

Why should organizations encourage data sharing?

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Abstract

Purpose: With the progress of big data, breakthrough technological development and digitalization, voluminous data is available. Nonetheless, a few federal statutes mandate that private, sensitive, and individual information be adequately safeguarded. Therefore, many (people and organizations) are not willing to share their data openly or be involved in data sharing practices. This paper discusses the benefits of data sharing, which can outweigh its potential harm and negative consequences. This paper will give some overviews of the benefits of data sharing to decision making, innovation and education.

Design/methodology/approach: This conceptual paper employs a qualitative research method. It involves synthesizing and reviewing the articles related to the topic under study to understand the themes and arrive at its findings and conclusion.

Findings: The finding highlights the benefits of data sharing on decision making, innovation and quality of education. With data sharing, individuals and organizations can use it as resources to solve problems, arrive at solutions, and make predictive analytics, thus preparing for what will happen. This paper also elucidates the reciprocal advantages data sharing may provide to organizations and society.

Research limitations/implications: This paper has some limitations being a conceptual paper especially in terms of specific significant benefits. This paper only focuses on three benefits (i.e. decision making, innovation and education), thus restricting the generalizability of the paper to other potential benefits.

Practical implications: This study focuses on a few advantages that enhance data sharing practices. The article also discusses the obstacles to data sharing and offers solutions to improve data security. This can boost data owners' confidence in sharing their data. Thus, organizations can use this article as a reference when addressing data-sharing-related challenges.

Originality/value: This paper overviews and highlights the benefits of data sharing to improve people's lives and work. Most research focuses on the benefits of big data, and only some have explained the effectiveness of data sharing to organizations and society. Thus, this paper can become an impetus to data sharing, a plethora of discussion and insightful ideas on the benefits of data sharing in organizations.

Keywords: Data sharing, Decision making, Innovation, Education

Introduction

Data sharing refers to the disposition or preservation of data for public access with the purpose of providing access for reuse (Chawinga & Zinn, 2019). It is also called open data or

a deliberate effort to make raw data fully available for public access (Dong & Li, 2016; Chawinga & Zinn, 2019). Data sharing facilitates research and transferring into values through data reuse, making data interoperable (Logan, 2021). Data sharing differs slightly from knowledge sharing or information sharing as both normally refer to the exchange or sharing of knowledge or information among employees in the organizations they acquired or created (Gibbert & Krause, 2002; Rutten, Blaas-Franke & Martin, 2016). Some, such as Hogel, Partboteeah and Munson (2003), define knowledge sharing as the exchange of experience, information, skills and tacit and explicit information among employees. Other studies, such as Wiewiora, Trigunasyah, Murphy and Coffey (2013), define knowledge sharing as expert insights, while Wagner (2008) defines it as the act of making knowledge available to others (either within the firms or outside the firms). Similarly, as defined by Xiao, Zhang and Basadur (2016), information sharing refers to members (employees) delivering information to each other. Therefore, what makes data sharing different from information sharing or knowledge sharing is data sharing is more comprehensive and includes raw data, primary or secondary data, facts, knowledge, evidence, and experience, and it goes beyond the academic world (Hulsen, 2020). Therefore, it can be understood that knowledge sharing and information sharing are part of data sharing.

Currently, many important data are shared strictly mostly for internal use due to confidential, privacy and security issues (Farid, Warraich, & Iftikhar, 2023; Ustundag, Cevikcan, Ervural, & Ervural, 2018). By restricting the data, the organizations possessed the power to control the data from being misused by the third party, to protect the property rights and the privacy of the data owners, and to prevent intelligence data from leaking to their competitors or scammers (Pearson, & Benameur, 2010). In general, the benefits of data sharing outweigh its potential damage or any adverse effects, especially if the technology and the laws could strictly protect the data, especially the identity of the data owners. In this way, the strict law and the technology needed to prevent unauthorized third parties from identifying the data owners to ensure the data shared remains anonymous, and their identities are securely protected without any trace to the data that is publicly made available. This will increase the data owners' confidence in the security of their personal or confidential data when engaging in data sharing and directly encourage data sharing practices among individuals and organizations, especially if they understand the needs and benefits data sharing can bring. The importance of data sharing practices can be explained using a human body as a metaphor. For a body to function effectively and optimally, each organ and cell need to receive information from the brain and communicate the information to the rest of the body to respond. Similarly, data sharing in which the data stored in repositories such as iCloud can be accessed whenever needed to solve problems or make predictions about the future. Using the human body as a metaphor, data sharing is like a brain; thus, when the cell in the body needs more nutrients, the brain will send the information to the body to feel hungry and eat. Similarly, with data sharing, if the organizations face some issues, the managers or the employees can extract the data from the data sharing repositories to understand the cause and to predict some viable solutions based on the data sharing either from within the company or outside that may face similar or related problems. Thus, the issue can be dealt with quickly and effectively with real-time and precision solutions.

The ideal of data sharing practices is to ensure that the data shared will be useful to all in making accurate and precise decisions, improving innovation-related development and work (Wang, Kung, & Byrd, 2018; Flahault, Geissbuhler, Guessous, Guérin, Bolon, Salathé & