The Impact of Knowledge Management Tools in Decision Support System for Creating Competitiveness in Non-profit Organisations

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Abstract

Background/objectives: In this age of Internet, knowledge about how to best use Information and Communication Technology (ICT) is the key to the success of any business, or an organisational entity, including non-profits, irrespective of size and sector. Non-profit organisations (NPOs) can also benefit from the latest technological advancements in the field of information technology. **Methods/statistical analysis:** We found there was a clear lack of research that evaluates the impact of knowledge management (KM) tools on decision support system (DSS) specific to NPOs, and we wanted to identify and recommend the various ways such a support system can be developed to help NPOs become more competitive and successful in their endeavours, which is the core objective and motivation behind this research work. There is an immediate and critical requirement to make NPOs understand the impact and benefits of staying up-to-date with technologies such as KM tools and develop and implement a DSS that will help strengthen and optimise the organisation's business operations. **Findings:** The primary objective of this article is to critically evaluate the impact of KM tools on DSS in an NPO. Due to the complexity of the research topic, and the amount of theories, ideas, and strategies already proposed, a qualitative research approach has been adopted to collect primary data. Experts in the field of KM and DSS having work experience in NPOs were carefully selected for interviews using snowball and criterion sampling. The key findings of this research are that competition does exist even in the NPO sector, and NPOs must take necessary strategic decisions to sustain themselves and grow strongly in this highly competitive market. **Improvements/applications:** The other main findings of this research are that KM has a huge impact on DSS, and DSS plays a pivotal role in making the NPO more competitive in its field(s).

Keywords: DSS, Driving Forces, Information Technology, KM tools, Support System Communication

1. Introduction

Corfield[1] rightly argued that Non-Profit Organisations (NPOs) are rarely referenced while discussing the success stories of knowledge management (KM). In[2] scholars attributed the reason for NPOs' lack of interest in KM systems to limited resources and financial constraints that typically plague NPOs. The benefits of KM tools can outweigh the costs if properly implemented.[3] The author concurs with this view, and the NPO sector has started realising the potential of the significant positive impact that KM tools can have on their decision-making

systems (DSS). In[4] it was argued that even though NPOs operate locally and on specific mission, KM tools can provide them the strategic advantage over its peers. He also explained that there is a misconception that competition exists only in commercial sectors and not in NPO sector. In[5] this view was rebutted and their study reported after a detailed study that NPOs face a different kind of competition from their peer organisations, as they must sell their mission and services to donors, staff members, and volunteers. They also concluded by stating that competition exists in both non-profit and for-profit sectors.

There are several pieces of literature and research on KM systems and DSS with reference to for-profit organisations (FPOs) but not for NPOs. There is a general consensus among scholars that NPOs hesitate to invest in the latest technologies due to the lack of funds to be provided by their donors and volunteers for operations. Technology costs have come down drastically in the past few years, and NPOs should not be left behind in this era of technology. There is an immediate and critical requirement to make NPOs understand the impact and benefits of staying up-to-date with technologies such as KM tools and DSS on their business operations. The driving force behind this research is the lack of research that evaluates the impact of knowledge management (KM) tools on decision support systems (DSS) that is specific to NPO. Therefore, the present study attempts to fill the gap in research by exploring the impact of KM tools on DSS that is specific to NPO. The key findings provided here that validate the impact of KM tools on DSS for NPOs in creating competitiveness are based on extensive literature research and qualitative interviews. This research is divided into two phases. The first phase critically evaluates the existence of competition in the NPO sector, the impact of DSS on the competitiveness of the NPO, and the impact of KM tools on DSS and the competitiveness of the NPO. The second phase uses primary data collected through qualitative research using interviews to validate the theoretical findings from the first phase.

