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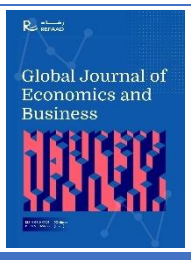

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Abstract: This research aims to assess the extent of the utilization of Green IT (MIS and AIS) tools and technologies by Jordanian service companies listed in the Amman Financial Market towards the goal of becoming sustainable. This study utilized the survey questionnaire method for collecting the data needed. Invitations to participate in this study were emailed to 135 of participants, which is consistent with the number of service companies listed in the Amman Financial Market. The number of participants was 72 which constitutes 53.3% response rate.

The results of the study indicate that there is a statistically significant effect at the confidence level of 5% of green IT tools systems (MIS and AIS) on the sustainability of service companies listed on the Amman Stock Exchange. The study recommended that service companies should investigate and consider the potential positive impact that cloud computing has on organizational sustainability, and future research efforts should also focus on attempting to quantitatively assess the positive impact that each of the "greening" IT tools and technologies on organizational sustainability.

Keywords: *Sustainability; Green IT; Corporate Responsibility; Management Information Systems (MIS); Accounting Information Systems (AIS).*

1. Introduction

Information Technology (IT) has proved itself to be a very reliable strategic business partner that enabled organizations to accomplish such strategic goals as operational excellence, efficient-decision making processes, and competitiveness which ultimately led to organizational survival (Francis & Willard, 2016). Today, organizations, on a whole, have increasingly being pressured by people and governments to implement practices that meet the demands of their ethical, social, and environmental responsibilities (Wu & Raghupathi, 2018). Therefore, due to the social consequences of how organizations handle such pressures, a whole new concept in organizational management has arisen today which often referred to as corporate citizenship also known as corporate sustainability. Today, more than ever, organizational leaders are vigorously planning and keenly pursuing to transform their organizations into becoming organizationally sustainable (Benn, Dunphy, & Griffiths, 2014). For instance, the large service companies' organizational systems, and mainly talk, Management Information Systems (MIS) and Accounting Information Systems (AIS).

For these organizations, as well as many others, corporate sustainability has become a key strategic organizational initiative that they must plan for and implement in order meet the demands of becoming socially responsible (Francis & Willard, 2016). Corporate sustainability initiatives and reporting is no longer a burdensome task upon corporate leaders, but rather a continuous effort that is becoming the norm of daily business operations (Baskin, 2014).

The impact of the advances in technology and telecommunications has introduced a whole new set of global challenges in the early twenty-first century (Francis & Willard, 2016). A survey conducted by CIO magazine in 2008 of 280 IT executives, indicate that IT executives on a whole are in fact moving towards adopting the "greening" of their IT operations initiative. According to the survey, these executives indicated that two principal reasons that they are adopting such initiative: cost-cutting by becoming more energy efficient and to become more socially responsible. Grant Thornton LLP (2011) conducted a survey of more than 500 business executives. According to this survey, all of the business executives surveyed agree that for the organization to be sustainable will certainly have a positive impact on the organization's reputation, its ability to realize its strategic goals, and profitability. Of those executives surveyed, 77% believe that their organizations' sustainability initiatives will have a significant impact on their business strategies for years to come.

The role of IT in assisting organizations in general and service from them in particular in achieving corporate sustainability has been investigated and researched in recent years. However, the amount of research that has been conducted on which specific IT tools and technologies that can assist the organization in becoming sustainable has been minimal. Nevertheless, the role of IT in assisting organizations in meeting their sustainability initiatives has been effective in enhancing the organization's capabilities to improve its economic as well as its environmental performance (Wijethilake, 2017). IT has also been considered an enabler of ecological competence due to its role in such sustainable activities as efficient energy consumption, efficient logistics and transportation (Hilly et al., 2006). Consequently, the objective of the current study is to bear in mind "greening" IT tool and technologies aiming at measuring their implementation by Jordanian service companies listed in the Amman Financial Market against the objective of turning into continuous matter.

