

## 6.1 PORTFOLIO, PROGRAMME AND PROJECT MANAGEMENT

The dependency on IT services increases as enterprise information systems evolve. The coordination of multiple stakeholders and integration of information systems assumes great importance. In this context, the capital investments made in developing enterprise systems (assets) are to be governed. The management organization framework to govern such capital investments has three pillars: structure, people and information resulting in accountability and ownership. Figure 8 and 9 illustrates management framework in large enterprises – portfolio, programme and project offices (P3O®).

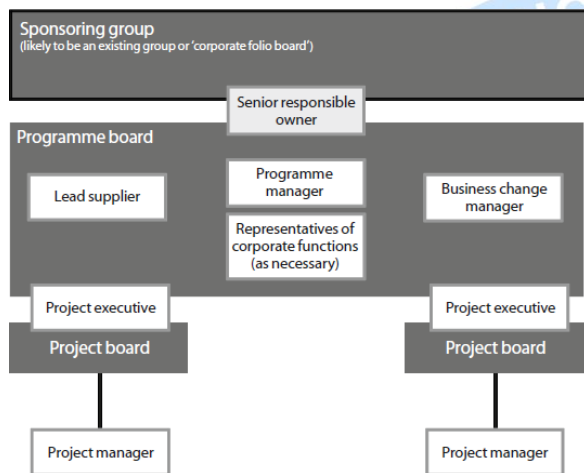


Figure 9: Programme governance arrangements

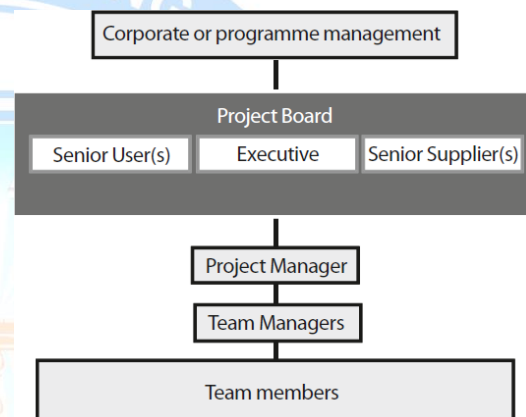


Figure 8: PRINCE 2 Project governance

**Portfolio office:** The sponsoring group is the portfolio group or investment committee or governing body where decisions about inclusion of initiatives (projects) in the portfolio are made. It is responsible for monitoring portfolio progress and resolving issues that may compromise delivery and benefits realization. The decisions are made with careful evaluation of business cases and their priority with reference to active business plans. By nature project portfolios have life cycles that are impacted by long term and short term business plans.

**Programme office:** Programmes are logically related projects with well-defined strategic outcomes. The program board consists of five key people:

- programme manager – responsible for day to day operations of the programme
- business change manager – defines benefits to management and acts as a bridge between programme and business operations
- project executives – from key projects of the program
- lead supplier – technology and services
- Representatives of corporate functions – such as finance, HR, etc.

The programme board is chaired by the senior responsible owner (SRO) who is ultimately accountable for the programme and accountable for the success of the programme.

**Project office:** Projects are temporary endeavors with a definite beginning and end, undertaken

to meet unique goals and objectives, typically to bring about beneficial change or added value. By nature, they usually are constrained by time, resources and quality.

The Project Board is responsible for the overall direction and management of the project within the constraints set by corporate or programme management. The Project Board comprises of:

- project executive – representing the business view point and is ultimately responsible for the project outcome
- senior supplier – representing the project team designing, developing and implementing the project’s products
- senior user – representing the interests of business users of the information system

The project manager, responsible for day to day activities of the project, reports to the project board and is not a part of it. The project executive is responsible for writing the business case and getting it approved through programme board.

The team managers and team members are the “core engineers” who possess skills in development, deployment and management of information systems. They report to project manager on day to day operations.

PRINCE2 (Projects IN Controlled Environments) is a process-based method for effective project management. It is a de facto standard used extensively by the UK Government and is widely recognized and used in the private sector, both in the UK and internationally.

### 1. The governance triangle



Figure 10: The governance triangle

Given the nature of the dynamic business environment, the portfolio, programmes and project

decisions are trade-offs between governing ongoing business and governing the change in an enterprise.

## 2. *Portfolios, programmes and projects in supply chain context*

According to Murray, Webster and Thiry,<sup>12</sup> enterprises group three types of project portfolios: strategic transformation or goal-oriented, innovative continuous improvement and capital expenditure.

*Strategic transformation (goal oriented) projects portfolio* constitutes strategy formulation, development and implementation. It focuses on strategic choices that enhance the organization's effectiveness. Successful implementations of projects in this category deliver change regarding the organization's behaviors, structures and operations resulting in improved **value chain performance**. For example, an enterprise triggers strategic transformation projects as a result of strategic decisions taken at corporate level (spin-offs or Mergers & Acquisitions or other strategic options). The programs and projects are aligned to transform the way new enterprise desires to perform in future (from as is state to desired state).

*Innovative continuous improvement projects portfolio* constitutes qualified and prioritized projects based on their benefits to the enterprise value chain performance. The requests for such continuous improvement project might come from any area of the value chain. By nature these projects are small incremental improvements that follow bottom up initiatives. For example, an enterprise triggers innovative continuous improvement projects portfolio as a result of enterprise wide total quality management (TQM) initiative.

Capital expenditure project portfolio constitutes large capital investment projects such as new plant, equipment and buildings. The requests for such capital expenditures might come from any area of value chain. These projects are also prioritized based on their benefits to the enterprise value chain efficiency.

Transformation and change through continuous improvement linked to capital expenditure project portfolios success depends on the capabilities of people associated with them. These project portfolios are in general interlinked and are aligned to corporate strategy.

Pieter Steyn<sup>13</sup> suggests a fourth type – “process portfolio” to improve enterprise supply chain performance as illustrated in figure 11. The process portfolio is called as “supply chain portfolio” as it essentially groups seven cross functional supply chain processes (*Order fulfillment, Customer service management, Customer relationship management serving external customers; Product development and commercialization, Procurement, Manufacturing flow management, Demand management and capacity planning serving internal customers*). The supply chain portfolio is arranged with two types of programs one with external focus and other internal focus.

Based on business models enterprises are organized as project based or non-project based or

hybrid (mix of project and non-project based). L&T construction Ltd is an example of project based organization, Hyundai motor India Ltd is an example of non-project based organization and Hewlett-Packard is a hybrid organization.

<sup>12</sup>Murray-Webster, R & Thiry, M , "Gower Handbook of Project Management", 3 rd Ed., England, 2000:Chapter 3, "Managing programmes of projects". <sup>13</sup>Steyn, Pieter G, "Managing Organizations through Projects and Programmes: The Modern GeneralManagement Approach", ManagementsToday, Vol 17, no3, April 2001

## 6.M A N A G E M E N T OF RISK

A simple definition of 'risk' is a problem that has not yet happened but which could cause some loss or threaten the success of your project if it did. Information systems implementation is associated with multiple risks. The subject is now a constituent of enterprise risk management domain. Office of Government Commerce (OGC), UK has published guidelines for "Management of Risk" (M\_o\_R). It considers strategic risks, programme risks, operational risks and project risks as interrelated perspectives in an enterprise (refer figure 12).

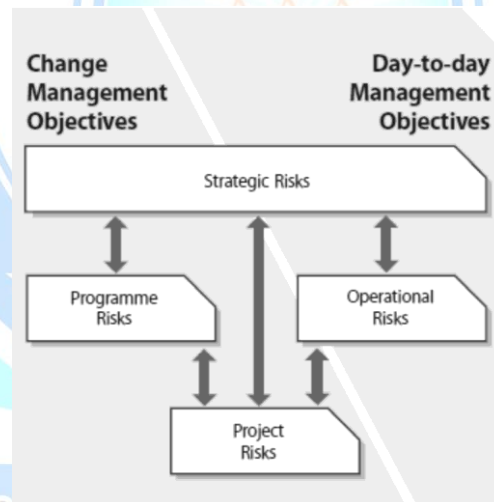


Figure 12: Relationship between risk perspectives

As a general rule, programme, project and operational risks should be related to business objectives (change or day-to-day management).

- **Strategic/corporate risks:** commercial, financial, political, environmental, strategic, cultural, acquisition, political and quality risks.
- **Programme risks:** Procurement/acquisition, funding, organizational, projects, security, safety, quality and business continuity risks.
- **Project risks:** Personal, technical, cost, schedule, resource, operational support, quality and provider failure.
- **Operations risks:** Personal, technical, cost, schedule, resource, operational support, quality, provider failure, environmental and infrastructure failure.

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The M\_o\_R guide derives principles from corporate governance requirements and provides an accessible framework for taking informed decisions on managing risk throughout the organization, from designing policy and strategy to dealing with threats and opportunities in day to day operations and services.



Mary Sumner <sup>14</sup> summarized risk factors and strategies to minimize them in enterprise-wide systems projects as illustrated in table 1.

<b>Risk category</b>	<b>Risk factor</b>	<b>Strategies to minimize risk</b>
Organizational fit	<ul style="list-style-type: none"> <li>• Failure to redesign business processes</li> <li>• Failure to follow an enterprise-wide design which supports data integration</li> </ul>	<ul style="list-style-type: none"> <li>• Commitment to redesigning business processes</li> <li>• Top management commitment to restructuring and following an enterprise-wide design which supports data integration</li> </ul>
Skill mix	<ul style="list-style-type: none"> <li>• Insufficient training and reskilling</li> <li>• Insufficient internal expertise</li> <li>• Lack of business analysts with business and technology knowledge</li> <li>• Failure to mix internal and external expertise effectively</li> <li>• Lack of ability to recruit and retain qualified enterprise systems developers</li> </ul>	<ul style="list-style-type: none"> <li>• Effective use of strategies for recruiting and retaining specialized technical personnel</li> <li>• Effective reskilling of the existing IT workforce</li> <li>• Obtaining ‘business analysts’ with knowledge of application-specific modules</li> <li>• Effective use of external consultants on project teams</li> </ul>
Management structure and strategy	<ul style="list-style-type: none"> <li>• Lack of senior management support</li> <li>• Lack of proper management control structure</li> <li>• Lack of a champion</li> <li>• Ineffective communications</li> </ul>	<ul style="list-style-type: none"> <li>• Obtaining top management support</li> <li>• Establishing a centralized project management structure</li> <li>• Assigning a ‘champion’</li> </ul>
Software systems design	<ul style="list-style-type: none"> <li>• Failure to adhere to standardized specifications which the software supports</li> <li>• Lack of integration</li> </ul>	<ul style="list-style-type: none"> <li>• Commitment to using project management methodology and ‘best practices’ specified by vendor</li> <li>• Adherence with software specifications</li> </ul>
User involvement and training	<ul style="list-style-type: none"> <li>• Insufficient training of end-users</li> <li>• Ineffective communications</li> <li>• Lack of full-time commitment of customers to project management and project activities</li> <li>• Lack of sensitivity to user resistance</li> <li>• Failure to emphasize reporting</li> </ul>	<ul style="list-style-type: none"> <li>• Effective user training</li> <li>• Full-time commitment of users to project management roles</li> <li>• Effective communications</li> </ul>
Technology planning / integration	<ul style="list-style-type: none"> <li>• Inability to avoid technological bottlenecks</li> <li>• Attempting to build bridges to legacy applications</li> </ul>	<ul style="list-style-type: none"> <li>• Acquiring technical expertise</li> <li>• Acquiring vendor support for capacity planning and upgrading</li> <li>• Planning for client-server implementation including client workstations</li> </ul>

Table 1: Risk factors and strategies to minimize risks

<sup>14</sup> Mary Sumner, Risk factors in enterprise-wide/ERP projects, Journal of Information Technology (2000)

## 6.6 MANAGEMENT OF VALUE

Value is subjective and the criteria to assess value with different people. At fundamental level, value is expressed as a simple ratio of benefits to costs.

$$\text{Value} = \frac{\text{benefits}}{\text{costs}}$$

From the project portfolio, programme and project management perspective, the value ratio is illustrated in figure 13:

$$\text{Value} = \frac{\text{Satisfaction of needs (benefits)} \quad (\text{monetary and non-monetary})}{\text{Use of resources (expenditure)} \quad (\text{money, people, time, energy and material})}$$

Figure 13: The value ratio (“needs” includes what is necessary and desired by the user)

“MoV is all about maximizing value in line with the programme and project objectives and key stakeholder requirements. It is not simply about minimizing costs. The fundamental question that MoV is intended to address is ‘Are we maximizing the value of our essential investments such that we are getting optimal benefits, at an affordable cost, with a known and acceptable level of risk?’ Because value is subjective, MoV must also seek to achieve the optimum balance between all stake holders’ needs.” MoV best practices guide

The seven foundation principles of MoV are:

1. Align with organizational objectives
2. Focus on functions and required outcomes
3. Balance the variables to maximize value
4. Apply throughout the investment decision
5. Tailor to suit the subject (the project’s environment, size, complexity, criticality and risk)
6. Learn from experience and improve
7. Assign clear roles and responsibilities and build a supportive culture

In information systems projects are perceived to deliver few benefits at huge costs and are a prime target for MoV. It should be applied throughout the whole life of an investment decision, from start up to retirement of any resulting assets and services. The rationale for investment decisions are recorded for future use during the life of the project portfolio, programme or project. Figure 14 illustrates typical scenario in information systems projects where the opportunity to add value is more in the startup phase. This is because the stakeholders will be open to new ideas and beneficial changes to project scope cost less as resistance to change is low. As the project evolves the resistance to change increases and

cost of change increases as the project team will not be willing to make changes. This is more visible in the scenario where the delivery team is contracted for a fixed price and thus will not be willing to do rework on the project.

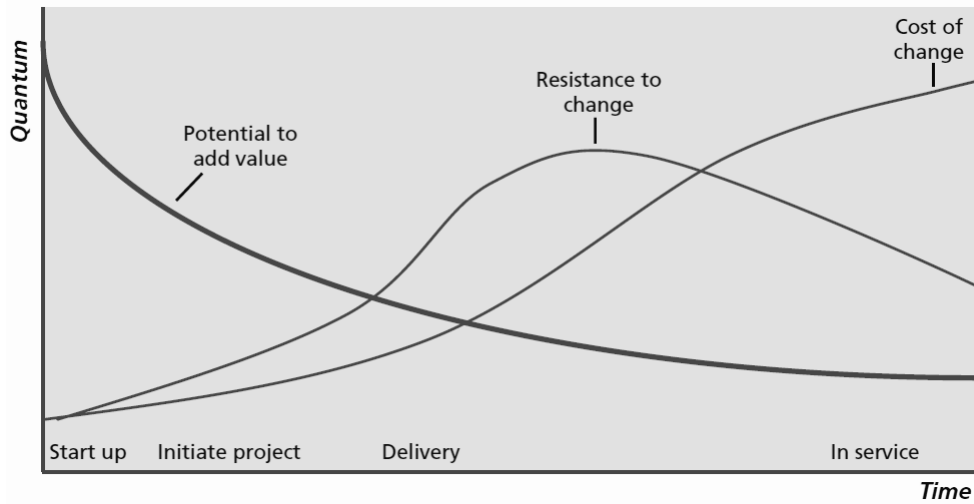


Figure 14: Usage of MoV through whole life of investment

MoV provides various tools and techniques to measure value of project portfolio, programmes and projects. Table 3 lists various tools and techniques that can be used for measuring benefits and cost variables to compute value ratio in various investment life stages from project portfolio, programme and project management perspectives.

Tool/technique	Outline of technique
Business process re-engineering	Business process re-engineering takes a ‘clean-slate’ approach to processes and redesigns them for greater effectiveness. Its strength and its weakness both lie in its single focus on process: interfaces with other factors need to be explored for this technique to allow costs to be reduced, or quality, service and speed to be increased without reducing the organization’s overall value.
Conjoint analysis	Offers customers choices of different combinations of features or service levels to compile preferences. <i>Useful in situations demanding a prediction of respondent choices, it is usually conducted on the basis of a questionnaire.</i>
Cost estimation	Methods of estimating capital and whole-life costs.
De Bono P/M/I	The ‘P/M/I’ in this technique stands for ‘Plus/Minus/Interesting’. Put each of these headings at the top of a column, then for each idea, put all the positive effects its implementation will have (the pluses), in the next the negatives (the minuses) and any other effects whose impact is uncertain in the third column.  <i>A technique to ensure that the idea being proposed is actually likely to lead to improvement.</i>



Delphi	<p>A method of getting groups of individuals to arrive at consensus without face-to-face discussion. A panel of contributors is asked for their opinions in a series of questionnaires by the study leader, but none of them knows the opinions of the others.</p> <p><i>Avoids groupthink (where dissent is suppressed by peer pressure), although this method can suffer from poor questioning or analysis. Can also be used to gain consensus from a set of disparate data.</i></p>
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Tool/technique	Outline of technique
	<i>but the consequence is potentially to overlook a major opportunity elsewhere.</i>
Kano quality model	An improvement philosophy showing continuous evolution of performance and quality, whereby yesterday's innovations become today's performance differentiators and tomorrow's essential attributes.
Lean principles and Lean Sigma	Lean methodologies have become very popular, owing to the inherent attractiveness of their focus on the customer. However, they do require total commitment from an organization, as they cannot be implemented effectively at a local level owing to the need to interface with other areas. This makes them high risk in comparison with MoV, although they deliver high reward if they pay off.
Net present value	The final output of a discounted cash flow analysis.
Pareto	<p>Method of selecting the areas of a subject with most potential for value enhancement. Often called the 80/20 rule, where 80% of the impact is made by the top 20% of ideas.</p> <p><i>Maximizes return on time where it is scarce. It has the drawback of sometimes operating on incomplete information, so sometimes missing significant opportunities.</i></p>
Peer review	<p>Process of seeking objective inputs or comments from similarly qualified individuals who are impartial to the subject or project under study.</p> <p><i>This can be an excellent method of gaining feedback on strengths and weaknesses for the subject under study, allowing for constructive challenge and recommended solutions to be made.</i></p>
Risk management	The systematic application of principles, approaches and processes to the tasks of identifying and assessing risks and then planning and implementing risk responses.

<p>SCAMPER</p>	<p>This is a mnemonic to aid idea generation:</p> <p><b>S</b>ubstitute  <b>C</b>ombine  <b>A</b>mend  <b>M</b>odify  <b>P</b>ut to other use  <b>E</b>xpand  <b>R</b>everse/reduce</p> <p><i>This can help with crossing the bridge from a creative thought to a practicable idea, or to expand the concept behind an idea. It also encourages different ways of expressing the same idea, which can provoke new ones</i></p>
<p>Scenario building</p>	<p>Analysing the relative effectiveness of value enhancement of various combinations of proposals according to a specified view of</p>
<p>SWOT analysis</p>	<p>SWOT stands for strengths, weaknesses, opportunities and threats. It is an aid to developing MoV plans.</p> <p><i>A commonplace tool to focus activities on areas with growth potential and minimize any shortcomings in an organization.</i></p>



Table 3: Tools and techniques for measuring variables of value ratio

The widely used financial elements to assess value of information systems are return on investment, payback period, total cost of ownership, economic value added real options.

**Information system benefits**

The benefits from information systems are tangible and intangible. The benefits can be assessed across strategic, tactical and operational levels. In general, the operational benefits are more quantifiable and tangible when compared to strategic benefits. The intangible benefits are normally in four perspectives – internal improvement, customer service, information and transformation.

Internal improvement or infrastructure investment is related to improvement in process, work flow and information accessibility. The customer service benefits are related to quality, delivery and support. The information benefits are related to the ability of processing data to predict future market, product demand and aid in making decisions related to acquisitions. The transformation benefits are related to the capability of enterprise to adapt changes in market from product, services and customer perspectives.

<sup>15</sup> Shang, S. & Seddon, S. (2000) A comprehensive framework for classifying the benefits of ERP systems. Proceedings of Americas Conference on Information Systems.

**Information systems investment analysis**

As the businesses and enabling information systems evolve the complexity of justifying, selecting and executing new information systems projects increases. The financial value of information systems was good to invest in information systems during the upward trend of world economies. The capital abundance and focus on expansion, efficiency and innovation led to deployment of sophisticated systems. But as the economic trends indicate downward trends, enterprises realized the need to go beyond traditional financial valuation measures like return on investment (ROI), internal rate of return (IRR), payback period, and economic value added. The tradition financial valuation methods allowed to quantify hard benefits like cost savings and increased revenue. But the quantification of intangible benefits (like customer satisfaction, time to market, and employee motivation) and risks associated with information systems deployment was a challenge.

For example: Cost–benefit analysis of an enterprise that implemented enterprise system is illustrated below with tangibles and intangible benefits. (NPV( Rs. millions)/IRR)

Productivity	Inventory	IT operations	User satisfaction	Implementation cost	Total	IRR
18.8	49.1	23.4	228.7	(73.4)	228.9	124%

\*Tax factors are included in these figures

Changing economic conditions, scarcity of capital and business demand for information systems require measuring the impact of information systems on business value along with costs, benefits and risks with uncertainty. As a result enterprises are organizing information technology projects as a portfolio (provides options to spread risks), managing outcomes through programmes and delivering expected results with effective project management.

Going beyond the measuring business value of information technology from traditional financial perspective, four important methodologies evolved:

1. Business Value Index (BVI)
2. Total Economic Impact (TEI)
3. Val IT
4. Applied Information Economics (AIE)

**BVI:** It is the simplest of the methods. Enterprises that have not yet applied any value methodologies might start with BVI. It is more qualitative in nature but well documented to assess benefits and risks along with standard financial measures.

**TEI:** It is more rigorous in quantifying intangible benefits, risks and the value of flexibility or future capability that results from IT investments. Enterprises that are making large investments in IT (typically risk averse) might use TEI.

**Val IT:** Enterprises that implemented governance framework (COBIT, ITIL) might benefit from Val IT. It is relatively new and yet to be adopted by many enterprises. It is more quantitative.

**AIE:** With mathematical, statistical and economic foundations, AIE provides investment decision makers with high degree of confidence in results. Enterprises that require more quantitative rigor might adopt this method. It requires steep learning curve and expertise.

## 6.8 SELF-ASSESSMENT QUESTIONS

1. Write a brief note on four environments in information systems deployment.
2. How IBM's deployment mill model provides a methodology to derive ROI? Discuss.
3. IT service operations play an important role in deriving value from information systems. Discuss.
4. Why enterprises are increasingly adopting "Services" model for IT organizations (departments)? Discuss the ITIL framework.
5. P3O improve accountability and ownership among key stakeholders of information systems. Discuss.
6. What are various risks associated with project phases?
7. Define "Value" from information systems context. Discuss about any three tools / techniques used to identify and quantify variables for computing value.

