INFORMATION TECHNOLOGIES FOR STRATEGIC MANAGEMENT

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Abstract: Strategic management is a special kind of managerial activity dealing with long-term development and growth of the enterprise. Therefore it has specific information needs and uses various information technologies different than used in the operational and middle-level management processes. In the current paper we present an information technologies' classification according to the phases of strategic management process and extract these information technologies which are of crucial importance for the successful strategic management.

Keywords: information technologies, strategic management, information technologies classification, strategic management process, strategy development.

ACM Classification Keywords: H. Information Systems - H.0 General, D. Software - D.0 General

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Introduction

Strategic management is an ongoing process that assesses the business and the industries in which the company is involved; assesses its competitors and sets goals and strategies to meet all existing and potential competitors; and then reassesses each strategy annually or quarterly [i.e. regularly] to determine how it has been implemented and whether it has succeeded or needs replacement by a new strategy to meet changed circumstances, new technology, new competitors, a new economic environment, or a new social, financial, or political environment [1].

Because strategic management uses the information from all levels in the organization (in different levels of aggregation and abstraction) and from its environment, we can say that every kind of information technology which exists today could be used to support the strategic management activity. But according to its long-term orientation (long-term strategy formulation, implementation and evaluation) strategic managers have different information needs than operational and middle-level managers. To support these specific information needs we can combine and extract various information technologies suitable especially for strategic management and classify them according to the phases of strategic management process.

Classification of Information Technologies for Strategic Management

The information technologies for strategic management could be classified according to the phases of strategic management process which comprises of five phases [2]: organizational objectives, environmental scanning, strategy formulation, strategy implementation and strategic control.

Organizational objectives:

Organizational objectives are the concrete goals which the enterprises wish to realize. They should be measurable so that the enterprise can monitor its progress and make corrections if needed. In this phase of strategic management process the following information technologies could be used:

- Goal management information technologies
- Policy development systems
- Goals conflict detection and resolution systems [3]

Environmental scanning:

Environmental scanning is very important phase of the strategic management process because its results are the base for developing the enterprise strategy and strategy re-engineering. Once the enterprise has specified its objectives, it begins with its current situation and develops a strategic plan to reach these objectives. An environmental scan is performed to identify changes in the external and internal environments and the available opportunities and problems. This process is also known as situation analysis which involves an analysis of both the external and internal environment.

The external environment has two aspects: the macro-environment and micro-environment. Macro-environment affects all enterprises and its analysis is known in scientific literature as PEST Analysis. Micro-environment affects only enterprises from one industry. Its analysis includes problems such as competition in the industry, the activity of competitors, customers, suppliers, products portfolio, innovations in the industry, and etc. The internal environment analysis deals with all aspects inside the organization.

Therefore information technologies and software applications used in environmental scanning must support gathering, processing and analyzing the information about the external and internal situation for the enterprise. In this phase of strategic management process we can use any kind of information technology which can be applied for reducing uncertainty:

- Geographic information systems – they are very suitable to geographic monitoring of customers, suppliers and competitors and for market geo-positioning.
- Systems for detection of important environmental changes and opportunities as well as systems for internal and external environmental analysis.
- Knowledge-based and knowledge management systems which combine the latest achievements in the field of information technologies and have strategic impact over the business development and gaining competitive advantage.
- Information systems for extraction and processing information from various external and internal information sources.
- Patents and know-how discovering and monitoring tools.
- Data mining and other business intelligence technologies.
- Industry trends and innovation predictions technologies.

Strategy formulation:

The strategy is a long-term plan of action designed to achieve particular enterprise goals and is strongly related to the environment changes. When the change in the environment appears the enterprise must respond with adapting its strategy according to the environment changes. Therefore we need information technologies with forecasting features as well as for reducing uncertainty:

- Information technologies which support the strategy generation process.
- Strategy modeling tools – current and ideal state modeling.
- State space analyzing systems.
- Scenario development and evaluation systems.
- Strategy mapping tools.
- Strategy visualization tools.
- Tools for strategic business modeling.
- Strategic forecasting technologies.

Strategy implementation:

Developing the strategy is not enough to achieve results. We need to implement it by translating it into more detailed policies that can be understood at the functional level of the enterprise. At this phase of the strategic management process we can use:

- Strategic plan formulation systems.
- Change management systems.
- Technologies for supporting organizational structure development and re-engineering.
- Team collaboration supporting systems.
- Resources allocation supporting technologies.
- Strategy implementation monitoring tool.

Strategy evaluation and control:

The strategic management is dynamic and continuous process. We constantly need to adapt the developed strategy according to the environmental changes. Therefore we need to monitor the environment and register and evaluate its changes. We also need to measure and evaluate the effectiveness of the developed strategy and apply strategy re-engineering algorithms if needed.

To suit these needs the following systems could be used:

- Business performance measurement systems.
- Strategic control systems.
- Strategy evaluation and re-engineering systems.

Information Technologies of Crucial Importance for Strategic Management

From the information technologies described above we can extract these which are of crucial importance for the strategic management of the enterprise. These technologies are strongly related to the long-term enterprise growth and prosperity, competitive advantages and innovations development. They are based on knowledge and help organizations overcome the competition in the knowledge markets. The theoretical foundation of these markets are established in [4,5,6,7]. By its participation in these markets the enterprise can dramatically increase its competitive power, their impact on global market and generate more incomes by developing innovations and creating knowledge. In the new knowledge-based economy only knowledge-oriented enterprises can take leading positions in the industry. The information technologies which can be used for knowledge management, engineering and implementation are s follows:

- Knowledge management systems
- Ontology generation systems
- Expert systems for different knowledge domains
- Business intelligence systems
- Knowledge map systems
- Innovation support tools
- Competitive intelligence tools
- Knowledge portals and web services
- Knowledge collaboration systems
- Knowledge exchange systems
- Knowledge bases support systems

From all mentioned in the current paper information technologies only these systems can dramaticaly increase its potential for adaptation to the environmental changes, growth, innovations and new industries development.

Conclusion

The information available for processing and analyzing is constantly and rapidly growing. It is used in all levels in the contemporary enterprises. For its processing different information technologies are developed. This paper introduces the information technologies from strategic management point of view. The classification of information technologies according to their implementation in the phases of the strategic management process is made. The most important from them are strongly related to the enterprise growth and adaptation by supporting the process of innovation and knowledge development and re-engineering.

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