2. Literature Review

The concept of Corporate Sustainability (CS) which is also referred to as Corporate Social Responsibility (CSR) is not a new one in the business literature. According to Wang et. al (2016), corporate sustainability denotes the deliberate organizational undertakings, which are often voluntary, that make evident the insertion of societal as well as ecological apprehensions in the organizational processes and transactions (Sarkis, 2018). Most of the literature advert to the IT purpose in making service companies face their social responsibility and sustainability initiatives as Green IT or Green Computing. These two terms refer to the utilization of IT resources and tools in an ecologically sustainable way, thus encouraging and assisting the organization in becoming socially responsible. Much of the IT research tackled the effect of Green Computing on Management Information Systems (MIS) and Accounting Information Systems (AIS) on the efforts of making IT and its tools more energy efficient and more environmental. Not much research has been devoted to the practices that organizations must undertake to utilize IT as an enabler of business sustainability. According to Freeman and Dmytriyev (2017), Green Computing should be focused on the efforts of developing, engineering, utilizing, and neglecting the hardware of each of Management Information Systems (MIS) and Accounting Information Systems (AIS); for example, computers, monitors and storage devices in a competent and responsible manner that will not impact the environment in a negative way. In other word, the question becomes: Should we manufacture "Green IT" or would it be useful to employ IT in Management Information Systems (MIS) and Accounting Information Systems (AIS) through a "Green" aspect to accomplish business sustainability? In this context, Green IT is seen as the responsibility of the manufactures of IT related tools and equipment as well as the end users (the organizations) who use such tools and equipment. However, for the purposes of this study, the focus will be on the Jordanian service companies listed in the Amman Financial Market utilization of IT in a way that helps them in facing their organizational continuous actions.

2.1. Organizational Sustainability

Our planet and its people are in peril. As Earth's population expands and urbanizes, rapidly depleting our natural resources, the climate is changing, the gaps in access to resources are widening, which makes mandatory for organizations to include organizational sustainability as a strategic organizational goal (Dzhengiz, 2020). Dzhengiz further indicates that sustainability is far more than a business buzzword. Organizations and individuals globally are taking charge of building healthier, more resilient environments and societies for future generations. Many research efforts have been set out to explore what the shift towards sustainability means for future-focused businesses and professionals (Nawaz & Koç, 2019). So, what is sustainability and how should we think about it?

Sustainability means different things to different people. The United Nations has traditionally defined it as "the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland et al., 2017). The UN laid down its 17 Sustainable Development Goals (or SDGs), acting as a blueprint for peace and prosperity in all member states (Giese et al., 2017). For most nations, SDGs have become the main criteria by which sustainability agendas are measured. Giese et al. further indicate that in the corporate world, these goals have been translated into standardized Environmental, Social, and Governance (or ESG) categories, used for measuring and reporting sustainability outcomes.

According to Giese et al. (2017), there's a tremendous public sentiment to try and do more, be it just the millennial that are coming through which primarily consist of 75% of the workforce. Many of the new investment

community and the young generation want to invest their money, not in companies that are drilling for oil, but companies that are trying to safeguard their futures. So, the thinking has changed in this tremendous public sentiment. It'll be swimming upstream if businesses don't start to make those changes to try meet the demands of becoming a sustainable more socially responsible businesses (Batista & Francisco, 2018). It's a case of businesses that will differentiate itself today, but it will become the norm tomorrow. So, people joining an organization want to believe in the organization that they're working for and they want to be contribute (Awan et al. 2020). And that they, the organizational culture and the goals of their organization, align with them.

2.2. Information Technology and Sustainability

The negative impacts that organizations have on climate change is only one aspect of organizational sustainability (Srisathan, et al., 2020). For example, software development has a very strong carbon footprint today, which we don't realize. The number of servers used in the software development processes is quite large. Private data centers today, not Cloud data centers, tune out something to the tune of 3.5% of global carbon, of the global carbon footprint, which is scheduled to move to 7.5% by 2025 (Srisathan, et al., 2020). Srisathan, et al. further indicates that in the next 25 years or so, it is expected that technology will have a carbon footprint larger than maybe seven other industries from travel, hospitality, aviation, etc. Therefore, the ICT (Information and Communications Technology) industry or the tech industry today already surpasses the aviation industry in terms of its carbon footprint (Srisathan, et al., 2020).

