UNIT 6: IMPLEMENTATION OF INFORMATION SYSTEMS

6.1. Change Management

Change management is an approach to transitioning individuals, teams, and organizations to a desired future state. In a project management context, change management may refer to the change control process wherein changes to the scope of a project are formally introduced and approved. It is important to note what change management is and what change management is not, as defined by the majority of research participants.

- Change management is not a stand-alone process for designing a business solution.
- Change management is the processes, tools and techniques for managing the people-side of change.
- Change management is not a process improvement method.
- Change management is a method for reducing and managing resistance to change when implementing process, technology or organizational change.
- Change management is not a stand-alone technique for improving organizational performance.
- Change management is a necessary component for any organizational performance improvement process to succeed, including programs like: Six Sigma, Business Process Reengineering, Total Quality Management, Organizational Development, Restructuring and continuous process improvement.
- Change management is how we drive the adoption and usage we need to realize business results.

Change Management Models

It consists of eight stages:

1. Establish a Sense of Urgency
2. Create the Guiding Coalition
3. Develop a Vision and Strategy
4. Communicate the Change Vision
5. Empower Employees for Broad-Based Action
6. Generate Short-Term Wins
7. Consolidate Gains and Produce More Change
8. Anchor New Approaches in the Culture

Change Management Foundation and Model

The Change Management Foundation is shaped like a pyramid with project management managing technical aspects and people implementing change at the base and leadership setting the direction at the top. The Change Management Model consists of four stages:

1. Determine Need for Change
2. Prepare & Plan for Change
3. Implement the Change
4. Sustain the Change

Change management process

The change management process is the sequence of steps or activities that a change management team or project leader would follow to apply change management to a project or change. Change management process that contains the following three phases:

Phase 1 - Preparing for change (Preparation, assessment and strategy development)
Phase 2 - Managing change (Detailed planning and change management implementation)
Phase 3 - Reinforcing change™ (Data gathering, corrective action and recognition)

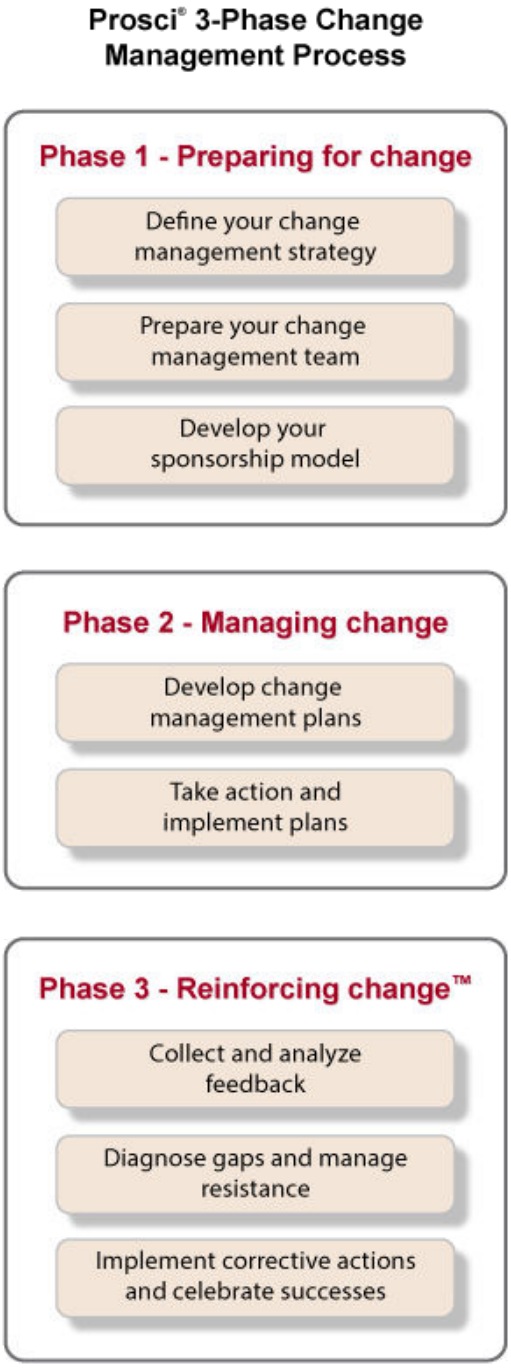

Figure: 3-Phase Change Management Process

6.2. Critical Success Factors (CSF)

Critical Success Factors (CSF's) are the critical factors or activities required for ensuring the success your business. The term was initially used in the world of data analysis, and business analysis. Most smaller and more pragmatic businesses can still use CSF's but we need to take a different, more pragmatic approach.

