate i.e. Continue, Upgrade, Replace or Retire. Risks are identified and accordingly a Mitigation plan is prepared with alternative solutions and a fallback strategy.

**Deliverables:**
3-C Views Definitions and Rationalization Road Map

4.4.3 Empower phase

During this phase IT environment - People, Processes, and Technology is empowered to successful and effective Rationalization.

**Inputs:** Rationalization Road map

**Tasks:**
1. Set up Service Oriented Business Engineering Team (SOBET): The rationalization programme essentially involves a collaborative effort between all business and IT stakeholders who form a virtual cohesive execution team - a team that is comprised of diverse skill-sets from different functional and technology domains and from different business/operating units. This execution team with a mixed organizational and cultural background needs to align and work together towards the common goals of the programme. Hence, it is of paramount importance to establish a centralized leadership and governance body for the programme to ensure an enterprise-wide view and a control in all three aspects of the programme. (A detailed description please refer paper by TCS on SOA Governance which is available on www.tcs.com)
2. Project Planning and Process Definitions: As per the rationalization road map, a detailed programme plan is required to initiate projects to upgrade, consolidate and retire constituents of IT portfolios. During this phase, a disposition plan is prepared which includes Existing and Target Technology Landscape along with Solution mapping across both of them. Infrastructure Recommendations are made as a part of this phase and also a detailed Applications retirement plan is presented. Application movements are prioritised and scheduled as a part of the disposition plan.

3. Upgrade IT Environment: The technology strategy needs to be upgraded in terms of providing solutions which a business requires and at the same time ensuring that the infrastructure can cope with future business demands and changes.

4.4.4 Employ Phase

**Inputs:** Rationalization programme with disposition plans

**Tasks:**
During this phase many projects are initiated based on the disposition plan prepared in the rationalization programme. Project execution follows a combination of top-down and bottom-up SOA approach detailed earlier in the paper. As per the plan many projects are initiated to Continue, Upgrade, Consolidate and Retire different constituents of IT portfolios. These projects revolve around the creation of a Service Mosaic which is achieved by following steps.

1. Service Identification /Definition: This is a process of identifying right services at the right level of granularity so as to get maximum value from the service implementation. A combination of top-down approach, for business process modelling (functional decomposition) and bottom-up approach for current application portfolio (inventory) analysis are exploited. For rationalization, a bottom-up approach of current application inventory helps in evaluating technical feasibility for service implementation and also reveals the domain specificity, application functionality, components and modules that can be composed readily, encapsulated and packaged as services for potential enterprise-level re-use. The bottom-up approach further provides an opportunity to rationalize and consolidate similar functionality across different applications and platforms to a domain model that can provide common service deployment platform.

2. Service Categorization and mapping: The rationalized services are mapped to respective service category on the basis of functional domain, application domain and technology platform.

3. Service Deployment: Service deployment involves mapping functional and non-functional requirements of service definition with the underlying enterprise service deployment architecture and technology platforms followed by design, build and deployment of service in a run-time environment using formal software development lifecycle.

**Deliverables:**
Enterprise Service Mosaic

4.4.5 Excel

**Tasks:**
Measure and Optimize: Rationalizing IT portfolio is only part of the process. As organizations gradually carve up their old application base into services, redeploying select services into the new software packages over time, switching software is used to direct calls either to new data structures, or old legacy ones, depending on which services have been migrated and which ones have not. This rationalization using SOA approach does not immediately solve the problem of application consolidation. After all, the legacy code from a company’s applications is still all there, running on the same boxes. But it does throw a veil between the application base and the end-user, which has ramifications for support and training costs, and for enabling future migration.
Summary
A 3-C view is a platform rationalization model, which along with 5-E methodology for programme management is step by step approach for enterprises interested in optimizing their application portfolios. This methodological approach provides specific recommendations on how to achieve state of self optimizing enterprise by creating efficient, agile and adaptable IT environment.

Finally, the million dollar question: Is the rationalization of the IT infrastructure or application a must for SOA adoption?

