

Role of Information Systems and Information Technology In Strategic Management Process

Karanam Ramesh Babu

DBA Student - American Business Management & Technology College, Zug, Switzerland

-----ABSTRACT-----

Information Systems and its related technologies have been highly impactful on the growth of all organizations. There is no business activity that is totally independent of Information systems and Information Technology. Initially their role was considered as an enabler. But with advent of time and emergence of new technologies, their role was elevated from an enabler role to an effective decision-making tool and then to a role which can provide competitive advantage to organizations. Strategic Management is a key area of decision-making process. The environment in which organizations operate have been under unprecedented pressures because of dynamic forces and stiff competition. In this scenario, Information technology has a major role to play to detect the changes of environment factors and to analyze large amounts of data, simulate different scenario, assess and aid organizations to formulate and execute strategies. With the advent of new technologies like Artificial Intelligence, its role is further refined to an extent where technology can arrive at strategic decisions independently. This paper discusses Strategic Management process, Evolution of IT's role in Organizations, role of IT in Strategic Management and future role of IT in Strategic Management.

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I. INTRODUCTION

Organizations are under tremendous pressure to execute strategies to succeed. The business environment in which they operate has become highly complex and dynamic. Organizations are left with no choice but to adapt to the situation by way of crafting new strategies and modifying the existing strategies. They are required to launch a large-scale transformation program to execute these strategies.

In the 2018 state of leadership development research report by Harvard Business Publishing, it is stated that 54% of organizations are in middle of a transformation and 32% of the organizations have completed transformation in the past three years. All these transformations are because of strategy shifts taken by organizations on top priority.

To succeed in this unprecedented scenario, a shared vision, ownership of the strategic objectives down to the individual level and communication of goals, initiatives and metrics must be ensured seamlessly. No better tools other than Information Systems (IS) and Information technology (IT) can handle this critical role. For simplicity, the word IT is used to mean both IS and IT, hereafter in this document.

II. RESEARCH METHODS

The method used is based on the analysis of literature review of published articles. The articles used are those that discussed on the influence IT on Strategic Management, the role of Business Analytics on Strategic Management and emerging technologies on Strategic Management.

III. PRESENTATION OF RESULTS

As IT is ever evolving and emblematic of innovative disruption, the futuristic role of IT in relation to designing strategy is also discussed.

3.1 Strategic Management:

There are different definitions of a strategy and Michael E Porter describes it as obtaining a competitive position or series of positions by a company that will ensure a superior or sustainable financial performance. Business environment in which an organization operates has a huge impact. The business environment can be divided into Internal and External environments.

Analysis of Internal Environment:

The aim of internal analysis is to know the strength and weaknesses of the organization. This will provide an organization some advantages and disadvantages to have a competitive edge in the market. The internal factors that will be analyzed are:

- Resources

- Capabilities and
- Competencies

The strengths identified in the above areas will give the organization the means to achieve a competitive advantage. Any weaknesses identified in internal factors need management focus to acquire the resources or improve capabilities and competencies. A decision to outsource the weak areas can also be considered. The internal environment assessment ensures that appropriate resources with right capabilities and competencies are available for the organization to achieve competitive advantage.

Analysis of External Environment:

The objective of External Environment is to identify the key opportunities and threats to an organization. The External Environment is further divided into General, Industry and competitor environments. The general environment consists of Political, Economic, social, technological, legal and environmental factors (PESTLE). An industry is a group of firms producing goods that are close substitutes. Competitor environment comprises of competitors producing similar goods.

The process of external analysis includes Scanning, monitoring, forecasting and assessing. Scanning involves identifying early signals of changes and trends. Monitoring involves finding meaning and the likely impact. Forecasting involves projecting and coming out with anticipated outcomes. Assessing involves timing and importance.