Critical Success Factors have been used significantly to present or identify a few key factors that organizations should focus on to be successful. As a definition, critical success factors refer to "the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department, or organization".

Critical success factor (**CSF**) is a management term for an element that is necessary for an organization or project to achieve its mission. It is a critical factor or activity required for ensuring the success of a company or an organization. The term was initially used in the world of data analysis and business analysis. For example, a CSF for a successful Information Technology (IT) project is user involvement.

"Critical success factors are those few things that must go well to ensure success for a manager or an organization, and, therefore, they represent those managerial or enterprise area, that must be given special and continual attention to bring about high performance. CSFs include issues vital to an organization's current operating activities and to its future success."

How are CSFs important to your business?

Identifying CSF's is important as it allows firms to focus their efforts on building their capabilities to meet the CSF's, or even allow firms to decide if they have the capability to build the requirements necessary to meet **Critical Success Factors**.

Types of Critical Success Factor

There are four basic types of CSF's, they are:

1. **Industry CSF's** resulting from specific industry characteristics;
2. **Strategy CSF's** resulting from the chosen competitive strategy of the business;
3. **Environmental CSF's** resulting from economic or technological changes; and
4. **Temporal CSF's** resulting from internal organizational needs and changes.

Five key sources of Critical Success Factors

Five key sources of CSF's:

1. The industry,
2. Competitive strategy and industry position,
3. Environmental factors,
4. Temporal factors, and
5. Managerial position

6.3 Advanced Balanced Scorecard

6.3.1 Introduction

Advanced balanced scorecard can be defined by using the following component includes:

- Basic concepts of the Balanced Scorecard and how it can be used to improve your organization's performance
- How the Balanced Scorecard applies to different types of organizations
- How to build and implement a Balanced Scorecard using the Institute's award-winning nine-step methodology
- How to develop meaningful performance measures and targets
- How a scorecard system can drive your performance-informed budget and accountability
- How to get performance information throughout the organization to better informed decision making through scorecard automation
- How to cascade the scorecard to all levels of an organization
- How to design and implement a scorecard where other frameworks have already been introduced
- How to revise poorly designed scorecard elements
- How to overcome obstacles and real world challenges
- How to evaluate planning documents and processes

IT scorecards and found that the most advanced scorecards shared the following six structural attributes:

1. **Simplicity of presentation.**

The very best scorecards are limited to a single page of from 10 to 20 metrics written in nontechnical language.

2. **Explicit links to IT strategy.**

The scorecard should be tightly coupled to the IT strategic planning process and assist in tracking progress against IT's key goals and objectives.

3. **Broad executive commitment.**

Both senior IT as well as senior business managers should be involved in the scorecard process — both creation and ongoing.

4. **Enterprise-standard metrics definitions.**

Consensus should be quickly achieved on metrics definitions. The review meetings should focus on decisions rather than debate over metrics.

5. **Drill-down capability and available context.**

The high-level IT scorecard should allow for detailed review of trends or variance by providing more granularities on component elements.

6. **Individual manager compensation** should be linked to scorecard performance.

6.3.2 Advanced strategic foundations development

Origin and subsequent strategic foundation development of the Balanced Scorecard can be explained by using following points:

1. Balanced Scorecard for Performance Measurement
2. Strategic Objectives and Strategy Maps
3. The Strategy Management System
4. Future Opportunities

To fully understand the interaction between the four key disciplines, or perspectives and the reliance on the contribution of each to the overall success of the whole, it is helpful to explain the breadth of each perspective:

- **Financial Perspective:** This perspective includes the measurement of operating income, return on capital, and economic value added. Nonprofit organizations, just as for profit companies, must have a solid understanding of their financial situation.
- **Customer Perspective:** This perspective is about the donor, volunteer or clientele (users of services) experience, which is found by measuring satisfaction and retention as well as assessing the nonprofit's market share in its niche. Every nonprofit should measure the attitude of its strongest and most loyal supporters to gain the most for the organization.
- **Business Process Perspective:** This perspective involves measuring the cost, throughput and quality of the nonprofit's key operational processes – such as programs provided, services offered, and ability to address targeted audience needs. This internal focus gives leaders a thorough understanding of how well the nonprofit is running and can help them determine which programs and services are meeting the real needs of the community. Often times, nonprofits "assume" a long standing service is valuable when, in fact, it may no longer be addressing the needs of the users as effectively as when it was originally launched.