2. Competition in the Non-profit Organisation (NPO) Sector

It becomes relevant to understand the sectors in order to evaluate the competition effectively. In[6] it was suggested that for an FPO it is necessary to differentiate their products and services from its rivals. Hurley and Green further added that positioning is the key for the company's success and, hence, positioning must be differentiated, clear, and compelling. In[7] it was observed that all organisations compete for something, including for increased market share, higher quality, or a larger base of customers. In this context, NPOs compete for donors, volunteers, and staff members to stay sustainable. In[8] it was reported that NPOs are increasing rapidly; for example, during a ten-year period, between 2000 and 2011, there was a 25% increase in the number of NPOs

operating in the United States. They further added that NPOs have started to compete often over common causes and target markets. Similar views were expressed by,[9] who argued that when several NPOs offer similar goods and services, donors will start looking beyond their goods and services, such as innovative technologies, behavioural aspects, and prerequisite expenses. In[2] it was warned that if NPOs do not have a competitive edge, they may lose their position as the first choice for their volunteers, donors, and prospective employees.

3. Impact of DSS on Competitiveness of NPO

In[10] it was defined that DSS is a concept that utilises existing information and knowledge within the organisation to better help their clients. According to,[11] DSS is an interactive software tool that can enhance the decision-making abilities of the users. In[12] it was rightly pointed out that in this era of Internet and information technology, information plays a pivotal role in providing a higher level of customer service. Similar views were shared by,[9] who suggested that organisations should focus on staying up-to-date with latest technologies in order to stay competitive in the market. In[13] a detailed study was carried out focusing on NPOs, and the study reported that NPOs are far behind compared to FPOs when it came to using technologies such as KM, DSS, and Big Data.[13] DSS is a sophisticated concept that can have several frameworks integrated into it, as illustrated in Figure 1, and these frameworks can be deployed in multiple ways, such as model-driven, knowledge-driven, data-driven, communication-driven, or document-driven. Mohannak and Matthews noticed that DSSs are primarily used by mid-level and top managements.[14] With the implementation of DSS, the staff can have real-time information at hand that can help them make better decisions quickly. For instance, marketing managers might like to have data-driven DSS to effectively manage their marketing campaigns. The top-level management would use knowledge-driven DSS to resolve an issue or conflict. For NPOs, it is critical to keep their staff and volunteers motivated, and donors interested in the organisation's mission. By putting right technologies in place such as DSS, NPOs can have greater impact on the social issues and help them better-manage their staff, volunteers, and donors by gaining competitive edge in the market.
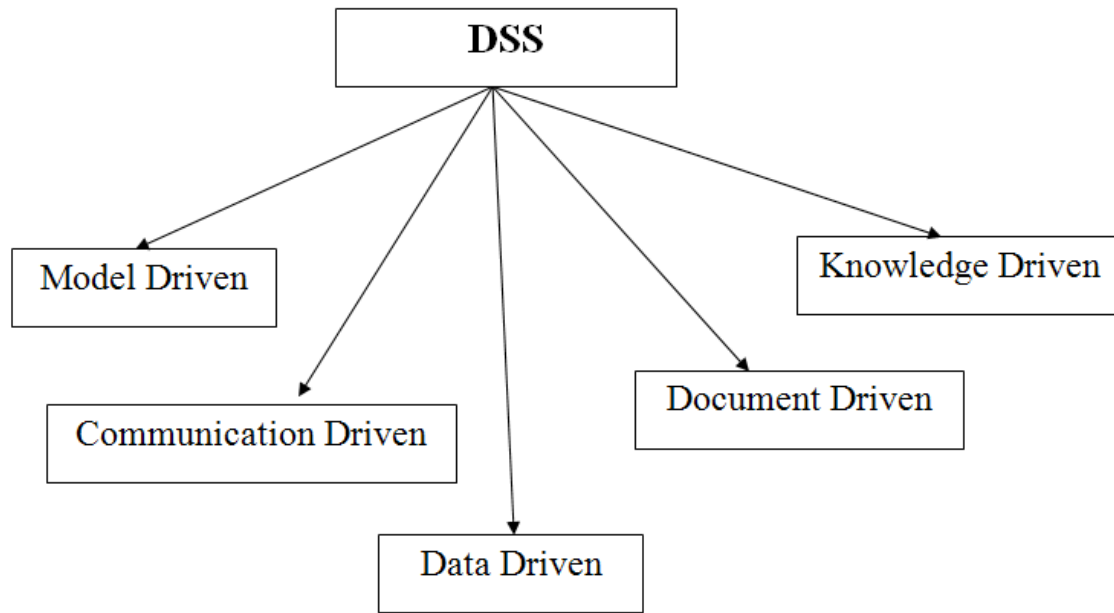
Figure 1. DSS framework.