Most businesses have typically focused on their environmental impact, with climate change, energy, air, water, and waste among the top sustainability factors they report on (Egorova, et al., 2022). However, our research suggests a new emphasis on Information Technology (IT) as an enabler of organizational sustainability. In fact, IT has become one of the most important and effective tools that organization can utilize to accomplish their ESGs (Environmental, Social, and Governance) (World Health Organization, 2019). The world is moving quickly from an analog paper-based reality to a digital future and Which have massive role to play in such transformation. Everything that we do is most likely enabled through technology and digitalization, or digital tools. Therefore, through its flexibility and effectiveness, technology provides the tools on which we build and sustain businesses (Pizzi et al., 2020). This is a case about technology threading its way into the entire lines of business while accelerating sustainable progress across every area of the business. Becoming a sustainable business is becoming a must rather than an option to have. Investors, employees, customers, and governments are becoming more demanding of organizations to become sustainable and meeting such demands can be accomplished through technology (Pizzi et al., 2020). Therefore, technology leaders have their hands full with this and should be taking this seriously in terms of how to enable businesses to be better businesses at the end of the day. More purpose-led and more focused on planetary goals, but also people goals, which threads into every area of the business.

According to Schmermbeck (2019), the role of IT in assisting companies which provide services in meeting their sustainability initiatives can be approached from the standpoint that IT plays an important role in decreasing the negative environmental impacts of the organization's computing infrastructure. Brooks et al. (2010) indicates that the utilization of such infrastructure should include changes to the way that the companies which provide services conducts its daily business in a way that will improve energy consumption; therefore, decreasing the negative environmental impacts of the organization's computing infrastructure. To accomplish that, Brooks et al. further indicates that the companies which provide services must adopt Green IT tools and technologies that will assist the organization in becoming sustainable. Based on the literature reviewed for this study, several Green IT tools and practices have been identified that are widely considered as having major positive impact in assisting companies which provide services in becoming sustainable. These greening IT tools and practices are:

2.2.1. Email

Electronic Mail (email) is considered one of the most disruptive technologies utilized by companies which provide services. According to Edwards (2019), globally, the postal service is facing a financial crisis due to the fact that email is replacing the traditional paper-based mail delivery. However, utilities sector is replacing the paper-based billing of their customers by online payment systems. Internal as well as external organizational communications have been chiefly conducted via email. This is due to the fact that the utilization of email has proven to bring significant financial benefits to the organization. According to Charlton (2014), overall, the utilization of email as a marketing tool has contributed 23% of their total sales compared to 18% in 2013. The utilization of email as a medium for communication and marketing has also had a significant positive impact on the natural environment. This is due to the fact that the utilization of email has cut down drastically the utilization of paper as the medium for communication in Management Information Systems (MIS) and Accounting Information Systems (AIS).

2.2.2. Video Conferencing

Video Conferencing is one of a group of technologies that are referred to as Information and Communications Technologies (ICT). According to the Marriam Webster dictionary, video conferencing is defined as the "method of holding meetings that allows people who are in different cities, countries, etc. to hear each other and see each other on computer or televised screens." This definition, in itself, is a testament of the capabilities of video conferencing technologies in assisting the organization in meeting its sustainability initiatives. Meanwhile, companies which provide services covered by increased pressures to compete on a global level which means that the new competitive business landscape requires companies which provide services to seek new markets and to expand its operations beyond its normal and defined geographical locations. Consequently, this puts extra added burdens on the companies which provide services in the form of managing and controlling these globally dispersed parts of the organization, not to mention the costs associated in making these locations connected together and with the main office for the purpose of collaboration. For example, if globally dispersed companies which provide services need to hold a business conference or meeting in certain geographical location, often the company's headquarters, such conference or meeting will certainly impact the environment in a negative way. This is due to the fact that the participants in such conference of meeting need to travel from different cities which means utilizing some form of transportation which is often air based or land-based travel.

2.2.3. Cloud Computing and Virtualization

According to Oster (2011), the future of IT is represented in the practices and applications that are being offered by Cloud Computing. Oster indicates that this is due to the flexibility and the on-demand computing services that Cloud Computing represents; therefore, making the organizational investment in Management Information Systems (MIS) and Accounting Information Systems (AIS) in such computing infrastructure yields a high return on such investment. More recent research efforts have focused on the utilization of such services in order to assist organizations in becoming sustainable. According to Grant Thornton LLP (2011), the capabilities of Cloud Computing as a "greening" agent for the organizations computing infrastructure is manifested mainly through the virtualization of servers and datacenters which traditionally have high rates of energy consumption.
According to Mell and Grance (2011, p. 2), Cloud Computing includes the following services:
Software as a Service (SaaS), which provides the ability provided to the consumer which is to use the provider's applications in Management Information Systems (MIS) and Accounting Information Systems (AIS) running on a cloud infrastructure 2. The applications in Management Information Systems (MIS) and Accounting Information Systems (AIS) are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.
Platform as a Service (PaaS). The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications in Management Information Systems (MIS) and Accounting Information Systems (AIS) created using programming languages, libraries, services, and tools supported by the provider.3 The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications in Management Information Systems (MIS) and Accounting Information Systems (AIS) and possibly configuration settings for the application-hosting environment.
Infrastructure as a Service (IaaS). The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications in Management Information Systems (MIS) and Accounting Information Systems (AIS). The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).