Getting the right performance information to the right people in the organization at the right time will greatly increase the ability of the group to reach or even exceed its goals. This can be done by:

- **Clarifying strategies:** This means translating the objectives of the nonprofit into quantifiable measures. Vague, feel-good aspirations are eliminated and the objectives are defined in a manner that everyone can understand and will work to achieve.
- **Communicating strategic objectives:** This means translating high level objectives into practical operational objectives. Leadership must communicate throughout the nonprofit exactly how these objectives will be accomplished.
- **Planning strategies:** This means setting achievable goals for every initiative within the organization and selecting stretch goals as well. This concept is integral to the success of the BSC because if tasks are not accomplished, objectives and goals will not be met.
- **Feedback and learning strategies:** This means establishing a process for continued feedback so that learning takes place at all levels and the insights gained through the Balanced Scorecard reports can permeate and define the organization.
- Translating the vision
- Linking strategic
- Business planning

6.3.3 Advanced objective and strategy map development

Strategic Objectives

Many companies, however, already had extensive measurements from their existing quality and performance improvement programs and wanted to create a quick Balanced Scorecard by classifying each of their existing metrics into one of the four BSC perspectives. While having a structure for reporting their nonfinancial metrics was better than having no nonfinancial metrics or simply a long list of them, this bottoms-up process of classifying existing measurements was unlikely to capture the most important drivers of future success.

The value proposition, the unique combination of price, quality, availability, ease and speed of purchase, functionality, relationship and service, was the heart of the strategy, what differentiated the company from its competitors or what it intended to do better than they for the targeted customers. Thus companies following a low cost strategy would offer low prices, defect free products and speedy purchase. Product innovating companies offered products and services whose performance exceeded that of competitors along dimensions that targeted customers valued.

Objectives in the process perspective reflected how the company would create and deliver the differentiated value proposition and meet the financial objectives for productivity improvements. Objectives in the learning and growth perspectives described the goals for employees, information systems, and organizational alignment. Over the years, we learned new ways to write strategic objectives. Many companies now write their strategic objectives in quotes to reflect the voice of their customers and employees. For example, one medium-sized community bank that was shifting from its traditional product push strategy to one that emphasized developing complete financial solutions for its targeted customers expressed its customer objectives as:

1. “Understand me and give me the right information and advice”
2. “Give me convenient access to the right products”
3. “Appreciate me and get things done easily, quickly, and right”

Each of these customer objectives, once identified, could be easily measured, such as by the following list:

1. Number of customers profiled
2. Number of customers with financial plans
3. Number of targeted customer using on-line channel for transactions
4. Customer survey responses on questions related to appreciation and ease of working with the bank. Similarly, the learning and growth objectives, written in the voice of employees, included:

“We hire, develop, retain, and reward great people”

“We are trained in the skills we need to succeed.”

“We understand the strategy and know what we need to do to implement it”

“We have the information and tools we need to do our job.”

Strategy Maps development

It soon became natural to describe the causal relationships between strategic objectives. For example, a simple causal chain of strategic objectives would be: employees better trained in quality management tools reduce process cycle times and process defects; the improved processes lead to shorter customer lead times, improved on-time delivery, and fewer defects experienced by customers; the quality improvements experienced by customers lead to higher satisfaction, retention, and spending, which drives, ultimately, higher revenues and margins. All the objectives are linked in cause-and-effect relationships, starting with employees, continuing through processes and customers, and culminating in higher financial performance.

The idea of causal linkages among Balanced Scorecard objectives and measures led to the creation of a strategy map. Today, all BSC projects build a strategy map of strategic objectives first and only afterwards select metrics for each objective.

