

Decision support systems report examples

[Business](#), [Company](#)



Executive Summary

This report investigates the value of a decision support system to an organization's operations. It identifies the strengths and weaknesses of the system, as well as some of the problems that can be encountered with its implementation.

This report identifies the main strength of a decision support system to be its capability to improve the decision-making process and its cost- and time-efficiency. It also leads to better compromise solutions and improved conflict management.

Its main weakness, on the other hand, is that its effectiveness relies on the decision-making process and the complexity of the problem. It also relies on the responsible and correct usage of its users. In addition, it's dependent on how well the system is deployed, implemented, and maintained. Moreover, using the system requires a learning curve, which may pose as a challenge in getting the organization's buy-in.

Although the implementation of a decision support system doesn't have to be that costly, organizations can also opt to use decision support tools as an alternative solution. These tools are industry- or organization-specific and may also be components of a decision support system.

This report concludes that while decision support systems help improve a company's decision-making process and improves the efficiency of its operations, it should be kept in mind that its usefulness and effectiveness still rely largely on human capacities and the external factors that surround the decision to be made.

Introduction

The implementation and use of decision support systems (DSS) in organizations are becoming more predominant in recent years. The DSS has become a part of major organizations' operations to ensure the quality and timeliness of the goods or services provided to both internal and external customers.

This report investigates the benefits of implementing a decision support system and identifies its potential strengths and weaknesses. It also discusses the possible issues that might be encountered during its implementation, as well as the financial costs that may be involved.

Implementation of a Decision Support System for TNT

TNT is a global leader in the delivery services. They have two divisions, namely TNT Express and TNT Post. They're also the leader in Europe when it comes to express and courier services in the business sector. They have the largest air and land infrastructure that enables them to provide door-to-door services in Europe. Every week, they carry over four million packages with cargo and documents to over 200 countries (" TNT Develops and Deploys," n. d.).

The company needed a system that would enable them to scale and adapt more quickly to the needs of customers, in turn allowing them to increase account development and retention.

They needed to address the lack of knowledge sharing among Contract Managers, which

results in less efficient customer support services. Contract Managers are assigned to provide solutions to the problems of large customers. Without a knowledge management or decision support system, Contract Managers do not have the means of getting information about the cases being handled by their fellow Contract Managers. As such, they are unable to get information to solutions that have been used in the past and that could also apply to their current cases (“ TNT Develops and Deploys”).

The company also needed to address the lack of control over individual activities, as well as the lack of visibility on each solution. This prevented the company’s management team from getting a good overview of how much value customers get from the solutions that the company provides. In addition, the lack of visibility in the work that each Contract Manager does prevents cooperation and coordination in the formation of better solutions for customers. Moreover, the expertise of Contract Managers is not being taken advantage of. Because of the lack of priority and workload management, Contract Managers are being assigned to tasks that are already assigned to others or they might get assigned to tasks that are outside their scope (“ TNT Develops and Deploys”).

TNT chose to implement a decision support system that included the following features: workload management, priority management, customer relationship and knowledge management, supply chain management, reports and monitoring, and worldwide communication tools (“ TNT Develops and Deploys”).

The Workload Management module allows managers to effectively allocate

employees to tasks. The Priority Management module, on the other hand, allows managers to monitor the task that Contract Managers are working on, allowing them to identify changes and make adjustments to their tasks as needed (“ TNT Develops and Deploys”).

The Customer Relationship and Knowledge Management module allows employees to respond more proactively to the needs of customers since they can easily search for and identify solutions that were used to address similar problems in the past. The capability of each member of the organization to share knowledge and best practices enable them to provide better customer service and become more efficient internally (“ TNT Develops and Deploys,”).

The Supply Chain Management module enables the management of the logistics

challenges that the business encounters. This includes implementation, planning, and control for the efficient delivery of goods and services to customers and for ensuring compliance to legal requirements (“ TNT Develops and Deploys”).

The Reports and Monitoring features of the system enable managers to make quick assessments and informed decisions about the status of each task and the logistics workflow.

Finally, the Worldwide Communication tools enable Contract Managers to easily

communicate with each other and come up with better solutions (“ TNT Develops and Deploys”).

