



INVESTIGATION ON DECISION MAKING PROCESS USING BUSINESS INTELLIGENCE IN E-COMMERCE

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ABSTRACT

The classic management concept of decision support (DS) has played a significant role in the competitiveness or survival of businesses, and now, business intelligence (BI), as a fresh new impression, has a variety of contributions to assist the decision-making process. DS and BI Business choices are incredibly vital for every firm irrespective of its sector. Even advertising activities are tied to reaching the appropriate target audience in terms of making decisions about the product, services, and changes. All these decisions or corrective measures may be done properly inside the business provided correct and timely feedback or information is delivered to the decision makers. This study is focused on e-commerce firms with respect to deployment of Business intelligence technologies. The goal of this research is to find out how important business intelligence is in making business decisions in e-commerce companies. Effectiveness may be achieved in e-commerce company by employing Business intelligence tools.

Keywords: E-commerce; system; decision-making; Business Intelligence;

I. INTRODUCTION

E-commerce means the use of Internet in commercial activities for selling and purchase of products and services. This also includes post-sale support services. The principle of this company is not new, but the application of technology in product and service sales and purchases is novel. The same is known as E-commerce, which goes to global clients. To conclude E-commerce is a continuous process that must be monitored on a regular basis even after items or services have been purchased or sold. Now, most of company houses are having its own website and sells products and services through internet gateway. This suggests that commercial groups are counting upon online trade substantially. In order to accomplish their marketing efforts through E-commerce it is very vital to obtain data connected to customers or own target clients. Data is critical to the implementation of E-commerce in any business since it is the primary type of information that

is constantly being circulated throughout the firm. Organizations gather data decoded information and take business choices based on the extracted information of the same data. It is a regular process of taking choice that involves gathering data, appraisal of data, and analysis of the data. Decisions in each company are made based on the information that has been retrieved and the subsequent course of action that will be taken. There are numerous systems linked to data like: data warehousing and Enterprise Resource Planning (ERP), which are in use in most the enterprises nowadays.

E-commerce systems allow web-based firms to be founded and give a chance for current companies to automate their sales process as well as leverage their online presence to achieve better sales volumes and to access worldwide markets. Business intelligence (BI) systems have seen significant expenditures in response to the growing relevance of information intelligence for managers and the



business environment. Actually, BI is developed to depict organization's information assets for building an accurate picture of company dynamics and making better decisions through information collection from numerous sources.

BI systems are commonly thought of as providing decision-makers (DMs) with the tactical and strategic information they need in order to better manage and coordinate business operations and procedures. In the simplest sense, all these services are attempting to give consumers with appropriate aid in the decision-making process.

Large swaths of technology are being employed by businesses to help in decision-making. In order to achieve the desired outcomes, it is useful to pick the most appropriate one by taking into account the necessary advantages for each choice circumstance. According to the purpose of BI which encompasses DS in all organisational levels, the awareness of what advantages of DS idea are driven by what functions of BI is vital.

II. UTILIZATION OF BUSINESS INTELLIGENCE TOOLS IN DECISION MAKING

Organizations engaged in E-commerce company obtain better knowledge of buying habits of their clients with the aid of BI technologies. Such information develops as a base towards recognising their demands for improved services. With the aid of information offered by BI tools, company may take proper decisions that help attaining customer satisfaction. Once the customers' habits are known to the E-commerce-based firms with the use of BI technologies, organisations receive support in their promotions targeted to correct consumer segments with the help of data-driven promotion.

With the use of business intelligence (BI) technologies, companies may make decisions about sales, such as whether to enhance sales in a target market or segment or if to make judgments about product performance from a margin point of view is necessary. Margin is that part of the revenue, which comes after the subtraction of variable cost from the sales income. Regardless of whether the product has a significant profit margin, a situation like this may be effectively managed through sound decision-making.

There are various decisions that are connected to the inventory management of the particular product. Inventory management is involved with categorization of inventory in distinct standard category such as 'A' category, 'B' category and 'C' category. Using this system, high-value items are labelled "A," moderate-value products are labelled "B." Low-value products are labelled "C." When it comes to inventory management, it's the 'A' category inventory and 'C' category products that are scarcer than the 'B' category inventory. In comparison to 'B' and 'A' category products, the quantity of 'C' category items is substantial. So, by using BI tools to make the right procurement decisions, these decisions and management may be carried out correctly. It is business decisions that assist operating business efficiently and on the other hand, it is BI tools that aid management taking correct decision with the help of appropriate information supplied by BI tools at right time and in right form as well.

III. DECISION-MAKING PROCESSES IN E-COMMERCE

Decision making procedures need mix of abilities, inventiveness, identification of the difficulties, and lucidity of judgement, determination, and successful execution in operational plans. Generally, decision making process comprises five steps:

- Problem determination (definition of objectives),
- Collection of information (identification of alternatives),
- Choosing of optimal decision,
- Implementation of a decision,
- Evaluation of decision.