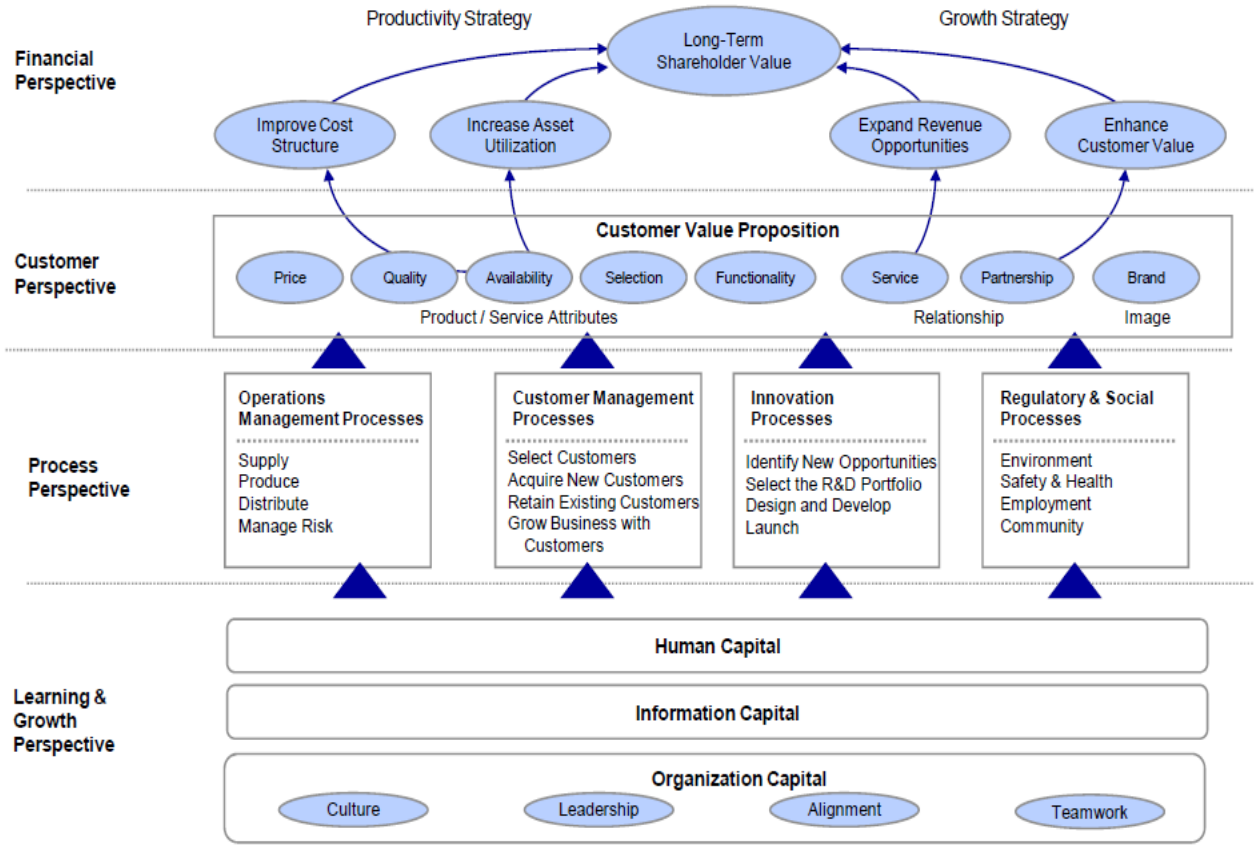

Figure: The strategy map links intangible assets and critical processes to the value proposition and customer and financial outcomes

6.3.4 Advanced Balanced Scorecard for Performance Measurement

Below figure shows the original structure for the Balanced Scorecard (BSC). The BSC retains financial metrics as the ultimate outcome measures for company success, but supplements these with metrics from three additional perspectives – customer, internal process, and learning and growth – that we proposed as the drivers for creating long-term shareholder value.

The Balanced Scorecard, of course, was not original for advocating that nonfinancial measures be used to motivate, measure, and evaluate company performance. The project team recommended that divisional performance be measured by one financial and seven nonfinancial metrics.

