1.Managing Application Development Portfolio and Project Review & Selection

Application is a compilation of computer programs and data that work mutually as a system to execute one or more business functions. It is sometimes known as "application system" or "system.

Application portfolio is a collection for a specified customer, of the high-level and thorough information essential for IT and the consumer to build up an investment strategy across the customers' applications (i.e. build up particular improvement or investment tactics for every application where enhancement or investment are valued).

1.1. Managing the Application Development Portfolio

In today's Information Technology (IT) world, how many organizations have a formal procedure for evaluating already organized applications, their influence on the business, and ITs ability to deliver?

Each IT organization should have Application approaches that provide value, where:

$$Value = \frac{Benefits}{Cost}$$

Costs can be reduced by:

1. Dropping or eliminating low value work,
2. Decreasing cycle time.
3. Diminishing defects.

Advantages can be maximized if we function on the right things, provide excellence applications, and are receptive to altering business requirements.

Here we focus on a technique known as *Application Portfolio Management* (***APM***).

Managing *application development portfolio* is used to make sure you are functioning on the correct things. Similar to your stock investment portfolio, applications require to be handled.

Some *applications* may require to be *retired* (**sell**), some may demand *new investment* (**buy**), whereas others should be simply *preserved* (**hold**).

By means of APM, one company was able to decrease their preservation/enhancement workload by 25% by *removing low value work*. In an additional case, an IT executive exposed that an application he considered had been very productively deployed, was no longer being utilized by its customers as it failed to provide value to its consumers.

Application Portfolio Management is the procedure consumers and IT utilize to maintain the portfolio data current and to formulate investment conclusions.

There are three different measures utilized to *evaluate* each application are:

- ***Technical Quality* –** The application is assessed against factors like maintainability, constancy, and effectual utilization of technology. This assessment is executed in facilitated meetings with the staff that assists applications.
- ***Functional Quality* –**This is a concern of how well the application fulfills the requirements of the business. Factors comprise system usefulness, user-friendliness, reliability, and receptiveness to variations to the business. This concern is determined in a facilitated review with the operational consumers of the system and supervisors/executives who access the system for administration or strategic decision-making.
- ***Strategic Value* –** This computes the relative significance of a business function to the company and how vital the application is in executing that function. The ratings (High, Medium, or Low) are allocated by company executives. A High specifies that the function and application provide the company a competitive advantage. A Low implies that the application is not vital to the business.

1.2.Benefits

Following are advantages to be gained by means of an **application portfolio management process**:

1. It assures that investments in IT applications are conducted in regions that offer the most value to the company.
2. It allows IT and its user community to interrelate and to together make decisions concerning applications and investments.
3. Highlights regions where the company can save money.
4. It assists the business unit and IT recognize and focuses on applications that are high risk to the company.
5. It builds a complete inventory of all applications.
6. It offers the IT user community the capability to observe their whole application portfolio and each application’s comparative value to the industry.

1.3. Information System Planning

Information system planning (ISP) is defined as a *process for producing a strategy and plans for arranging information systems with the business approaches of an organization.*

Formal planning techniques have been produced to support *supervisors* and *managers* in producing information systems that assistance in achieving an organization's corporate assignment.

Three broadly used strategies to planning information systems are:

- Business Systems Planning (BSP) method.

  The BSP approach, which is considered as the most broadly used planning methods, focuses on recognition of the data essential to run an organization.
- Nolan, Norton & Co.'s computer architecture strategic planning method.

  It associates an organization's present potentials with its future requirements. This method highlights development of a strong technical infrastructure, or basis, to support the applications.
- The critical success factors method.

  Critical success factors method asks for identifying areas that are key to an organization's endurance and to make sure that these elements are included into the organization's information systems.

An organization's corporate work should be reflected all through the grounding and assessment of its information system project requests. Information systems planning needs a vision-a view of the impact that information systems have on an organization's long-term corporate success, tactically and operationally. Having a vision is necessary, but it must also be conversed if the organization's personnel and other resources are to be productively mobilized to put up and preserve a viable information systems plan.

ISP fundamentally involves:

- Identification of the stage of IS in the organization.
- Identification of the applications of organizational ISs.
- Assessment of each of these applications, depending on established evaluation criteria.
- Establishing a main concern ranking for these application.
- Identifying the 'optimum' architecture of IS for serving the top precedence applications.

1.4. Enterprise Management — Building Intelligence into Information Systems

Enterprise Applications (enterprise resource planning, supply chain, customer relationship management, and the like), coupled with business process redesign, are a part of the IT and corporate firmament worldwide. Enterprise Applications are not used just to computerize ways of doing business, but as drivers of the change business corporations must undergo to compete successfully in the information age.

New versions of Enterprise Applications do not limit transformation to individual business corporations. Equipped with powerful adjunct capabilities such as Composite Applications and Service-Oriented Architecture (SOA), they are making wholesale changes to the entire supply chain: suppliers, suppliers' suppliers, customers and customers' customers. The complexities of implementing these packages and the consequent obsession with data management have led many to believe, incorrectly, that there is no life after Enterprise Applications deployment.

While the power of Enterprise Applications is awesome, it falls short of supporting the most vital tasks of management. Sooner than later, business corporations will migrate from mere data management to sophisticated knowledge management efforts. Such efforts will result in a set of powerful information systems called Enterprise Management Systems (EMS) that will be a legitimate sequel to Enterprise Applications.