4. Impact of KM Tools on DSS and Competitiveness

In[1] KM was defined as the ability of an individual to effectively resolve complex issues by comprehension, abstraction, speculation, and taking actions. Thus, KM is seen as subjective in nature by experts. With the use of KM tools, knowledge can be easily gathered, stored, processed, and shared with other employees who can then refer to it and use it in dealing with similar future situations. The subjective nature of KM can be transformed to objective models with the implementation of KM tools. The internal and external driving forces of KM are depicted in Figure 2. The author agrees with the argument forwarded in,[15] who stated that with the huge popularity of the Internet and social media, large amounts of data are generated and processed and disseminated through various forms by all organisations. It is then imperative that NPOs shouldn't fall behind, must embrace this phenomenon, and make the most out of it. In[12] it was rightly suggested that organisations that invest in managing the knowledge arising from both external and internal sources, including from their employees, will gain a competitive edge in the market.

In[2] it was explained the KM is about providing the right person the right knowledge at the right time. For the NPOs to gain a competitive edge in the market, there are several dimensions that the organisation can tweak and strengthen, such as organisation culture, strategy development mechanisms, technology, organisational processes and operations, and even workplace politics. The KM tools can be configured according to the organisation's mission, objectives, and competitiveness.

5. Research Problem

On the basis of the literature research, it has been established that (i) competition does exist even in the NPO sector, (ii) DSS has a significant positive impact on the competitiveness of NPOs, and (iii) KM tools have huge a potential in making DSS much more efficient, thus help NPOs gain a competitive edge in their field. In[16] it was suggested that in order to bring credibility and add quality to the research work, the theoretical findings must be first validated. Using qualitative interviews, this research aims to address the problem of NPOs' lack of interest towards using the latest technologies and talk about ways awareness can be created among NPOs, especially in relation to the cost–benefit ratio that can provide a more robust basis and encouragement for NPOs to consider and implement KM tools along with DSS to compete better in the market.
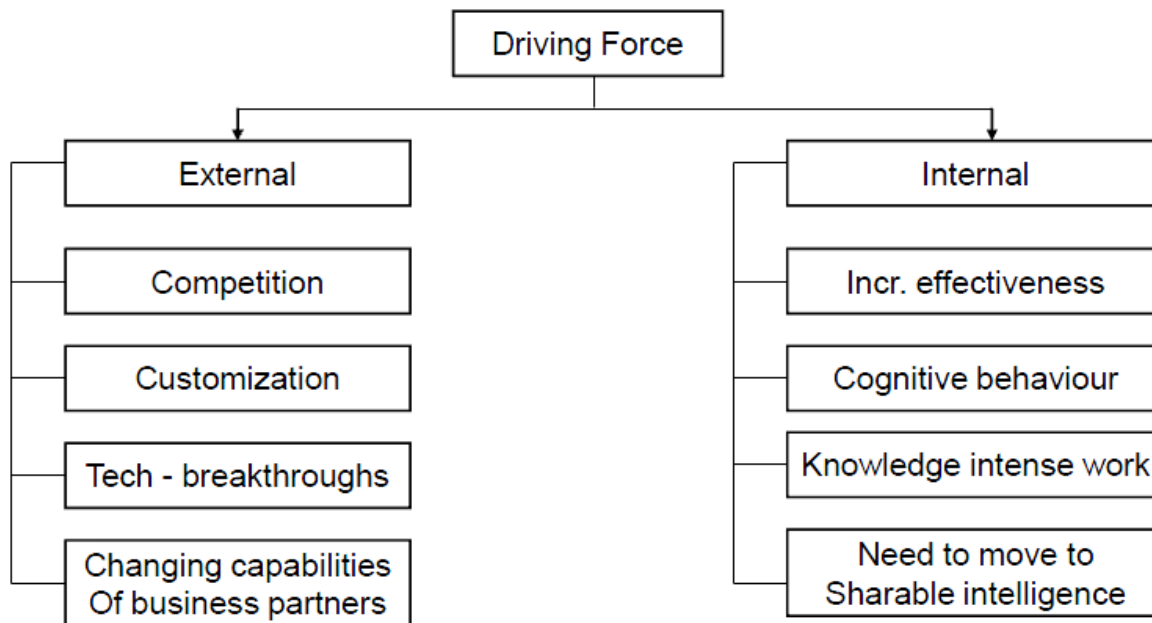
Figure 2. KM driving forces, Corfield.[1]