3. Objectives, Methodology and Model of the Research

The aim of this study is to assess the extent of the utilization of Green IT Management Information Systems (MIS) and Accounting Information Systems (AIS) tools and technologies by Jordanian service companies listed in the Amman Financial Market towards the goal of becoming sustainable. This study utilized the Survey Questionnaire method for collecting the data needed. Such method is an appropriate one utilized in such quantitative studies (Cooper & Schindler, 2004, p. 161). The results of this study will provide solid evidence that the organizational utilization of Green IT Management Information Systems (MIS) and Accounting Information Systems (AIS) tools and technologies will certainly assist the service companies in becoming sustainable.

Figure (1) shows the Independent variable as being "Greening IT Tools Management Information Systems (MIS) and Accounting Information Systems (AIS) which encompasses:

collaboration tools, cloud computing, workflow technologies, virtual Networking, cloud computing for resource optimization, Virtual Private Networks (VPN), Electronic Mail (Email), Video Conferencing. The dependent variable as being service corporate sustainability:

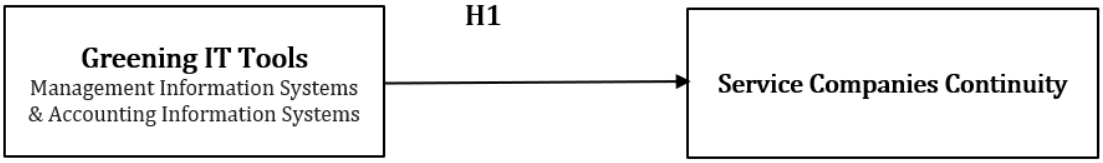

Figure (1): Research Model

Therefore, based on this research model described above, this survey has the following hypotheses:

H1: There is no statistically significant effect at the level of significance (a ≤ 0.05) for impact of green IT tools systems (MIS and AIS) on the sustainability of service companies listed on the Amman Stock Exchange.

3.1. Analysis Means and Methods

The following scale was used in the analysis through employing a survey questionnaire as shown in Table (1):

Table (1): Survey questions scale

Answer Option	Weight
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

According to the participants' answers, each question mean and standard deviation were calculated, consequently, it can be seen from Table No.2 that grouping which was used to decide the average weight for each question:

Table (2): Questions weights based on the scale provided in Table 1

Low	if average weight is between 1.00 - 2.33
Medium	if average weight is between 2.34. – 3.66
High	if average weight is between 3.67 – 5.00

The survey questionnaire that was utilized in this study was developed online using the services of the Google Forms®. Participants in this study were informed of the straightforward nature of the survey as well as the purpose of the research. Participants were informed that participation in the study was strictly confidential and voluntary. Participants were informed that they were not required to reveal their identity in any shape or form. The privacy and safety of all participants in the survey was safeguarded.

Arbitrary collection of sample participants from a population of service companies which are indexed in Amman Financial Market that has an equal chance of participating was utilized in this study. The target number of participants in the survey was 135 active organizational leaders and executives who work for service companies which are indexed in Amman Financial Market. Meanwhile, 135 participants as well as the same number of service companies are indexed in Amman Financial Market. Such method of data collection is considered effective since it would be easier to collect the data where it would be stored in a central repository where access to such data is protected and efficient. The data collected for this study was then directly imported into Microsoft Excel 2017®. The direct import of data from a database eliminates the chances of errors if data was to be recorded manually from paper-based surveys.