The answer to this question lies in enterprise goals that crisscross minds of CXOs:
1. Quick response to a customer and to market demands.
2. Reduction in TCO
3. Single Source of Information
4. Adopt proven standards and technology
5. Compliance with Regulatory bodies and standards
6. Ensure business continuity and many more

Based on these goals, and priorities an enterprise has a choice to go for eager adoption of SOA ignoring the state of underlying IT environment to grab low hanging SOA fruits or go by the rationalization route where the enterprise puts its IT environment in order for incremental adoption of SOA to be self optimizing enterprise.

Appendix
We present here a scenario of an Insurance company and demonstrate how the Rationalization approach as described in this paper can be applied.

Platform rationalization for large life insurance company
A leading Life Insurance Company, a leader in its business had built systems that faithfully supported the business for over 15 years. However, with changing market dynamics and customer expectations, the enterprise has discovered a number of issues that could knock it off its leadership position:

The Company has two core systems i.e. life administration and agency system on legacy platform. The administration system is comprehensive, supporting couple of million policies. It covers a full range of functions, from underwriting and policy administration to claims and reinsurance. The agency system support agency administration and commission payments.

These systems had been cloned for various countries and subsequently diverged, owing to different local needs. The system size per country is 1.2 million lines of code. To cope up with new trends in technologies the Company has built web based three tier applications for supporting business over web for customers as well as partners. These next generation applications are using middleware infrastructure built on two integration products specializing in B2B and application integrations.

Programme objectives
To maintain competitive edge and leadership position in market the Company is planning to SOA enable its applications for agility, efficiency and adaptability. The SOA roadmap has raised concerns regarding proliferation of business processes across the business units (which in turn are supported by cloned applications). As a consequence, rationalization programme has been put in place which will standardize the business processes and consolidate the application in multiple countries as a single system for better management and lowering - total cost of ownership and data redundancy.
It is also critical to extend service life of the administration and agency systems by another 10 years to leverage legacy investments of many years. Rationalization of various applications and platform was must to be agile and efficient enterprise. The ultimate aim being, reduced lead time to introduce new products and support for need based selling with transparency and choice.

Solution
For Rationalization we will demonstrate use of 3-C View model along with 5-E execution methodology.

Explore Phase: During this phase TCS would conduct workshops and interviews with business/IT/Infrastructure managers and analyse existing documentation for understanding as-is architecture. Based on this study, base-lined as-is architecture would be prepared. Rationalization principles are defined based on business user discussions and enterprise programme objectives. IT portfolio catalogue of various applications and platforms is prepared for whole enterprise. Following is indicative list of rationalization principles that is typically derived from the business owners.
- Reduction in Total cost of ownership by consolidating country specific Agency applications.
- Single Source of Information by consolidating local data centers
- Adopt single middleware platform which is scalable, proven, and support open standards.
- Compliance with local and global Regulatory bodies and standards

Envision Phase: In this phase detailed workshops would be conducted with business stake holders, users, IT team members and support groups for defining 3-C views of as-is enterprise architecture.

A sample representation 3-C View analysis of Agency application:
Agency application was built in late 1970s for North America region to manage agencies management. It was built like monolithic application to automate their core business transactions in agencies space using the best technology available at the time. Later in early 1990s, it was upgraded by IT organization to support online transaction processing (OLTP) and relational databases. Successful implementation of this application in North America, it was replicated to other regions / countries where the Company expanded its line of business.

During internet revolution to launch their web-sites, the Company made significant investments in integration technology to trigger backend legacy applications to be user savvy for customers and agents. These upgrades / modifications brought required business value to many instances of agency applications, but these modifications were sort of fix applied by then IT organizations. The real business value in present day dynamics has deteriorated to great extent in recent years.

Following is representation of 3-C view analysis of Agency system application for APAC country.