The different phases of Strategic Management process can be summarized as below:

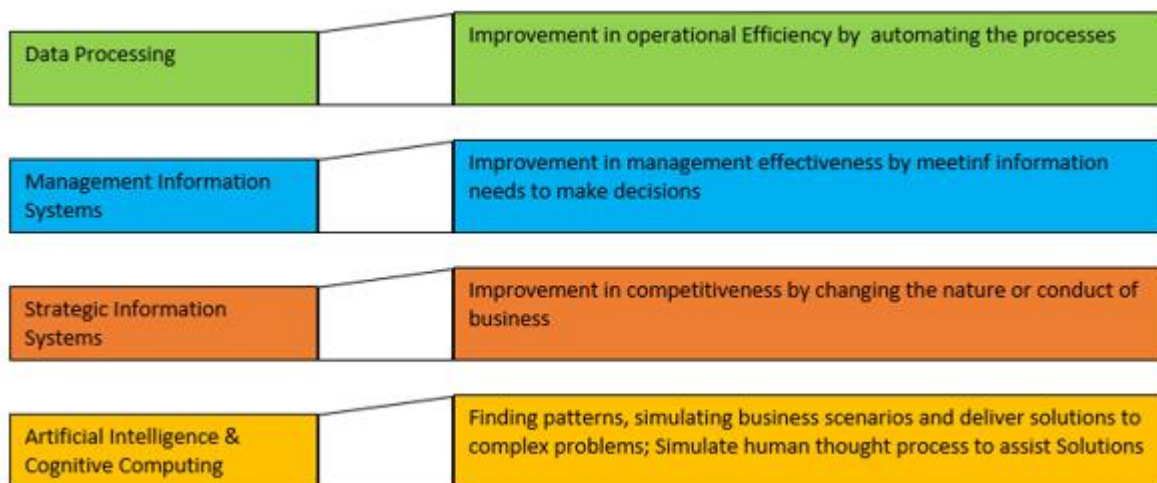
| Phase# | Name | Remarks |
|--------|-------------------------------|--------------------------------------------------------------------------------------------------|
| 1 | Organizational Objectives | Enterprise specifies its objectives |
| 2 | Environmental Scanning | Identifying changes in Environment to identify opportunities, threats , strengths and weaknesses |
| 3 | Strategy Formulation | Plan of action to achieve enterprise goals |
| 4 | Strategy Implementation | Translating Strategy into detailed policies |
| 5 | Strategy Evaluation & Control | Evaluate developed strategy, constantly monitor changes in environment |

3.2 Evolution of Information Systems/IT:

Information systems have become a part and parcel of organizations. It successfully provided organizations the power to reengineer the business, improve effectiveness, managed organizational inter-dependence and provided a competitive edge.

Information systems have enabled management to take better and more informed decisions in real time. The integration of different systems provided organizations to reach global markets and ensured the opportunity to work closely with their business partners like Vendors, Customers. It resulted in short product lead times, delivery lead times and faster redressal of customer complaints. This led to a cost leadership, differentiation, innovation, growth and external alliance.

The emerging technologies have further raised the bar of what IT can achieve for the business. The technologies like Artificial Intelligence can have the power to independently develop and execute a business strategy.



3.3 Role of IT in Strategic Management:

The role of IT in Strategic Management process can be expounded in terms of how it influences and augments at various phases of Strategic Management.

Phase1 - Organizational Objectives:

These are the concrete goals that an organization needs to realize. These objectives are to be monitored on continuous basis for progress and may also require to be corrected if necessary.

A strategic Management system can facilitate:

- Managing of goals, initiatives and metrics from initial definition to execution.
- Assigning individual responsibility for objectives and alerting automatically as per pre-defined conditions.

Phase 2 - Environment scanning:

Environmental scanning is one of the most important phases of Strategic Management process where information of events and changes in the external environment is collected, analyzed, the relationships are established, and the implications are weighed to form a strategy.

The environmental scanning requires a good analytical capability which a business analytics software can provide. As per International Institute of Analytics report, a Business Intelligence/ Advanced Analytics capabilities in analyzing data are summarised below:

| Capability | Benefits |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data Collection and analysis | <ul style="list-style-type: none"> • Collects data from various sources like web, social media and expert opinion. • Utilize algorithms to sort out unstructured data and clean the data by removing duplicates and errors. • Runs queries on the raw data, brings out actionable insights and presents them in visual form like graphs and charts. |
| Data lineage tracking | Tracks data from its origin to wherever it moves over its lifetime and can be visually represented to help to understand how different data points changed and why |

Phase 3 – Strategy Formulation:

When changes occur in environment, organizations need to respond accordingly. Information systems will help in detecting those signals, analyzing, predicting and simulating scenarios to form a right strategy.