3.2. Validity and Reliability

To ensure the validity and reliability of the research instrument utilized for this research effort, a pre-test pilot was conducted which included 30 Jordanian companies which provide services. These companies were selected to participate in this study due to their large IT Management Information Systems (MIS) and Accounting Information Systems (AIS) operations. Limiting the participants to for-profit organizations was to aid in the validity of the study. Avoiding bias and attaining impartiality in computing associated research is virtually impossible since such research is frequently founded on questions correlated with policies related to the implementation and utilization of high tech, however, a researcher must avoid considering much situations or have perspectives. As a consequence, no situation, even if IT is having a positive or negative relationship with organizational sustainability, is taken in this study. This is in an effort to diminish or remove any chances of bias in the findings and conclusion of this study. Moreover, the researcher has adopted the utilization of quantitative methods for the examination and analysis of

the data collected. An online survey questionnaire has been selected as the mechanism for data collection. Such instrument has the predisposition to significantly decrease the probabilities for bias since there is no straightforward communication between each of the sample participants and the researchers (Neuman, 2000) and (Amarin, 2015). The data collected for this study was instantly stored in a protected database.

3.3. Ethical Considerations:

Participants were invited to partake in this research effort using invitations that were sent to them via electronic mail (email). The researcher name was dissolved to these participants, the purpose of the study, why and how they have been nominated to participate, and the anticipated length of their participation. The invitations also enclosed details related to such essential issues as the confidentiality and privacy of each participant. Participants were made cognizant that their contribution to this research effort was strictly voluntary and that they can withdraw from completing the survey at any time. Lastly, participants were given instructions on how to acquire the research results and findings if they wish to do so.

4. Findings and Discussion

However, 135 invitations were sent to the participants in this study, namely, the service companies which are indexed in Amman Financial Market. The response rate was 53.3%, which means 72 out of 135 participants. Meanwhile, the questionnaire consisted of 22 questions, mostly concentrate on many viewpoints aim to aid assisting the study's hypothesis, which are as follows: first, examine the organizational liabilities and obligations of sustainability, come upon the organizational advantages and objectives in order to agree on and apply sustainability initiatives, also figure out the range over organizational utilization extend of what is considered "greening" IT means and technique, which are as follows:

First of all, there are the collaboration tools, secondly, the cloud computing, thirdly, the workflow technologies, fourthly, the virtual networking, fifthly, cloud computing for resource optimization, sixthly, the virtual private networks, seventhly, the electronic mail, and finally, video conferencing.

5. Testing Study Hypotheses

H1: There is no statistically significant impact at the level of significance ($a \leq 0.05$) of green IT means systems; which are Management Information Systems (MIS) and Accounting Information Systems (AIS) on the sustainability of companies which provide services indexed on the Amman Stock Exchange.

It can be seen from the table No. 3 that there is an impact of green IT means systems which are Management Information Systems (MIS) and Accounting Information Systems (AIS) on the sustainability of companies that provide services and are listed on the Amman Stock Exchange at a confidence level of 5%, also it has a strong relationship and a statistically significant impact. Knowing that the t-test value is 2.92485, the statistical significance value is 0.0275, the coefficient value is positive, i.e. 0.039491 while the R-squared value is 0.78015, and this means that the independent variable explains more than 78% of the changes in the sustainability of service companies listed on Amman Stock Exchange, which indicates a high percentage.

Table (3): The Management Information Systems (MIS) and Accounting Information Systems (AIS) impact on the sustainability of companies which provide services

Independent variable	Coefficient	Std. Error	t-Statistic	Prob.
	0.039491	0.013912	2.92485	0.0275
R-squared	0.78015			

Therefore, the current study aims to investigate the organizational utilization of these "greening" IT means and techniques in enhancing the organizational sustainability. Whatever, the discussion and findings of the current study are related to the questions that reached the highest rating which have a straightforward impact on helping gain its goals.

5.1. Question: My organization utilizes collaboration tools available in Web 2.0 and Web 3.0 such as tagging, RSS, and Wikis in order to facilitate more efficient communication and distribution of information.

The total number of respondents was 72 out of which 64 respondents indicated that they agree and 56 respondents indicated that they strongly agree that their organizations do indeed utilize collaboration tools and technologies in order to facilitate more efficient communication and distribution of information. The average response rate was 4.61 which indicates a high degree of agreement by respondents as to the utilization of such collaboration tools and technologies towards achieving efficient organizational communications channels.

5.2. Question: My organization is utilizing cloud computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations

The total number of respondents was 72 out of which 59 respondents indicated that they agree and 48 respondents indicated that they strongly agree that their organizations do indeed utilize Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations. A total number of 4 respondents indicated that they do not know if their organizations utilize Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations. The average response rate was 4.31 which indicates a high degree of agreement by respondents as to the utilization of Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations.