As a result of implementing a decision support system, TNT is now able to quickly incorporate user feedback into the creation of solutions to address customers' needs. It is also expected that the decision support system will enable the company to increase their revenue from global accounts, which comprise 20% of the total revenue for TNT Express.

Strengths and Weaknesses of Implementing a Decision Support System

One of the strengths of a decision support system is that it improves the process of making decisions, which results in better decisions being made. In addition, the decision is made in a formalized manner that promotes acceptance of the decision (Petersson & Ostrowski, n. d.).

Aside from making the decision-making process transparent, it also ensures the documentation of the rationale behind the decision, as well as the process that was undergone to arrive at the decision. In addition, it makes revision of the decision possible when changes are made to the external system impacts, preferences, or objectives and when the decision maker's control is facilitated.

Using a decision support system is both cost- and time-efficient in processing data and in solving the well-structured areas of the decision (Markas, 2003).

These well-structured parts of a decision and the formal structure and guidance from the system make it easier for stakeholders to participate.

Furthermore, the common terminology used within the system allows the organization to develop a common language that promotes a common understanding of a problem. It also leads to the formation of better compromise solutions and better conflict management. Moreover, the

participation of stakeholders and the complex simulation of possible scenarios enable the decision-makers to get a better understanding of the situation and the stakeholders' value systems. As a result, a more informed, less contradictory, and more rational decision is made.

With regards to the weaknesses of a decision support system, one is that its usefulness is

limited by the decision process employed and the decision situation (Petersson & Ostrowski). The uncertainty, risk, and complexity of a problem and process, together with the continuous development of problem and policy contexts complicate the use and development of a decision support system. The decision process is also further complicated by the different actors and their interests; the conflicting objectives; the required integration of field and governance levels; and the different scientific disciplines.

The use of a decision support system also requires the availability of models and information, as well as the suitable methods. For very complicated problems, the effective use of a decision support system would need human competencies. The absence of these requirements poses another limitation in the use of a decision support system. In addition, complex problems can confuse the user, causing the user to ignore the system's importance and to exceed computing loads. Because of this, a DSS must be "as simple as possible but as complex as necessary" (Petersson & Ostrowski, p. 5).

The success of a DSS is also dependent on the development phase, that is, how well data is gathered and how well the DSS is engineered and tested. This entire process requires financial resources. It also requires continuous

evaluation and modification to ensure that it still meets the users' needs. In addition, the successful use of the DSS would depend largely on the users and stakeholders acting responsibly to arrive at a good decision. Decision-makers should also strive to arrive at a common understanding of the problem and identify the owner of the problem. In addition, it should be acknowledged that there are certain things that are beyond the capabilities of the decision-maker and the scope of the system.

Another of its weaknesses is that its integration into the administrative procedures cannot be codified (Nardini, 1998). Moreover, it should be noted that the implementation of a DSS requires a learning curve, which may keep certain managers from making use of the system.

Other Areas that Use Decision Support Systems

Other areas that effectively make use of decision support systems are the car manufacturing industry (Michalewicz et al., 2005) and work zone safety management.

Car Manufacturing Industry

An example of a problem encountered in this sector is the distribution of returned rented cars to the many auction sites around the country. The best possible distribution must be determined in order to maximize the net proceeds from the sales. This is considering that cars have different models, makes, options, mileage, wear and tear, and others. It should be noted that a car manufacturing company typically sells around 4, 000 cars everyday, requiring the company's marketing team to make 4, 000 decisions every day.

A decision support system can help the company predict the prices of each car at a given location. It then provides a recommendation of how best to distribute the cars to auction sites. In addition, the system is capable of adapting to environmental changes by analyzing the data input and output. As a result, the car manufacturing company experiences increased revenue that amounts to millions every year.

Work Zone Safety Management

A decision support system enables the facilitation of the design and selection of appropriate and safe traffic control for work zones. It eliminates the subjectivity of the decision-making process as it gathers pertinent information about the selection of traffic control within the knowledge-base system (Paisalwattana, 2005).

The use of a DSS for work zone safety management provides practitioners with alternatives and better options for implementing work zone configurations that normal practice does not consider. A DSS provides practitioners with a traffic control plan, speed control strategy, a traffic management plan, and a series of traffic control devices. This information helps practitioners in making decisions and enables novice highway engineers to create safe work traffic management plans.