6. Research Method

Considering the complexity of this research topic, where a wide range of theories and findings have already been reported, a qualitative research approach was adapted. The participants selected for the interviews had abundant knowledge and enormous years of experience, with a relevant combined work experience in excess of 140 years in the topic of the present research. Using snowball sampling and criterion sampling, study participants were chosen from a wide range of occupations, such as volunteers, donors for NPOs, employees of NPO, and top-level management professionals. Some NPOs with whom the participants worked had KM systems already implemented and some were yet to implement. Table 1 shows the profile of the participants. All the responses were kept anonymous and followed all the relevant ethical guidelines, such as not asking for sensitive information like date of birth, age, and address, as such details weren't needed for the purpose of this study.

7. Results and Analysis

Based on the literature research, the impact of KM and DSS on the competitiveness of the NPOs has been established. In order to validate the findings of the literature research, the participants selected were interviewed on the two topics of the study, that is, KM and DSS in their organisation. It is safe to assume that the responses from the participants are representative of the ground reality considering the vast amount of knowledge and experience they brought to the interviews. To make it simple and easy to follow, the results were categorised as follows: (a) competition in the NPO sector, (b) impact of DSS on the competitiveness of NPOs, and (c) impact of KM on DSS systems and the competitiveness of NPOs.

7.1. Competition in the NPO Sector

There was general consensus among the participants that there is competition in the NPO sector and that competition is only growing more intensely in the recent years. P1 said that there are multiple NPOs with similar missions and the sources are getting distributed. P8 elaborated on competition among NPOs and said that there is a flawed perception that competition does not exist in NPO sector. However, in reality, it has its own set of challenges and competition to tackle among its peers. The competition becomes direct when a NPO starts for a similar social cause pursued by another, equally or more reputed and stronger, NGO. In such situations, donors start scrutinising other aspects of the businesses of the NPO, such as the social cause, mission deliverables, and the current level of donor outputs. Due to increasing

Table 1. Profile of participants

Participant	Designation	Number of participants	Experience in DSS, KM, and NPO
P1	Head of Operations	1	19 years
P2	Director of Marketing	1	24 years
P3	Senior Technology Consultant	1	18 years
P4	Volunteer	1	16 years
P5	Volunteer	1	15 years
P6	Donor	1	14 years
P7	Donor	1	16 years
P8	Director of Finance	1	21 years
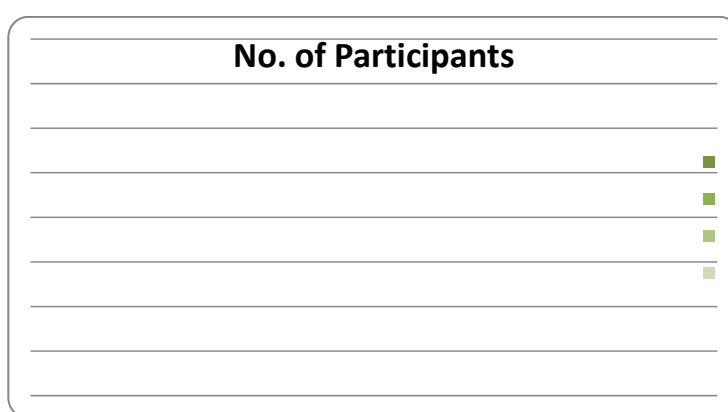
Figure 3. Competition in the NPO sector.