5.3. Question: My organization utilizes workflow technologies in order to reduce the amount of printing

The total number of respondents was 72 out of which 64 respondents indicated that they agree and 47 respondents indicated that they strongly agree that their organizations do indeed utilize workflow technologies in order to reduce the amount of printing. Four respondents indicated that they do not know and 1 respondent indicated that they disagree that their organizations utilize workflow technologies in order to reduce the amount of printing. The average response rate was 4.47 which indicates a high degree of agreement by respondents as to the utilization of workflow technologies in order to reduce the amount of printing.

5.4. Question: My organization utilizes virtual network servers in order to decrease the dependence on physical hardware

The total number of respondents was 70 out of which 53 respondents indicated that they agree and 42 respondents indicated that they strongly agree that their organizations do indeed utilize virtual network servers in order to decrease the dependence on physical hardware. One respondent indicated that they do not know. The average response rate was 4.01 which indicates a high degree of agreement by respondents as to the utilization of virtual network servers in order to decrease the dependence on physical hardware.

5.5. Question: My organization utilizes Cloud Computing technologies to optimize resources

The total number of respondents was 68 out of which 57 respondents indicated that they agree and 25 respondents indicated that they strongly agree that their organizations do indeed utilize Cloud Computing technologies to optimize resources. Four respondents indicated that they do not agree. The average response rate was 3.83 which indicates a high degree of agreement by respondents as to the utilization of Cloud Computing technologies to optimize resources.

5.6. Question: My organization utilizes Virtual Private Networks (VPN) to allow employees to work from home

The total number of respondents was 65 out of which 52 respondents indicated that they agree and 28 respondents indicated that they strongly agree that their organizations do indeed utilize Virtual Private Networks (VPN) to allow employees to work from home. One respondent indicated that they do not know while 5 respondents indicated that they disagree. The average response rate was 3.58 which indicates a medium degree of agreement by respondents as to the utilization of Virtual Private Networks (VPN) by their organizations to allow employees to work from home.

5.7. Question: My organization utilizes email extensively in order to eliminate paper-based communication

The total number of respondents was 72 out of which 65 respondents indicated that they agree and 59 respondents indicated that they strongly agree that their organizations do indeed utilize email extensively in order to eliminate paper-based communication. The average response rate was 4.72 which indicates a high degree of agreement by respondents as to the extensive utilization of email in order to eliminate paper-based communication.

5.8. Question: My organization utilizes Video Conferencing and Internet based techniques such as Webinars to communicate with remote employees and business partners

The total number of respondents was 72 out of which 68 respondents indicated that they agree and 52 respondents indicated that they strongly agree that their organizations do indeed utilize Video Conferencing and Internet based techniques such as Webinars to communicate with remote employees and business partners. One respondent indicated not knowing. The average response rate was 4.63 which indicates a high degree of agreement by respondents as to the utilization of Video Conferencing and Internet based techniques such as Webinars to communicate with remote employees and business partners.

6. Conclusion, Recommendations, and Future Research

The business and IT literature includes many studies and research efforts that are geared towards assisting organizations in achieving their sustainability initiatives. In this context, an organization that is seeking to achieve its sustainability goals and initiatives must take into consideration the powerful role of Information Technology (IT) in assisting these organizations in accomplishing such goals and initiative (El Bilali & Allahyari, 2018). This

study has provided solid evidence that IT and its related tools and technologies are in fact assisting organizations in realizing their sustainability goals and initiatives.

This study took into consideration certain "greening" IT Management Information Systems (MIS) and Accounting Information Systems (AIS) tools and technologies that are considered as enablers of organizational sustainability. These tools and technologies included: Collaboration tools, Cloud Computing, Workflow technologies, Virtual Networking, Virtual Private Networks (VPN), Electronic Mail (Email), and Video Conferencing. Based on the average participants' response rate, each of these technologies had a high rate of agreement among survey participant except for VPN which had a medium rate of agreement. It can be seen from Table No.4 that the top two highest scoring among these tools and technologies were Email and Video conferencing.