<table>
<thead>
<tr>
<th></th>
<th>Cost (to the Enterprise)</th>
<th>Criticality ( for Business)</th>
<th>Coalition (of applications with IT and Business Ecosystem)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score</td>
<td>Score</td>
<td>Score</td>
</tr>
<tr>
<td>People</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of staff to support</td>
<td>1</td>
<td>Number of Users of App</td>
<td>5 User Acceptance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Profile of Users of App</td>
<td>3 On-boarding time</td>
</tr>
<tr>
<td>Process (Business and Data)</td>
<td>2</td>
<td>Number of Biz Operations supported</td>
<td>5 Biz Process Extensibility</td>
</tr>
<tr>
<td>Cost of Data Mgmt (sync. cleansing, etc.)</td>
<td>1</td>
<td>Number of ‘critical’ Biz Operations supported</td>
<td>5 Data Model Deviation (Compliance with EDM)</td>
</tr>
<tr>
<td>Technology</td>
<td>Skills Cost</td>
<td>End of Vendor Support Life</td>
<td>Support for Open Standards</td>
</tr>
<tr>
<td>------------</td>
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<td>-----------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Support Fees</td>
<td>2</td>
<td>Age of Technology used</td>
<td>System Interoperability</td>
</tr>
<tr>
<td>License Fees</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fig 10** 3C Score Card and Analysis

In similar way 3-C view analysis of all/major IT portfolio constituents needs to be carried out during the envision phase to arrive at 3-C value using mathematical model customized by TCS for the Company. With this information in hand, fate of each IT constituent (continue, upgrade, consolidate or retire) is decided by doing rounds of meetings/workshops with business stake holders (graphical representation is shown below).

**Fig 11** Application Rationalization Roadmap

After deciding fate of applications rationalization road map for entire IT portfolio will be prepared in consultation with business stake holders and thought leadership team.

This rationalization roadmap could be as a sub-roadmap for achieving Service Orientation of enterprise wise platform design & build programme which builds and supports transactional SOA-based systems. It is necessary to widen the scope to achieve coherent architecture and technology across the Company. The Overall roadmap is divided into the following main sections. There is a more detailed document for each of the following.
1. Funding  
2. Scope and Mandate of Roadmap  
3. Target Enterprise Architecture  
4. Systems Integration Tools & Technology  
5. Systems Integration Programme  
6. Rationalization Projects  
   a. Continue  
   b. Upgrade  
   c. Consolidate  
   d. Retire  
7. Programme Tools & Technology  

**Empower Phase:** After deciding fate of applications and defining rationalization road map for entire IT portfolio, virtual team consisting of business and IT stake holders and sr. architects can be formed to empower IT environment and drive many rationalization projects across business units of enterprise. The whole purpose of this group is to empower project management office (PMO) where it has the responsibility and the power to enact following changes in IT environment.  
   - Enterprise architecture: Enable Enterprise Architects to fully model the desired future state architecture, and provides the capabilities to create and manage standards aligned with this architecture.  
   - Service management: Depending on the fate of IT constituents i.e. continue, upgrade, consolidate, and retire arrive at uniform guideline for identification, definition, creation of infrastructure and application service and management of business services, and ensures that critical performance, compliance and business continuity.  

**Employ Phase:** During this phase distinctly three global projects are recommended for in the first phase of rationalization.  
1. Consolidation of Agency application as single instance across all countries.  
2. Retiring local data centres for single data centre.  
3. Middle ware consolidation to single product supporting Enterprise Service Bus (ESB) architecture.

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**Fig 11** Application Rationalization Projects
Though these projects are driven by rationalization principles, underlined purpose is to create foundation for building service mosaic.

**Excel Phase:** Following Key Performance Indicators (KPI) values should be measured during subsequent phases of SOA roadmap as - value delivered to business, infrastructure readiness and technology enabler.

- **Agility**
  - (Responsiveness) – reduced cycle time to introduce new insurance programmes to gain business advantage
- **Efficiency**
  - (Cost reduction) – Reductions in overall (applications, infrastructure) support cost for IT organization
- **Adaptability**
  - (Resilience) - Established the SOA Infrastructure for incrementally enabling new business solutions on fly.
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With presence in 50+ countries, multi-skilled EAI consultants, a rigorous
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