International Review of Management and Marketing

ISSN: 2146-4405

available at http: www.econjournals.com

International Review of Management and Marketing, 2017, 7(2), 263-271.

The Future of Group Decision Support System Supported Meetings: Perceiving the Value and the Need for Competitive Strategies

Amer Al Shishany[1]*, Radwan Kharabsheh[2], Waed Elnsour[3], Jackson Adams[4]

[1]Department of Management, The Hashemite University, Jordan, [2]Applied Science University, Bahrain, [3]Department of Management, The Hashemite University, Jordan, [4]Essex Business School, University of Essex, United Kingdom.
*Email: asalsha@hu.edu.jo

ABSTRACT

Conducting meetings using group decision support system (GDSS) applications, as a method for brainstorming and decision-making sessions in organizations, has not yet been disseminated and adopted by the majority of either businesses or public sectors. Observations and statistics from the field indicate that organizations have scant interest or no perception at all of this approach for decision-making process. This paper is devoted to investigate the reasons behind the lack of GDSS supported meetings' adoption and, therefore, dissemination by both private and public organizations. It, also, suggests solutions for overcoming challenges encountering GDSS supported meetings' industry. The paper reports on the results of a field study of 22 semi-structured intensive interviews conducted with users of GDSS meeting software, experienced facilitators, technical support experts and managers of GDSS meeting facilities. The research took place in real business environmental settings with interviewees whom used "FacilitatePro," "MeetingSphere" and "Spilter" GDSS meeting software.

Keywords: Group Decision Support Systems, Competitive Strategies, Marketing
JEL Classifications: C44, D7, M31

1. INTRODUCTION

The group decision support systems (GDSS) meeting application is designed to enhance the decision-making process by encouraging meeting participants to express divergent points of view and demonstrate disagreement due to the enabled "anonymous interaction" feature. Moreover, other enabled features of the GDSS application enable meeting members to brainstorm, discuss and vote on generated decision alternatives.

The collaboration of organizational activities conducted by joint group members is one of the critical success factors of contemporary organizations (Bajwa et al., 2013). Implementing GDSS to support decision making process is aimed to enhance the effectiveness, efficiency of organization and bring forth more productive group meeting outcomes (Nunamaker and Deokar, 2008; DeSanctis et al., 2008; Miranda and Sanders, 1995). The objective of enabling decision support systems, such as the GDSS meeting applications, within group meetings is to control meeting members' interactions for the purpose of enhancing group outcomes and achieving planned meeting objectives (Dasgupta, 2003).

The GDSS meeting application is designed to enhance the meeting processes by enabling all participants to simultaneously contribute many ideas or comments into the meeting's system. Meeting group members will contribute without the need to wait to be allowed to speak or for others to listen as participants in a traditional face-to face meeting need to. This feature is assumed to enhance the input and output rate which will in turn save meeting time compared to a traditional meeting.

Moreover, the GDSS system is also designed to encourage participants to have divergent points of view and show disagreement with other participants due to the availability of the anonymous interaction feature among meeting members

(Christopherson, 2007; Klein et al., 2003; Miranda, 1994). The anonymity feature enabled in the GDSS meeting system enables meeting participants to exchange ideas and comments anonymously without contribution or retribution fears that may exist in traditional face-to-face meetings (Smith et al., 2013). Therefore, the anonymity feature in a GDSS supported meeting generates and increases task-conflict among meeting participants (Al Shishany and Adams, 2013). However, despite the large investments in the IT sector this approach of decision making is not known yet by many organizations. This study explores this issue and suggests solutions to overcome this industry's challenges.

2. COMPONENTS OF A GDSS MEETING ENVIRONMENT

The GDSS supported meeting is mainly composed of three major components: The meeting facility or place (sometimes called the "iLab" or the "Innovation Space"), the facilitator, and the meeting application (software). The following sections will briefly describe each of these components to better understand the structure of the GDSS meeting facility and its meeting sessions.

3. THE "ILAB"

GDSS meeting applications are usually installed and run in meeting rooms and facilities called "iLab," which is an abbreviation for "Innovation Laboratory" (Jones et al., 2008). However, some GDSS application providers prefer to call these GDSS meeting facilities "Innovation Space."

The "iLab" (an acronym for Innovation Laboratory) was first established as a concept in 1977 by the "Royal Mail's Features and Innovation Group" in the UK. However, the current "iLab" at the "Royal Mail" was opened in 2000. The primary objective behind establishing an "iLab" was to provide an environment for employees to share innovative thinking, increase openness and help organizational teams to brainstorm and discuss possible decision alternatives and plan implementation (ibid).