1. Profitability (measured by residual income)
2. Market share
3. Productivity
4. Product leadership
5. Public responsibility (legal and ethical behavior, and responsibility to stakeholders including shareholders, vendors, dealers, distributors, and communities)
6. Personnel development
7. Employee attitudes
8. Balance between short-range and long-range objectives

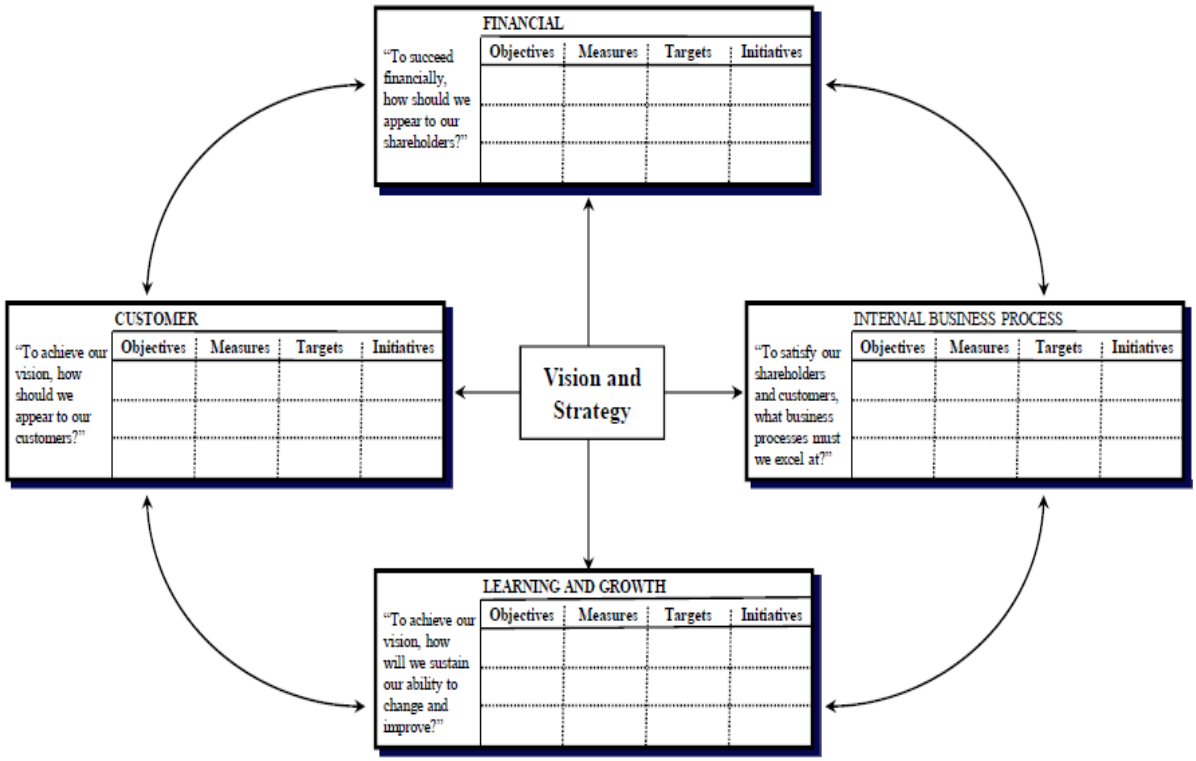

Fig: Original Structure of Balanced Scorecard for Performance management

One can see the roots of the Balanced Scorecard in these eight objectives. The financial perspective is represented by the first metric, the customer perspective with the second, the process perspective with metrics 3 -5, and the learning and growth perspective with metrics 6 and 7. The 8th metric captures the essence of the Balance Scorecard, encouraging managers to achieve a proper balance between short and long-range objectives.

Unfortunately, the noble goals of the 1950s corporate project never got ingrained into the management system and incentive structure of line business units. In fact, despite metrics 5 and 8 in the above list, several units were subsequently convicted of price-fixing schemes, with their managers claiming that corporate pressure for short-term profits led them to compromise long-term objectives and their public responsibilities.

Scorecard questions: "Am I doing well or badly?"

Attention-directing questions: "What problems should I look into?"

Problem-solving questions: "Of the several ways of doing the job, which is the best?

6.3.5 Implementation and visualization

A scorecard can be seen as a model representing business strategy, where the columns represent different levels of abstraction of the strategy. A scorecard view can be visualized and implementation in a few different ways.