Managers must have timely access to accurate information in order to make sound decisions. In conjunction with e-commerce and specifically cross-border online selling, source system of data set is increased. With a view to reduction of failure during the domestic and especially cross-border internet selling, it is vital to accommodate for numerous aspects. Besides generally economic statistics, source information of management systems have to be for example legislative, culture, conventions etc. (Figure 1)

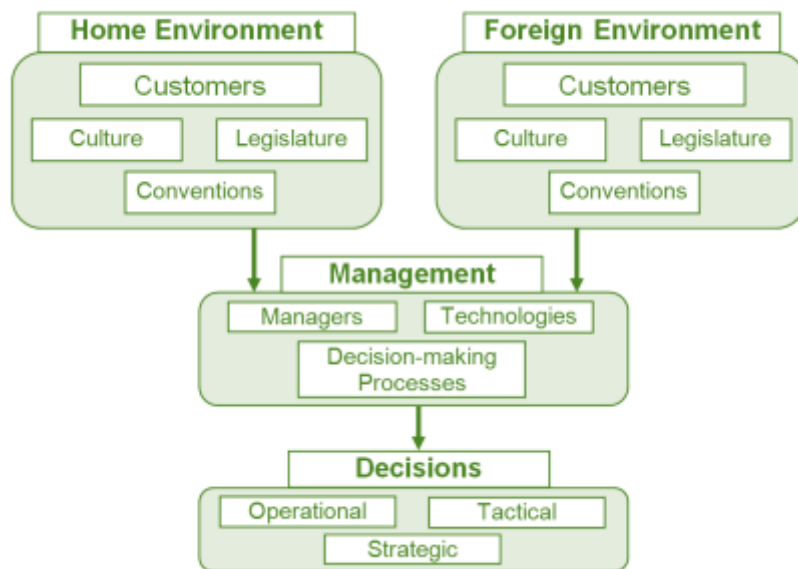


Figure 1: E-commerce Management System and its Source Information Areas.

Decision-making procedures are also undertaken on the side of customers. The customers' decision-making process is the process people go through when they decide to purchase anything. Customers go through a five-stage decision making procedure in each purchase:

- Need recognition and problem awareness,
- Information search,
- Evaluation of alternatives,

- Purchase decision,
- Post-Purchase evaluation.

Managers' decisions should lead to making the customers' decision-making process easier. All decision-making procedures have to be geared to the consumers and their wants and expectations. Customers' wants and demands vary widely from country to country. This fact is always a reason for unsuccessfully cross-border internet selling transactions. Effective cross-border online selling transactions can only be achieved with a management system that utilises all available data sources. To



acquire an efficient decision-making, there are utilised mathematical models of allocation procedures.

IV. LEVELS OF DECISIONS

There are three tiers of decision-making in an organization: operational, strategic, and operational.

Operational level DECISIONS

Decisions made at the operational level have an impact on or are linked to the continuing operations of a company. These judgments are often based on up-to-date financial data, sales and co-operation with suppliers and customers. An organization's everyday operations run on data, and business intelligence transforms that data into useful information for decision-makers. The following specific actions can be addressed with business intelligence systems at the operational level of an organization:

- a) identify difficulties and 'bottlenecks'
- b) give analysis of "the best" and "the worst"
- c) provide product analysis
- d) provide employee analysis
- e) provide regional analysis (using measurable metrics such as sales, costs, or quantifiable results)
- f) do ad-hoc analysis and respond to queries about the department's current operations, financial condition, and sales.

Decisions at the operational level are those that allow an organisation to carry out its day-to-day operations. The data supplied into the business intelligence system from the operational level of a company is examined and merged with other external information to provide direction and enable strategic planning to take place.

Tactical level Decisions

At the tactical level, decisions are made in relation to planning and rely on real-time data and forecasts to guide future marketing, sales, finance, and capital management actions. Strategic judgments are frequently supported by tactical decisions. These associated tactical decision-making actions are detailed in the literature as being assisted by corporate intelligence systems:

- a) evaluations of deviations from planned outcomes for specific organisational units, persons, or indicators
- b) marketing, sales, finance, and capital management strategy decisions
- c) demand forecasts for a certain product or service

The data gathered from these activities may be used to improve future actions and change organisational elements of the company's performance.

Strategic level Decisions

Decisions made at the strategic level define goals and guarantee that those goals are met. Business intelligence systems give data to assist strategic decisions about future results based on historical data, the profitability of offers (made or received), and the efficacy of distribution channels. Business information systems are used in strategic choices to develop projections based on historical data from the past, integrating it with present performance, and then estimating how future situations will play out. According to the literature, information provided by business intelligence systems informs the following strategic decisions:

- a) whether to expand into new markets;
- b) the prospect of shifting a company's focus from product to customer centricity;
- c) the introduction of a new product;
- d) what goals to set and how to achieve them.