Information systems can benefit organizations by:

| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Interactive data Visualization | A range of visual capabilities to simulate and to understand the trends for different situations |
| Scenario based predicting | Based on the data collected, future growth scenarios can be simulated to know the financial health and other challenges |
| Predictive Analytics | Using this functionality business can predict market trends, staffing needs, sales, profits and losses etc., |

Phase 4 – Strategy Implementation:

Strategy implementation is a crucial stage where change management, resource allocation and team collaboration are required to translate strategy into action.

Information systems can help in:

- Communicating and managing goals and metrics from initial definition to completed execution.
- Connect strategic objectives to operational goals and Provide action plans
- Key objectives and initiatives can be assigned to individuals
- Triggering alerts that require immediate attention
- Leverage collective knowledge and ensure collaborative work to meet strategic goals.

Phase 5 – Strategy Evaluation and Control:

As strategic management is a dynamic, monitoring and evaluating Internal and external factors on continuous basis needs to be carried out.

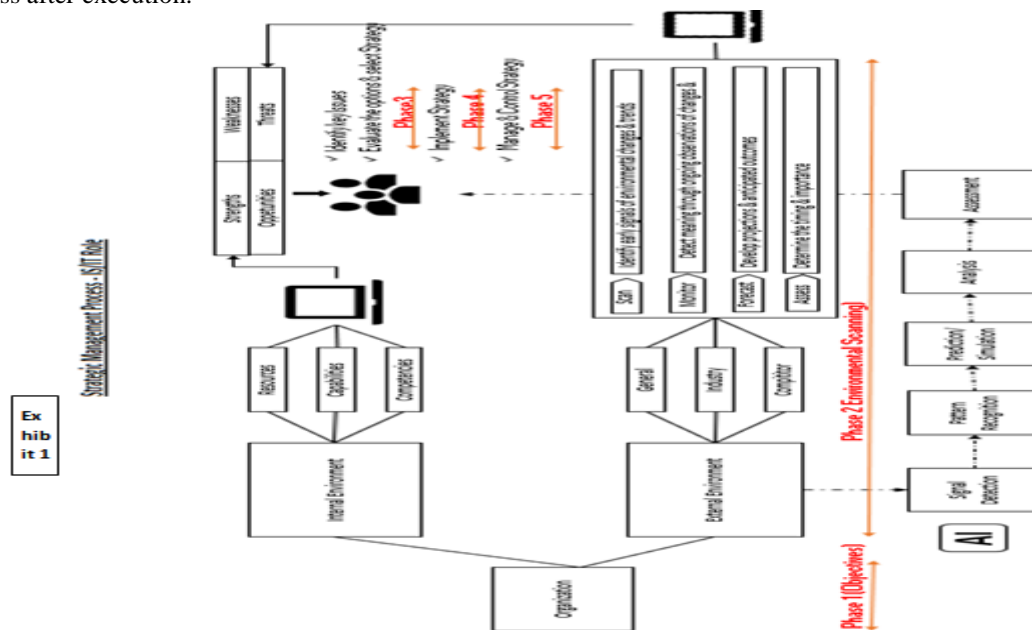
Information systems can serve this need by:

- Using Balanced Score cards to connect strategic objectives to operational goals and monitoring
- Incorporating Risk Management into strategic management process
- Comparing business unit performance with other bench marks.
- Using Mobile or other IOTs to glance organizational analysis at a glance.

Role of newer technologies on Strategic Management:

Artificial Intelligence and Machine learning are the new technologies attracting the attention of every industry. These technologies provide plenty of opportunities to automate smart business decisions. Companies

like Amazon and Alibaba are already exploring the possibility of utilizing these Technologies to develop and execute business strategy. These systems can detect the signals of change and opportunities in the environment, recognize the pattern simulate different scenarios with different outcomes to form a strategy, analyze the progress after execution.



IV. CONCLUSION

Strategy Management has become highly complex and the environments in which organization work have also become highly volatile. The challenge of analysing enormous amounts of data and the speed with which strategy formation and execution needs to be done can only be fulfilled with the major participation of Information Technology. It is also to be noted that the more complex the strategy Management process is becoming, the better technologies are emerging to handle the challenging Situations. The exciting technologies like AI and Machine learning have the capability to developing and execute strategy independently with little interference from human beings. The role of Information Technology is going to grow further in future. However, better technology cannot guarantee better results. It needs a highly level of intuition and creativity also to strategize and get results. This can be achieved only through human and technology integration

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