1. **Nodes**

   If the foundation of "EMS" is the scorecard, the nodes can be seen as its content. The term node is a generalization of an object of any type within the scorecard tree structure. Each node has a name, which is its main distinguisher, and in most cases a set of properties to display in a view. It has a person, or a set of persons, who is responsible for it, and can contain some metadata fields such as description, as well as other keywords used to distinguish it from other nodes. All these fields and descriptors can be dynamically set up per scorecard column, and differ among different implementations of the system.

2. **Text nodes**

   This is the simplest type of node, and contains the information recently mentioned only, with no extra features. This is common to use for the more general strategy, to the left in the scorecard. As it cannot keep any information about current performance, it is often used to represent columns such as perspective, comprehensive target, success factors, etc.

3. **Key Performance Indicators**

   Key Performance Indicators, or KPIs, are the measures of the system. This is what the performance monitoring of the organization is based on. It contains all the properties earlier mentioned about nodes in general, but have some extra mathematical features. These measures are configurable regarding formulas and variables, but a common implementation of a measure is to have one result field and one target field for data input.

4. **Activities**

   The last type of node is the activity, which represents a concrete action or task that has to be performed in order to fulfill the goal it is linked to. When a goal has been more and more concretized, eventually the level of abstraction is going to take the form of a doable action. This is what the activities represent. An activity can have, on top of the basic node properties mentioned above, a status telling if the activity has started, ended, is paused, is delayed, or is currently ongoing.

5. **Node colors**

   Key Performance Indicators and activities in "EMS" are the two node types that contain information regarding the current level of performance. In order to enhance perception of these nodes in the scorecard, the performance level can be (and is in most implementations) rendered as a color that is attached to the node.

6. Periodicity

As data and measures change over time, ”EMS” needs to support that as well. The value of a specific measurement has a certain value at one point in time, but that value is subject to change as time elapses. Historical data values are very useful, in some cases even required, to make the data meaningful.

7. Dimensionality

“EMS” is a multi-dimensional application in the sense that its variables are shifting in different dimensions. The above mentioned periodicity is one of these variables, department, organization, and planning version are others. Entities in “EMS” are changing over (and are in some cases unique for) these variables. The state and value of an object and its attributes are influenced by these dimensions, and can be different for each unique combination of those.

6.3.6 Strategic initiative prioritization and Management

Scorecards have several types of management control systems that managers use to motivate, monitor, and manage their strategies. The control systems included belief systems (mission, vision and values), boundary systems, internal control systems, diagnostic systems, and interactive systems. The development of the strategy management system transformed the Balanced Scorecard from being an extended diagnostic system to an interactive system have the following characteristics:

1. Information generated by the system is an important and recurring agenda addressed by the highest levels of management

2. The interactive control system demands frequent and regular attention from operating managers at all levels of the organization.

3. Data generated by the system are interpreted and discussed in face-to-face meetings of superiors, subordinates, and peers.

4. The system is a catalyst for the continual challenge and debated of underlying data, assumptions, and actions plans.

Our development of the strategy map and Balanced Scorecard turned out, serendipitously, to offer managers the framework for a generic interactive system. Managers could now design a customized interactive system based on their strategy, and, following Brady’s insight, use the strategy map and scorecard as the cornerstone of their management system for executing the strategy. But their natural leadership style was to operate their scorecard system to question, probe, many academics, consultants, and managers, however, continue to think erroneously of the scorecard as a performance measurement system only. The knowledge and acquaintance with the scorecard is probably based only on reading the original Balanced Scorecard. Key Points for prioritization and management are as below:

1. Mobilize change through executive leadership

2. Translate the strategy

3. Align the organization to the strategy

4. Motivate employees to make strategy their everyday job

5. Govern to make strategy a continual process

Following are the management of organization component using the balanced scorecard:

- Intangible Assets – Share a competency around the development of human, information and organization capital.
- Strategic Themes – Provide leadership in complex organizations through the management of strategic themes.
- Internal Capital Management – Create synergy through effective management of internal capital & labor markets.
- Corporate Brand – Integrate a diverse set of businesses around a single brand, promoting common values or themes.
- Cross-Selling – Create value by cross-selling a broad range of products/services from several business units.
- Common Value Proposition – Create a consistent buying experience, conforming to corporate standards at multiple outlets.
- Shared Services – Create economies of scale by sharing the systems, facilities and personnel in critical support processes.
- Value Chain Integration – Create value by integrating contiguous processes in the industry value chain.

Management system that links strategic planning with operational execution as:

1. Develop the strategy
2. Translate the strategy
3. Align the organization
4. Plan operations
5. Monitor and learn
6. Test and adapt the strategy

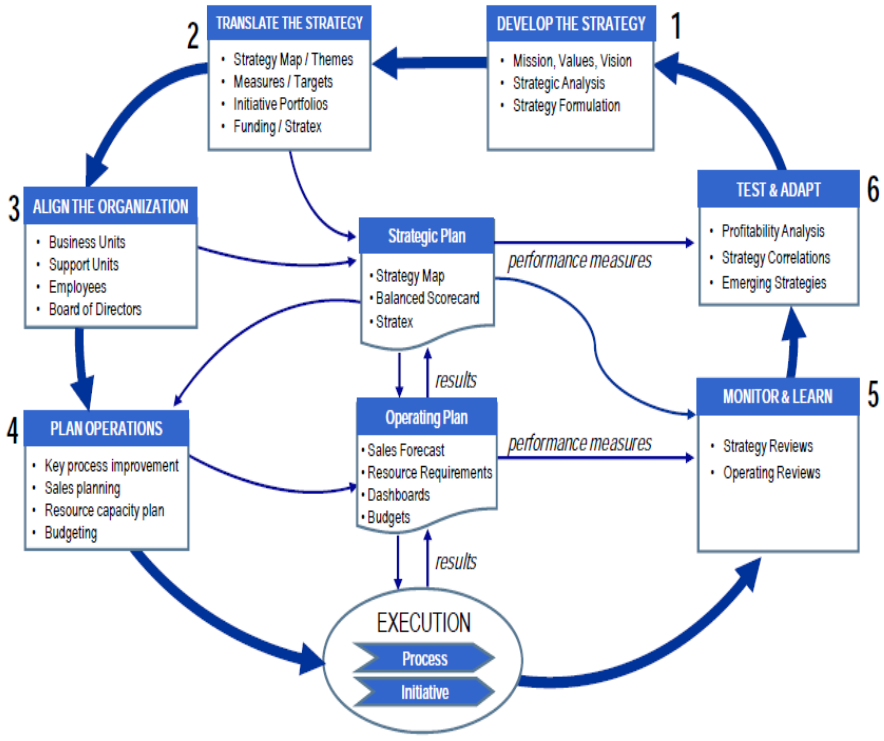

Fig: Initiative prioritization, management and execution of balanced scorecard

6.3.7 Advanced scorecard alignment and cascading

There are three broad approaches to alignment and cascading are as below:

1. **The Shared framework:** When an organization consists of several operating units that operate with some autonomy, and leadership needs to track the individual performance of the units, they can use the Shared Framework approach and mandate that each must use the same enterprise measures to track and report on their performance.
2. **The Contributory framework:** The Contributory Framework is best for situations where each department executes only a portion of the overall organizational strategy not necessarily common activities— requiring them to report unique measures to leadership.

   For this type of scenario, where unique departments like Human Resources almost entirely control hiring time, finance almost completely controls days from invoice to payment, and Facilities almost exclusively controls the number of times a bathroom is cleaned daily, should all have separate pieces of the larger organizational objectives and measures.
3. **The Hybrid framework:** In the Hybrid Framework, leadership mandates the use of some enterprise measures (maybe 50% of the top level scorecard) but then allows each unit/department to adopt additional measures that apply to their unique service or location. This is a blend or "hybrid" of the Shared Framework and Contributory Framework approaches; with some shared responsibility but also flexibility to measure and act on those unique aspects at each location.

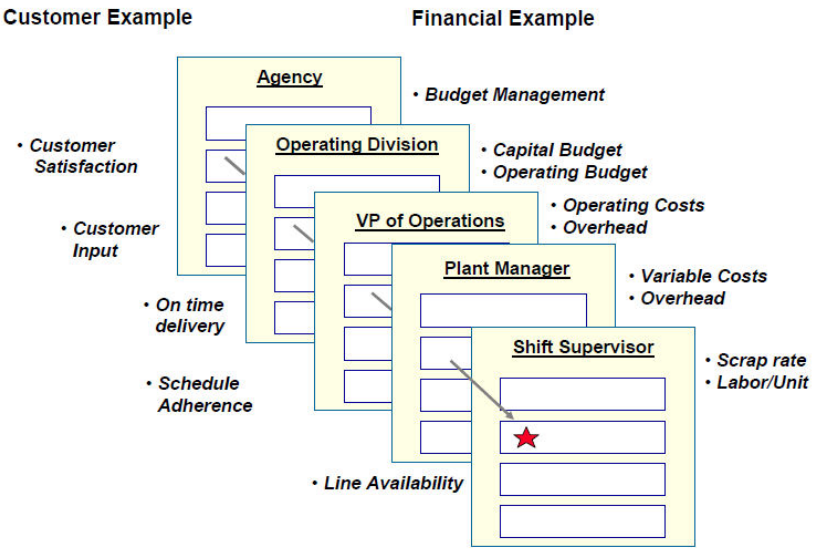

Fig: Scorecard alignment

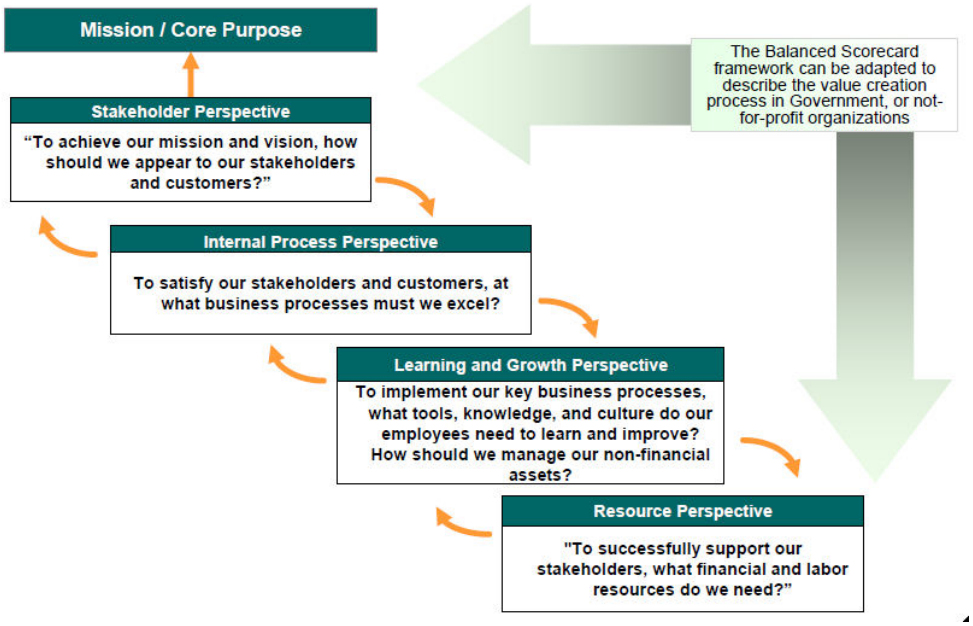

Fig: Scorecard cascading

6.3.8 Dashboard

In information technology, a dashboard is a user interface that, somewhat resembling an automobile's dashboard, organizes and presents information in a way that is easy to read. To some extent, most graphical user interfaces (GUI) resemble a dashboard. However, some product developers consciously employ this metaphor (and sometimes the term) so that the user instantly recognizes the similarity.

In information systems, a dashboard is "an easy to read, often single page, real-time user interface, showing a graphical presentation of the current status and historical trends of an organization's or computer appliances key performance indicators to enable instantaneous and informed decisions to be made at a glance.

In real-world terms, "dashboard" is another name for "progress report" or "report." Often, the "dashboard" is displayed on a web page that is linked to a database which allows the report to be constantly updated.

Benefits of using digital dashboards in advanced balanced scorecard include:

- Visual presentation of performance measures
- Ability to identify and correct negative trends
- Measure efficiencies/inefficiencies
- Ability to generate detailed reports showing new trends
- Ability to make more informed decisions based on collected business intelligence
- Align strategies and organizational goals
- Saves time compared to running multiple reports
- Gain total visibility of all systems instantly
- Quick identification of data outliers and correlations