1.5. Task of Management

Many management thinkers, including Peter Drucker, have presented diverse models to describe the task of management. But none argues the case more cogently than the Shewhart Cycle, known better to the world as the Deming Cycle. The Deming Cycle was originally proposed by Walter Shewhart and popularized in Japan by Edwards Deming after which it came to be known as the Deming Cycle. The Deming Cycle, sums up the task of management as a closed loop activity system. The four principal steps in the Deming Cycle are:

- **Plan**: Define the destination you are seeking for.
- **Do**: Carry out the plan of action. The plan is implemented in one or more business processes.
- **Check**: Using appropriate measurement systems determine if the destination was reached. If you did, go back to generating fresh plans, otherwise, move to the next step, *Act*.
- **Act**: As in the Plan step, except for being informed by the results from the Check step, generate alternatives to close the gap between the current state and the destination. Migrate to the Plan step to add plans for new initiatives.

The endless repetition of this P-D-C-A cycle constitutes the task of managing and running the business enterprise.

1.6. Role of Enterprise Applications

The domain of Enterprise Applications is primarily the '**Do'** and '**Check'** steps. For the greater part, ERP implementation has been an "equalizing" effort rather than a "differentiating" effort. A handful of discerning enterprises have used the strength of ERP with the power of Business Process Redesign to develop signature processes that lead to a distinct competitive advantage.

Business Intelligence extensions to Enterprise Applications, performance measurement systems and their

ilk assist management with the ‘Check’ step.

Retrospective Analytics work more at the ‘Check’ step than at the ‘Plan’ or ‘Act’ steps to provide discernible patterns that might account for the gap between actual results and the goals evolved during the Plan step. The emergence of Predictive Analytics is providing the first glimmer of substantive assistance to managers, both at the Plan and Check levels. Yet Predictive Analytics is incapable of using expert rules and heuristic reasoning.

Today’s Enterprise Applications concentrate on the **Do** and **Check** steps and offer scanty support for the **Plan** and **Act** steps. However, the proposition of **Enterprise Management Systems** (EMS) will permit the installation of a powerful, revitalized Deming Cycle.

1.7. Enterprise Management Systems

Enterprise Management Systems (EMS) are intelligent information systems that embed specialist components to support the ‘Plan’ and ‘Act’ steps. An EMS consists of three principal components:

Enterprise Applications (Transactions) that contain data relating to the thousands of transactions by which an enterprise conducts its business.

Enterprise Applications (Business Intelligence) that incorporate the power of both Retrospective Analytics and Predictive Analytics that reveal patterns, both past and prospective, contained in the transaction layer.

Enterprise Planning Systems (EPS) that contain the knowledge base and the inference mechanisms which act upon both transactions and patterns to generate alternatives for the ‘Plan’ and ‘Act’ steps.

EMS help management teams continuously evolve plans at the various levels of management, such as corporate, strategic business unit, and business process. They support the P-D-C-A fractal evolution and make IT-enabled management a closed loop.

The process of generating ‘Plan’ and ‘Act’ steps has to be understood from a computational and reasoning perspective. Computational sciences, in general, and Artificial Intelligence

(AI), in particular, have dealt with planning as state transition. The Plan and Act steps deal with the transition from the current state to a desired state.

For example, in the new product development process, the current state of the process could be a cycle time of 130 days. The desired state could be a cycle time of 80 days. The Plan step, using the knowledge repository and inference mechanisms of EPS, would generate alternatives for transitioning from the current state (cycle time of 130 days) to the desired state (cycle time of 80 days).

These alternatives are implemented in the form of business transactions by Enterprise Applications (in this case, perhaps a PLM application). The Check step determines whether the desired state (actual cycle time of 80 days) was achieved. If not, the Act step, enabled by appropriate EPS components, generates a set of

alternatives to close the gap. At the heart of EPS would be knowledge representation schemes, inference mechanisms, search strategies and heuristic reasoning mechanisms.

The need for EMS is now being filled by manual, cumbersome and unreliable methods. Most often the success of reasoning is dependent on a few experts and intuition. Some smart companies have written bespoke applications that perform the function of EMS, but are finding such applications incredibly difficult to maintain and grow.

The EMS architecture and EPS in specific will draw significantly on techniques of AI and computational sciences. There has been some disappointment in the industry with the use of these techniques in the not-too-distant past. With Enterprise Applications acting as a solid bedrock of data, elegant user interfaces, and the dramatic reduction in the cost of computing with an equally dramatic rise in computing power, there is a strong case for revisiting extant assumptions and feelings about intelligent search and planning techniques.

1.8. Knowledge Management

Clearly data management now is a victim of the law of diminishing returns. New incremental investments in data management are returning less and less. The competitive differentiation offered to early adopters of Enterprise Applications has been all but eliminated. True competitive advantage consists in the intelligent management of a corporation's specific problem-solving knowledge that gives it an edge. The manufacturing efficiencies of Dell, the management of cost per seat-mile of Southwest and Wal-Mart's supply chain management knowledge, empowered by technology, give them their competitive advantage — not run-of-the-mill Enterprise Applications.

Knowledge Management, which is the orderly encapsulation, perpetuation and deployment of such critical knowledge, is vital to foster a firm's competitiveness. Enterprise Management Systems (EMS) provide a management and technology framework for superior Knowledge Management.