competition, getting loyal volunteers and donors is becoming difficult. P4 expressed that after seeing though significant development in a particular social cause, she would look for other important social issues that may need more volunteers. P5 suggested that NPOs should have multiple objectives that address various social issues so that volunteers get to pick their choice of social cause. Contrasting this, P7 said that he would donate with more confidence for an NPO that has a single mission so that resources do not get distributed as such dilution in resources or sources of funding would hamper the progress of all the other objectives of the NPOs. P7 added that that would be another reason to look for a donor changing the NPO. P2 said that they get lot of queries about their mission, roadmap, and the technology they have put in place to run their operations. P2 admitted that as his NPO managed to invest significant amount in technology, and he witnessed their marketing campaigns becoming more effective as the strategies they employed (with the help of ICT) made them more data-driven and as a result the campaigns were able to more precisely and quickly identify and reach their target audiences. P2 further added that despite increasing competition in the NPO sector, their NPO has been proactive and had not faced direct competition with anyone and emphasised that credit for achieving this strong position goes to the adaption of new technologies at their organisation. Figure 3 shows the responses about competition in the NPO sector.

7.2. Impact of DSS on the Competitiveness of NPO

Participants were asked about the impact of DSS on NPOs' competitiveness. P5 said that lack of quick decision-making is affecting the NPO's work and campaigns. P5 further added that the organisation will have to address this issue immediately as it is affecting the end-results or achievement of organisational goals. Campaigns can be run more efficiently by making use of latest technologies.

P8 said that his NPO understands the importance of DSS and has always advocated for reviewing and updating their DSS regularly. This view was shared by P3, who also felt that decision-making is more subjective in nature. However, with the use of DSS, the right information can be provided to the staff that makes the decision-making process more consistent and removes ambiguity about roles and tasks and objectives set for each personnel as well as the organisation. P2 said that with DSS already in place, their marketing campaigns have benefitted substantially, and the productivity has significantly increased. They are now more certain of reaching out quickly to their target audience with the help of DSS. P4 also expressed a little disappointment about delays in decision-making as it is hurting the overall efficiency. They would be getting much less output with the amount of time spent. P4 believed that with the right technology in place, they would be able to carry out their voluntary campaigns much more efficiently and make a significant progress in addressing the social issues. P7 was of the view that technology requires substantial funding commitment, and unless the NPOs have a strong financial backing from donors, it is difficult to invest in new technology or technology upgrades. P6, however, contradicted this view and suggested that to have a higher impact on social issues and deliver on their pre-set goals, NPOs shouldn't hesitate investing in new technologies and become up-to-date with latest available ICT technology and make the most out of it. It may pose financial challenges in the short term, but would give better returns in the long run. P1 expressed that investing in technology has its own set of further challenges that warrant further investment and time, such as additional hiring of tech staff, user training, maintaining, and seeking additional funding to support these endeavours. Figure 4 shows the responses from participants about the impact of DSS on NPOs' competitiveness.