Table (4): Classification of each IT Greening tools and technologies based on the average response rate

GREENING IT TOOLS	Average Response Rate	Average Weight (Based on Table 2)
Email	4.72	High
Video Conferencing	4.63	High
Collaboration Tools	4.61	High
Workflow Technologies	4.47	High
Cloud Computing for Power Management	4.31	High
Virtual Networking	4.01	High
Cloud Computing for Resource optimization	3.83	High
Virtual Private Networking (VPN)	3.58	Medium

The utilization of email by companies which provide services as the means of communicating has been considered a major factor in helping service organizations achieve their sustainability initiatives. According to the United Nation's Food and Agriculture Organization (FAO), the paper industry consumes 11% of the wood harvested from forests around the World. According to Alcatel-Lucent (2011) the utilization of email is helping organizations in significantly decreasing carbon emissions through the replacement of paper documents used for billing and payment by electronic bill payment methods.

The global nature of the business landscape today has made mandatory upon organizations to utilize different tools and technologies that will achieve optimum communications between the globally dispersed parts of the organization. Video Conferencing technologies will certainly enable the organization to accomplish efficient internal communication. Not only that, but also assist the companies which provide services in realizing its sustainability initiatives since such technologies drastically cut down the reliance on traditional means of transportation which are known to contribute significant amounts of pollutants. According to Nash (2011), an assessed value of $5.8 million dollars was saved by CIO Magazine on its related business travel by using Video Teleconference (VTC). Nash further indicates that the utilization of VTC has contributed to a decrease of 7,500 metric tons of CO2 emissions in just air travel for CIO Magazine during the year 2010. According to Alcatel-Lucent (2011) ICT technologies such as teleconferencing and videoconferencing have considerably reduced business travel which has in turn decreased Greenhouse Gases (GHGs) significantly.

Cloud Computing, even though it was not among the highest scoring "greening" IT Management Information Systems (MIS) and Accounting Information Systems (AIS) tools and technologies based on the findings of this study, it has the potential to be a powerful factor in enabling organization in realizing their sustainability goals. According to Microsoft "Green Computing" report (2008), "Cloud computing provides the next big thing in computing — some interesting architectural constructs, some great potential from a monetary aspect, and a very real option to provide a more environmentally friendly computing platform. Therefore, it is the recommendation of this study that companies which provide services should investigate and consider the potential positive impact that Cloud Computing has on organizational sustainability. Future research efforts should take into consideration further investigation such potential. Future research efforts should also focus on attempting to quantitatively assess the positive impact that each of the "greening" IT tools and technologies on organizational sustainability. Other "greening" IT Management Information Systems (MIS) and Accounting Information Systems (AIS) tools and technologies should also be taken into consideration is such research efforts.

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تقييم تأثير أدوات وتقنيات تكنولوجيا المعلومات الخضراء على استدامة النظم التنظيمية في شركات الخدمات

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الملخص:

هدفت هذه الدراسة إلى تقييم مدى استخدام أدوات وتقنيات تكنولوجيا المعلومات الخضراء (MIS و AIS) من قبل شركات الخدمات الأردنية المدرجة في سوق عمان المالي بهدف تحقيق الاستدامة. استخدمت هذه الدراسة أسلوب الاستبيان المسحي لجمع البيانات المطلوبة. تم إرسال الاستبانة للمشاركة في هذه الدراسة عبر البريد الإلكتروني إلى 135 من المشاركين بما يتوافق مع عدد شركات الخدمات المدرجة في سوق عمان المالي. بلغ عدد المشتركين 72 أي بنسبة استجابة 53.3%

تشير نتائج الدراسة إلى وجود تأثير ذي دلالة إحصائية عند مستوى ثقة 5% لأنظمة أدوات تكنولوجيا المعلومات الخضراء (MIS و AIS) على استدامة شركات الخدمات المدرجة في سوق عمان المالي.

أوصت الدراسة بضرورة أن تقوم شركات الخدمات بالتحقيق والنظر في التأثير الإيجابي المحتمل للحوسبة السحابية على الاستدامة التنظيمية ويجب أن تركز جهود البحث المستقبلية أيضًا على محاولة التقييم الكمي للتأثير الإيجابي لكل من أدوات وتقنيات تكنولوجيا المعلومات "الخضراء" على الاستدامة التنظيمية .

الكلمات المفتاحية: الاستدامة؛ تكنولوجيا المعلومات الخضراء؛ مسؤولية الشركات؛ نظم المعلومات الإدارية (MIS)؛ أنظمة المعلومات المحاسبية (AIS).