Costs of Implementing a Decision Support System

The setup and operating costs for implementing a decision support system range from as little as US\$20, 000 (Vaknin, n. d.) to hundreds of thousands of dollars (U. S. Department of transportation, n. d.) or even millions, depending on the size of the organization and the scope of implementation.

Although the hardware, software, and administrative costs generally comprise the setup and operating costs, some factors that would affect the final cost for implementing a DSS include the components to be included in the DSS, as well as the system needs such as the performance features, scalability, interoperability, networking, ongoing support, and ongoing training (National Forum on Education Statistics, 2006).

Alternative Solutions to Decision Support Systems

An alternative to implementing a decision support system is the use of decision support tools (DST). These are “ specific applications or capabilities that allow for the analysis, summarization, presentation, or visualization of data for the purpose of contribution to the decision-making process” (“ Workshop Synopsis,” 2009). These tools are industry- specific or even organization-specific.

For example, in medicine, clinical decision support tools provide doctors with information that enables them to optimize the quality of care they provide patients (“ Clinical Decision Tools,” 2012). These tools are usually incorporated into electronic health record systems and aim to provide physicians with best practice information that they can use in their daily activities. It should be ensured, though, that these tools are updated regularly to ensure that they are based on the best source for the doctor’s specialty. It should also be noted that these tools only provide information about best practices and should not be used as a replacement for human judgment.

In the oil and gas industry, analytical and decision support tools provide the applications needed to “ make surface and sub-surface decisions, from

concept through exploration, production, and delivery” (“ Analytical and Decision Support Tools,” 2012).

It should be noted that an array of decision support tools “ with well defined functions would normally be considered components of a DSS” (Workshop Synopsis”).

Issues with Implementing a Decision Support System

One of the issues with implementing a decision support system is the financial cost. The company should be willing to invest financially in the system to ensure its proper deployment and implementation.

Another issue is the multi-location of a company’s offices. TNT, in particular, is an international company with offices in different countries. This would impact not only the costs but also the complexity of the setup. This also means that more people will be involved, which will pose coordination and project management challenges.

Once the system is set up and properly tested, the next challenge is to provide training for the members of the organization. Again, this would entail financial costs from both the training and the time it takes away from the employees’ regular tasks.

Finally and possibly the biggest issue is getting the buy-in both of the department managers and their subordinates to ensure that they comply with and adhere to the proper use of the system. It will take time for them to fully appreciate the use of a decision support system to the point that it becomes part of their routine tasks.

Conclusion

It is clear that decision support systems provide organizations with benefits that reflect in their revenues or at the least improves the processes, resulting in faster and better decisions being made and knowledge sharing being performed more easily.

Although the other benefits and strengths of a DSS surely abound, it should be kept in mind that these systems come with some limitations, the main one of which is that its effectiveness relies mostly on human competencies and on how responsibly it is used. It is also limited by the complexity of the problem that needs to be solved.

As such, it should be kept in mind that while a decision support system is a great tool for facilitating the decision-making process, it is not a one-stop-shop application that can replace human judgment.

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Handout

Implementation of a Decision Support System

TNT - a European company in the delivery services industry

Problems

Lack of capabilities for knowledge sharing

Lack of visibility in the work being done by Contract Managers

Inefficient workload and priority management

DSS Components

<https://assignbuster.com/decision-support-systems-report-examples/>

Workload management

Priority management

Customer relationship and knowledge management

Supply chain management

Reports and monitoring

Worldwide communication tools

Strengths of a DSS

Improved decision-making process

Transparency of the process

Formalized process that promotes acceptance

Documentation of the process

Easier revision of decision

Cost-efficiency

Time-efficiency

Easier stakeholder participation

Development of a Common language

Better compromise solutions

Better conflict management

Weaknesses of a DSS

Limited by decision process and decision situation

Affected by the complexity of the problem and the changes in the organization

Affected by external factors (Actors, objectives, etc.)

Relies on the availability of models and information

Requires human competencies

Subject to misuse

Integration to other processes cannot be codified

Requires a learning curve

Other Areas that Use a DSS

Car manufacturing industry

Work zone safety management

Costs of Implementing a DSS

As little as US\$20, 000. 00

Alternative to DSS

DST (Decision Support Tools)

Issues with Implementing a DSS

Financial cost

Multi-location of offices

Training

Buy-in and compliance