The first component is the environment of the GDSS meeting. This space is where meeting participants meet around a rectangular or horseshoe-shaped conference table with each meeting member having a computer terminal and a keyboard. The chairs in the conference room have rolling feet and face each other. A large display screen is linked to a projector and placed in front of the group to display meeting members' interactions such as ideas, discussion topics and voting results (DeSanctis et al., 2008). It is a non-traditional meeting room where meeting group members gather around a discussion conference table with each group member having his own computer terminal linked to other terminals through a computer network.

The "iLab" is a special meeting boardroom designed to eliminate innovation barriers such as hierarchy, politics and traditional ways of thinking. The "iLab" is designed primarily for team-based meetings including decision-making sessions, conflict management, strategic planning and idea generation (ibid). The "iLab" is equipped with whiteboard walls and a shared large display screen (Korpela et al., 2012) (Figure 1).

One of the stronger aspects of the "iLab" facility is the ability to set geographic disparate meetings for groups from different locations, such as multi-branch international organizations that wishes to convene meetings which will avoid the cost for all employees to travel to one particular meeting facility to execute the meeting. The "iLab" facilities located in certain areas (organizations or cities) may provide meeting services for any organization willing to utilize the "iLab" facility services to conducted a GDSS supported meeting. This service can be provided by the "iLab" administrators for an agreed certain fee.

This situation is ideal where both organizations do not have the GDSS meeting facility or software installed (Jones et al., 2008). The following section will discuss the second component of the GDSS meeting environment.

4. THE FACILITATOR

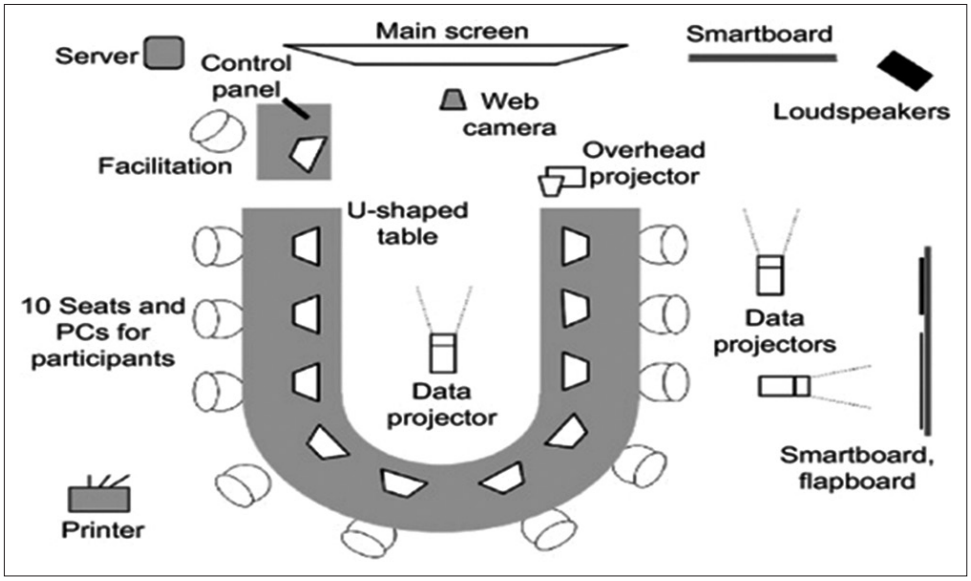
The "iLab" facilitator is the second major component of a GDSS meeting environment. To overcome the problem of group meetings' inefficiency, organizations deploy GDSS meetings facilitated by a human factor to run the meeting towards achieving its objectives (Adla et al., 2011). The facilitation can be described as "a set of functions or activities carried out before, during, and after a meeting to help the group achieve its own outcomes" (Bostrom et al., 1993. p. 147). In a study assessing GDSS meetings with a facilitator who was helping groups make decisions, groups with facilitators were found to have greater cohesion (Anson et al., 1995, cited in Dasgupta, 2003).

The facilitator of a GDSS meeting has the duty of managing meeting sessions effectively to reach the sessions' planned or required outcomes. Therefore, the GDSS meeting facilitator of an "iLab" is required to have additional skills to that which a typical meeting facilitator may have and is required to perform different tasks from a traditional meeting (Jones et al., 2008).

An "iLab" facilitator's role is far beyond a typical facilitator's role. The "iLab" facilitator, in addition to the above mentioned tasks, needs to meet the meeting objectives set by the person (the client) who booked the session. The client usually sets an agenda from his own perspective with a number of objectives. Afterwards, the meeting's objectives is planned in accordance with the "iLab" administrator and the facilitator. The "iLab" administrator and/or facilitator in turn need to make it clear to the client what the "iLab" is designed for and what it can achieve. The competence of an "iLab" facilitator is in his/her ability to utilize experience, knowledge and skills in performing effectively in a challenging high-tech "iLab" environment.

Finally, at the end of the meeting, the facilitator is required to prepare the final report of the GDSS meeting. The report will include all ideas proposed in the meeting sessions, prepare photographs for the whiteboards or the walls of the "iLab," which normally act like whiteboards for meeting discussions, and report

Figure 1: A group decision support system meeting room



Source: Korpela et al. (2012)

on the final agreed points and action plans for implementing these plans. The action plans will illustrate required tasks to be accomplished, with time-frame, by named certain individuals or employees.

The final report for the client summarizes all meeting activities that occurred within the meeting which eliminates possible human errors or biases in reporting meeting's outcomes. Therefore, the report is to reflect a true image and representation of what has really taken place in the GDSS meeting sessions. The next section will explain the third and final aspect of a GDSS meeting environment.

5. THE GDSS MEETING SOFTWARE

The technology aspect is the third major component of the GDSS meeting environment. This component is an easy to use GDSS application that enables meeting participants to interact anonymously or non-anonymously during discussions, propose ideas, apply solutions and work collaboratively. The application, also enables meeting participants vote on decision alternatives and eventually report meeting activities.

The software helps meeting participants to document their ideas and plans as they work without the need for writing them down separately as the software saves all discussions and conversations in its system (Jones et al., 2008).

The GDSS meeting application is one of the most important components of the "iLab" facility and environment. The GDSS meeting application is designed to enhance the meeting processes by providing the following features: The software enables all participants to simultaneously contribute many ideas or comments without the need to wait to be allowed to speak or for others to listen. This feature is assumed to enhance the input and output rate which will in turn save meeting time compared to a traditional meeting (Smith et al., 2013).

The GDSS system is also designed to encourage participants to have divergent points of view and show disagreement with other participants due to the availability of the anonymous interaction feature (Christopherson, 2007; Klein, 2003; Miranda, 1994). The anonymity feature enabled in the GDSS meeting system encourages meeting participants to exchange ideas and comments without contribution or retribution fears that may exist in traditional face-to-face meetings (Smith et al., 2013).

The GDSS system also provides the ability to categorize or classify the ideas and comments as required where each cluster of similar ideas can be added to a list and sent to a folder named with that theme of ideas, keeping a record of all meeting's discussions and activities and finally producing a report and an implementation action plan, if required, indicating a timeframe for finishing assigned tasks for each employee.

The GDSS meeting applications have software tools that support all decision-making processes or stages of a collaborative task and eventually provide an instant reporting service where all meeting outcomes, activities and deliverables are available for the meeting group (Bather, 2013). A final report is issued for the client or organization who booked the GDSS meeting at the "iLab" or the "Innovation Space."

Some of the aspects that a GDSS meeting report typically include are: A list of the meeting participants' names, generated ideas and discussions; all agreed results among the meeting participants such as the voting results and any enhancing materials for a comprehensive meeting image such as any photographs taken showing the meeting stages and activities. The following section will illustrate how the research and data collection method.

6. RESEARCH METHOD

Semi-structured interview method is the most commonly used kind of interviews in small scale social research (Thomas, 2011) and is

one of the best data collecting tools used in Information Systems (IS) research (Myers and Newman, 2007). Semi-structured interview with open questions method was chosen for this study for many reasons; firstly, for that it provides freedom of following up points, as necessary, which may encourage both the researcher and the interviewee to participate more actively by adding follow up questions, comments or gestures, uttering them in their own words (Packer, 2011; Thomas, 2011). Secondly, for that interviewee is allowed a greater deal of latitude in answering interview questions (Packer, 2011) and that it provides interviewee the opportunity to convey their experiences and perceptions (Kerwin et al., 2011; Fontana and Frey, 1994; Seidman, 1997) of the issues raised within the interview. "Semi-structured interview" method combines the advantages of both structured and unstructured interview methods; allowing subjects to freely pass from one subject to another, without the interviewer losing control of the guide or the plan for the interview (Elbeltagi, 2002).

In total 22 interviews were conducted. The interviews were recorded and transcribed. The interpretive research approach was adopted for the data analysis process (Walsham, 2006). One of the features of conducting intensive interviews is that it allows in-depth inquiry for the researched topic, which suites well interpretive type of research (Lofland and Lofland, 1984a; Lofland and Lofland, 1995b). Moreover, thematic content analysis (Bardin, 2007) was used to analyze collected data while interviewing the research subjects.

The 22 semi-structured interviews have been conducted with users, experienced facilitators in maintaining and facilitating GDSS sessions and with the technical support individual of these applications providers. Each interview lasted for, approximately, 1 h and has discussed around 30 questions covering issues relevant to the specific position or role of the subject as being a user, a facilitator or a technical support individual.

The users' interviews discussed issues related to the usage of the software and participants' interaction with the anonymity feature within the software. While the facilitators' questions investigated issues relevant to the experience from facilitating sessions and from observing participants behavior during the facilitated sessions. The technical support interviews were more related to the technical issues of the software itself, such as, the data encryption and data transfer protocols. A wide image was constructed from interviewing the three types of users for the GDSS meeting software.

7. PRIOR RESEARCH

International Data Corporation (IDC) study, conducted in May 2014, expected that the market size of Business Support Systems and Operational Support Systems, which GDSS is a part of these systems, would increase worldwide through the years 2014-2018. The report expected that spending on these systems by companies will grow from 28.3 $ billion in 2013 to reach 33.4 $ billion in 2018, at a growth rate of 3.4% (IDC, 2014).

Another recent report released by "COMMfusion LLC" announced that the net revenue for the conferencing and collaboration market was $2.7 billion in 2011, an increase of 20% from 2010 and is expected to grow to $8.47 billion by 2016, registering a compound annual growth rate of 50%, which is considered to be the fastest growth in the Unified Communications (UC) and Collaboration Market (Commfusion, 2016). These statistics reveal the size of this business sector and the importance of this type of research.

However, The previously mentioned reports highlights the fact that despite some challenges facing this market, it is expected that it may witness an increasing adoption of these technologies by different organizations once the value and benefits of using such an application are more apparent.

On the other hand, Bajwa et al. (2013) conducted a survey via email to investigate the utilization and impact of Collaborative Information Technologies (CIT) in four regions: Australia, Canada, USA and Hong Kong. The researchers analyzed over 600 international organizations to discover which types of CITs were mostly used to enhance organizational collaborative activities. Their findings indicated that the least used CITs in all four investigated regions were the ones supporting discussion and brainstorming sessions.

In addition, as Rich Costello, IDC senior research analyst, states "At this point in time, IDC believes that most organizations are comfortable in their basic understanding of UC and collaboration technologies". He stated further that "Many have already implemented solutions like IP telephony, messaging (email and instant messaging) and audio/Web conferencing, and are increasingly considering "next phase" of UC and Collaboration implementations such as mobility, videoconferencing, and collaboration" (IDC, 2013).

The findings of Bajwa et al. (2013) and the statements of Rich Costello in regard to CIT and collaborative technologies indicate that this particular field, although it's the least used by companies, it is an emerging and possibly promising investment opportunity. However, many organizations are not yet aware of the existence of these GDSS meeting applications and the value that these technologies may provide in terms of enhancing organizational decision-making effectiveness and efficiency.

8. "SAME TIME/DIFFERENT PLACES" GDSS SUPPORTED MEETINGS

Group support systems is divided into four configurations: "Same Time/Same Place"; "Same Time/Different Place"; "Different Time/Same Place"; and "Different Time/Different Place" (Klein et al., 2007; Mittleman and Briggs, 1999; Bostrom et al., 1993). This paper is limited to investigate only two configurations: "Same Time/Same Place" and "Same Time/Different Place."

One of the features of the "Same Time/Different Places" configuration is that it enables a GDSS supported meeting to be conducted from different locations at the same time; this is known as asynchronous meeting (Dasgupta, 2003). This feature allows participants to meet, using the GDSS meeting's application and the computer network facilities, from different locations utilizing

existing "iLabs" or "Innovation Centres." Such meeting can be conducted without the need for meeting participants to move physically to one specific place or a meeting room. This type of meeting saves the organization the transport cost of moving their employees to a specific geographic location or a meeting room. Some international businesses may benefit considerably from this feature due to the high cost of moving personnel across countries.

However, in the case of conducting a distributed "Same Time/ Different Places" form of GDSS meeting, currently existing GDSS meeting applications in the market lack a web-conferencing feature.

In asynchronous and distributed GDSS supported meeting, and for the purpose of meeting participants being able to see and hear each other, the participants and their meeting facilitator usually use a third party's web-conferencing application. This was the case, during this study, when the researcher needed to use a third party's web conferencing tool for conducting distributed GDSS meetings. The reason for that was, as mentioned earlier, the unavailability of a feature within the GDSS meeting applications that enables a video enhanced GDSS meeting. Therefore, the GDSS meeting organizer or a facilitator may use supplementary visual applications such as WebEx, Skype or any similar application that may fulfill the task of enabling GDSS meeting participants to see, hear and interact with each other visually.

Moreover, one of the challenges associated with conducting distributed GDSS meetings is that a facilitator has to manage meeting sessions over distributed geographic locations, and physically attending only one meeting room. This challenge can be tackled by providing a shared microphone and speakers at both locations where participants at both locations can hear the facilitator. However, the physical presence of the facilitator and his interactions with the meeting participants would be more effective than a situation where participants are able to hear the facilitator's voice only.

Therefore, GDSS designers (for the purpose of enhancing the performance of a GDSS meeting application and reducing its drawbacks) need to design a GDSS meeting software that combines the features of a GDSS meeting application and the capabilities of a web-conferencing tool as well. Moreover, enabling such a feature would enhance the autonomy of the GDSS meeting by not depending on a third party's software to complete a distributed meeting. This in turn would increase the security level against any potential hacking or unauthorized accesses. In addition, it would reduce the possibility of malfunctions that may occur due to the incompatibility of using, synchronously, two applications from different manufacturers. Consequently, this may help in the accumulated efforts for disseminating the "iLab" concept and this approach of decision-making in organizations.

9. DRAWBACKS OF THE GDSS MEETING TECHNOLOGY

One of the major reasons for the drain on employees' productivity and effectiveness is the dysfunction of the meeting processes. In addition to that, many of the traditional meetings face many problems such as no clear agenda, having hidden or political agendas, the domination of some participants on the processes, judgmental brainstorming and not having action or follow-up plans for the meeting (Austin et al., 2006).

Using the GDSS meeting system is a possible approach to overcoming most of these dysfunctions. One of the privileges of conducting a meeting using GDSS systems is that the GDSS meeting environment provides a combination of many-to-many (among meeting participants themselves) and one-to-many (facilitator to meeting participants) communication paradigms. In addition, GDSS meetings are structured to be interactive sessions among meeting group members and are based on contributing to the meeting processes and outcomes instead of passively listening to a presenter or a manager at the meeting (ibid).

However, despite its potential advantages the GDSS meeting systems come with some drawbacks:

- Not all organizational meetings require GDSS meeting applications as it is dependent on the objectives of the meeting. For example, in meetings that are designed to deliver top-down instructions a GDSS meeting environment will not be of much value (ibid).
- As discussed earlier, in the case of conducting a distributed "Same Time/Different Places" form of GDSS meeting all current GDSS meeting applications lack a web-conferencing feature. In a synchronous and distributed GDSS supported meeting, the participants and their facilitator usually use a third party's web-conferencing application to see and hear each other. The GDSS meeting organizer may use visual supplementary applications such as WebEx, Skype or any other similar applications that may fulfill the task of enabling GDSS meeting participants to see and interact with each other visually.
- The cost of hiring a meeting facility such as an "iLab" or purchasing and licensing the GDSS meeting software is an issue of concern that may dissuade managers from utilizing this opportunity. The following section discusses how to overcome this challenge.

10. THE COST OF CONDUCTING A GDSS SUPPORTED MEETING

An important aspect that may delay the spread of "iLab" usage by both private and public organizations is the cost issue associated with hiring the "iLab" facility itself. This cost could be justified by the "iLab" service providers because of the high costs associated with providing this service, such as the GDSS meeting application licence, the facilitator's remuneration and costs associated with the facility location and meeting's administrative arrangements. However, from the customers' perspective (organizations that are willing to hire this facility), the sum total of these charges formulates the bill that they will be required to pay for hiring a GDSS meeting facility.

Generally, organizations are cost sensitive and take the cost-benefit analysis approach in their actions and departmental expenditures.

Organizations always seek for alternatives that are more cost efficient, such as conducting face-to-face meetings within their own departments. Therefore, administrators of the "iLab" facilities should provide offers that are more convincing, and justify the cost to their customers that are willing to take this type of meeting and decision-making approach.

During this field study the researcher has noticed that some clients from both private and public sectors are avoiding the use of "iLab" facilities due to the relatively high costs associated with conducting this type of meeting, particularly, the non-distributed (Same Time/ Same Place) meetings compared to the traditional way.

The researcher during the data collection process visited the "iLab" in Turkey - Istanbul. The researcher found out that Istanbul "iLab" had been closed and no longer is providing the GDSS supported meeting facility services. Two main reasons for closing the "iLab" were the high costs which the clients who were willing to hire the facility encountered and the lack of marketing of the GDSS meeting facility itself within both the public and private sectors in Turkey. The lack of a marketing strategy is discussed in the next section.

11. THE LACK OF AN EFFECTIVE MARKETING STRATEGY

The researcher began presenting his research ideas and sections of his work at Essex Business School at the University of Essex in the United Kingdom. In addition, the researcher was able to present sections of his research and discuss some of the findings at different IT and academic international conferences around the world. These conferences were: The International Conference on Information Technology and E-Services (2013) in Tunisia, The International Conference on IS and Technology Management for Innovation and Regional Development (2013) in Jordan, The Tenth International Conference on Technology, Knowledge, and Society (2014) in Spain, The Second International Conference on Advances in Computing, Communication and Information Technology - 2014 – Birmingham, UK and, finally, The International Conference on "Innovative Trends in Multidisciplinary Academic Research - ITMAR-2014" in Istanbul, Turkey.

In addition, and in an ambitious attempt by the researcher to establish a GDSS meeting facility at the university sponsoring the researcher in Jordan in the Middle East, the researcher conducted several meetings for that purpose. The first meeting was with the CEO of one of the GDSS meeting application providers to obtain an offer for the hardware and software required to conduct a GDSS meeting. More meetings were then conducted with the head of the Chamber of Commerce and Industry in two major business and industrial cities in Jordan; Amman and Zarqa. Moreover, two major providers of meeting facilities were visited in Amman to discuss the visibility of establishing a GDSS meeting facility.

The general theme that shared all the locations, where this study was presented or discussed, was that none of the attendees or personal had any idea of the existence of the GDSS meeting applications or meeting facilities such as the "iLab" or "Innovation Centre."

Despite the fact that the University of Essex had two "iLab" facilities, one at the Colchester campus and the other at the Southend campus, none of the attendees knew about these facilities or the possibility of conducting this type of meeting or this approach of decision-making. This situation advocates strongly the need for more marketing work by the GDSS meeting applications and the GDSS meeting facilities providers to disseminate this type of knowledge and meeting form.

Moreover, GDSS application designers and GDSS meeting facility providers need to deploy more competitive strategies to maintain a market share in the CIT market. Both parties need to provide more cost efficient offers for those clients who may be considering these services. "iLab" facilities who buy the licence from the GDSS meeting application providers are already looking for more efficient home remedies or locally designed GDSS applications to avoid the cost of the annual licence fee. As a consequence, this industry lacks a good marketing strategy that conveys the advantages of this decision-making approach. The following section will discuss the value of conducting a GDSS supported meeting.

12. PERCEIVING THE VALUE OF CONDUCTING A GDSS SUPPORTED MEETING

GDSS supported meetings have been studied in different areas (Christopherson, 2007). Historically, findings suggest that CMC could help in avoiding dysfunctional social and psychological negative impacts found in traditional forms of communication and eventually create a conducive environment for participants' deliberation (Ho and McLeod, 2008). Features associated with GDSS form of meeting, such as the anonymous interactions among meeting participants, has been argued that it enables free, open and honest ideas without the fear of reprisal and personal or professional security concerns. Furthermore, it is argued that anonymity in GDSS meetings generates creative ideas (McLeod, 2011) and more comments (Nunamaker et al., 1997; Jessup et al., 1990a). Anonymity fosters better contributions; idea evaluation processes (Wilson et al., 2010) and reduces participant status differences (Flanagin et al., 2002).

Furthermore, anonymity in GDSS was found to generate a depersonalization status (Moral-Toranzo et al., 2007). This status of depersonalization caused by anonymity in computer mediated meetings leads to an extreme perception of group norms, more positive evaluation of participants' arguments, directing users to focus on the task in hand (Coleman et al., 1999) and driving their attention to messages being exchanged among group members (Lee, 2006). Moreover, anonymity is the main feature of the GDSS meetings (Reinig and Mejias, 2004; Rains, 2007), and is designed to promote more open participation (McLeod, 2011; DeSanctis et al., 2008), increasing the ability for strategic resistance within

group members (Spears et al., 2002; Coffey and Woolworth, 2004; Miranda, 1994).

Anonymity reduces the fears of criticism and retribution (Rains, 2007; Jessup et al., 1990b). The conflict generated in this type of meeting is expected to involve debate and divergent thinking (Behfar et al., 2010; Hobman et al., 2002), consequently increasing task-conflict among meeting participants (Al Shishany and Adams, 2013). Therefore, organizations need to be well informed and perceive the potential advantages of conducting a GDSS supported meeting.

To achieve this objective an effective marketing strategy needs to be deployed to promote the potentials of GDSS meeting's benefits. Unfortunately, exploring both public and business environments during this research confirms that still the large portion of organizations are unaware of these applications existence (Al Shishany and Adams, 2015).

13. DISCUSSUION, FINDINGS AND CONCLUSION

GDSS meeting applications are designed to maximize the positive aspects of task-conflict through fostering certain conditions that encourage meeting participants to disagree with others and freely express themselves at these meetings. However, in the real working environment a group's performance can sometimes be disappointing and meeting group members often fail to be effective in the decision-making process (Hardman, 2009). Hence, efficient conflict management requires a better understanding of the factors that may increase conflict within group meetings and a better understanding is needed for the interpretation of disagreement and its impact on group outcomes (Mooney et al., 2007), especially in a real business GDSS supported meeting environment when meeting participants are using these applications to support real organization's decision-making process.

However, conducting GDSS supported meetings as a method for decision-making in organizations, has not yet been disseminated and adopted by either businesses or public sectors. Observations and statistics from the field indicate that organizations have scant interest or no perception at all of this approach to decision-making. One important reason for this as these research findings indicate, is the cost of hiring an "iLab" facility for conducting a GDSS supported meeting.

Organizations are cost sensitive and take the cost-benefit analysis approach in running business activities and normal routine tasks such as conducting departmental meetings. Moreover, organizations usually require cost efficient alternatives, such as conducting face-to-face meetings within their departments. Or tend to use alternatives such as Skype or WebEx services when conducting distributed meetings.

The findings of this research should encourage other researchers to conduct a field study to try to explore the cost-benefit analysis of conducting a GDSS supported meeting and compare it with the value of a normal face-to-face meeting.

Moreover, another challenge associated with the distributed GDSS meeting is that a facilitator has to manage meeting's sessions over distributed geographic locations at the same time. This challenge can be overcome by providing a shared microphone with speakers at these locations where participants can hear the facilitator. However, the physical presence of the facilitator and his interaction with the meeting participants at only one site would be more effective than a situation where participants are able to only hear the facilitator's voice.

To solve the issue new technologies can be installed that can enhance these GDSS meetings within distributed locations. "TelePresence" technology is one of the most advanced and promising future display technologies in the consumer market (Reichelt and Leister, 2012). "TelePresence" is a holographic display technology that displays a natural-looking three-dimensional scene (Häussler et al., 2008, Reichelt et al., 2010) which could provide an effective solution to the problem of the facilitator and the participants being unable to see each other.

This technology may virtually place the facilitator in a different location using high definition video and audio technologies, and then enable meeting participants to appear as if they are having the facilitator physically in front of them. This feature has the ability to bring different and distributed groups together and also allows mutual eye contact between the participants and their facilitator. However, as mentioned previously, this feature has not been attempted and is associated with some technical challenges that need to be resolved. Therefore, this research recommends that those companies may exploit their Research and Development efforts on filling gaps of this type of meeting applications such as the gap of utilizing third parties web conferencing tools to conduct a "Same Time/Different Places" GDSS meeting.

However, if managers were well-informed and perceived the potential value of using this technology, it may contribute to the efforts of enhancing the adoption of these systems. Therefore, effective marketing strategies are required to be adopted by the GDSS meeting application designers and service providers to convey the privileges of conducting GDSS supported meetings.

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