V. SOLUTION FOR BUSINESS INTELLIGENCE

By enabling improved decision-making throughout the enterprise, a successful, integrated business intelligence system may increase business performance. Market leaders benefit from high responsiveness to customer needs, recognition of customer needs, ability to act on market changes, optimization of operations, cost-effectiveness, quality analysis as the basis for future projections, and the best possible resource utilisation, all of which are enabled by business intelligence. There are several BI solutions on the market that are constantly evolving. Real-time monitoring of

metrics, viewing of graphical representations of data, anticipating performance results, drilling down to performance at multiple levels, responsive decision making, and enhanced programme execution are all features of current BI systems.

For data collecting and processing, business intelligence systems and tools are critical. A web server is the primary communication link between clients and the firm information system (IS) in e-commerce platforms. Data is processed through the company's information system, which includes a physical foundation as well as software applications and components, as well as business intelligence tools. (Figure 2)

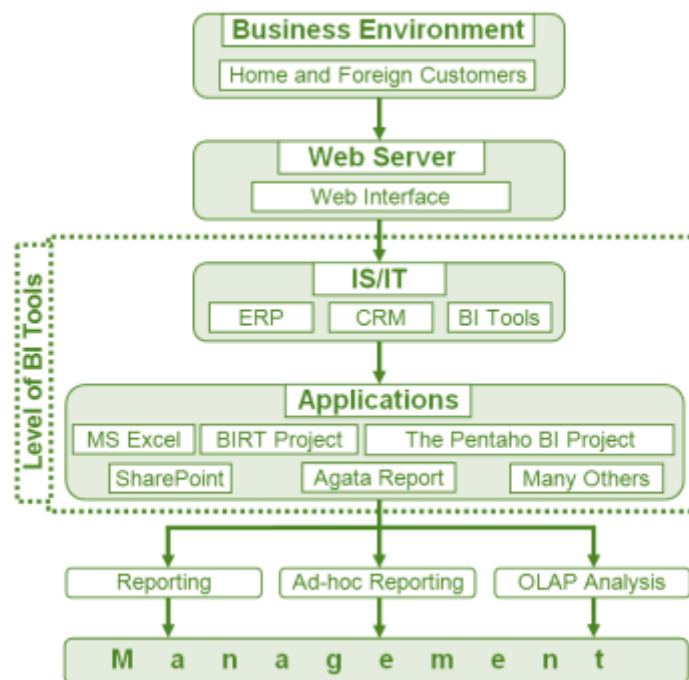


Figure 2: Process of Data Acquisition via Common Model of BI Solution.

Output data provides managers with information to aid in decision-making. Ad-hoc reporting is the initial sort of reporting. It is used to describe something that is done on the spur of the moment without prior forethought. An ad hoc report is one that is prepared when someone requests it rather than at a predetermined time. To swiftly acquire data

from the information system, ad hoc reports may be prepared at any moment. Sending a request or query for specific information generates an ad hoc report. The query results display the most up-to-date information in the manager-specified format. Standard reporting, which can be static or dynamic, is the next form of reporting. Static reports are generated on



demand and saved in the Completed Reports module alongside the data. Because static SQL reports run asynchronously, you may use Commerce Server Business Desk to do other activities while static reports are processing. At runtime, dynamic reports are produced. When you run a dynamic report, it pulls the most recent data from the Data Warehouse. Only the report definition is saved, which does not change over time.

OLAP can be the third key output from IS using BI technologies (Online analytical processing). OLAP stands for "online analytical processing." It is a method for swiftly answering multi-dimensional analytical questions. OLAP is part of the business intelligence category, which also includes relational reporting and data mining. OLAP offers two fundamental versions in terms of data access and display. The first is known as MOLAP (Multidimensional Online Analytical Processing). MOLAP is used to aggregate a cube from a relational data source (data warehouse). ROLAP is the next OLAP variation (Relational Online Analytical Processing). ROLAP uses relational databases to offer OLAP capability and saves the cube structure in a multidimensional database.

VI. CONCLUSION

Reporting, OLAP, and data mining techniques are all included in business intelligence systems. Managers have a wide range of software options. BI tools may be found in a wide range of software applications, including ERP systems. Microsoft Dynamics NAV, for example, is an ERP and CRM business software. One of the major purposes of this post was to demonstrate and test Microsoft Dynamics NAV Business Intelligence solutions for decision assistance in cross-border online shopping. The majority of respondents use business intelligence (BI) solutions to manage

their data and make better decisions. The information offered by BI makes decision-making easier and more effective. As a result, even people who do not already use BI in their business will benefit greatly from utilising it. Commercial intelligence tools are and will continue to be a significant support for e-commerce systems on a global scale, contributing to the failure prevention of cross-border business transactions.

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