7.3. Impact of KM Tools on DSS and Competitiveness

P1 explained that tacit knowledge that the staff and volunteers possess is of huge value and their NPO has been using them only in an ad hoc manner. However, he expressed that not everybody will be able to use that in an ad hoc way, and KM systems and tools are the best way to gather, process, store, and share data/information with both the staff and the volunteers. Similar views were shared by P4, who said that a huge amount of knowledge is shared during campaigns and that knowledge never gets stored for future use for other volunteers. P7 said that explicit knowledge is easily stored and processed; however, managing the tacit knowledge is important not just for FPOs but also for NPOs. With DSS already supported by various KM frameworks, such as those data-driven and communication-driven, it can manage knowledge-driven framework as well. P8 and P2 strongly believed that KM tools certainly have a huge positive impact on DSS and in turn on the competitiveness of the NPO. Figure 5 illustrates the responses from participants about the impact of KM on DSS and NPOs' competitiveness
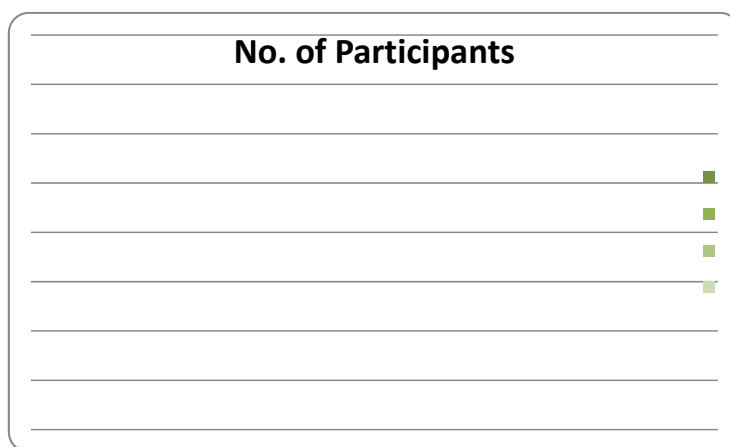

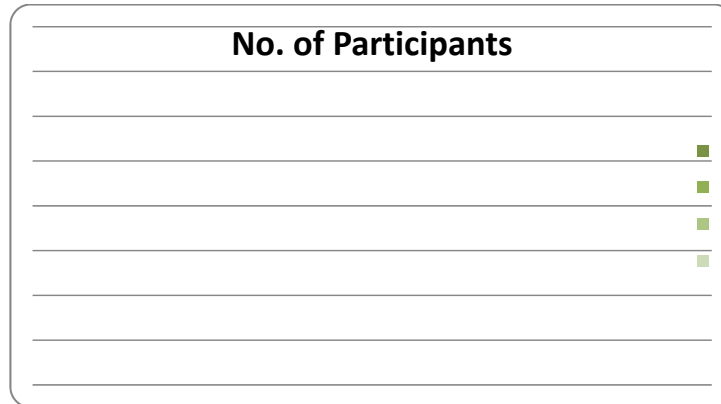**Figure 4**. Impact of DSS on NPOs' competitiveness.

Figure 5.   Impact of KM on DSS and NPO's competitiveness.

8. Summary and Conclusions

This research examined the impact of KM tools in DSS on NPOs' competitiveness. A lot of research has been carried out about the use of KM and DSS in commercial organisations; however, there was a huge research gap that is specific to NPOs. This research tried to fulfil that gap to a certain extent. This research can be used as a pointer for other researchers, as it requires a lot of research work to help NPOs make the most out of the latest technological advancements. The first part of this research focused on literature research from various scholars and experts in the field of KM and NPOs. After critical evaluation of literature, journals, and articles already published, it was established that KM has a significant impact on DSS and competitiveness of NPOs. The literature research also pointed out to the fact that competition does exist in NPO sector. In the first part of this research, it was concluded that DSS plays a pivotal role in the NPOs' success and sustainability. The second part was to validate the findings from the literature research. Qualitative interviews were conducted, and participants who were directly involved with NPOs were carefully selected to represent the larger group. Professionals, volunteers, and staff working in NPOs along with donors were interviewed. Based on the inputs from the participants and literature research, this research concludes that KM has a significant positive impact on DSS, and DSS has a positive impact on NPOs' competitiveness in the market. As mentioned earlier, there is a big gap in research related to KM tools, DSS, Big Data, Cloud Computing, and other technologies specifically addressing the issues of NPOs. This article can be used by other researchers as a reference to take research forward in these areas and help NPOs stay sustainable in a competitive NPO market, which, as the authors found, is as competitive as the commercial market domains in which FPOs operate.

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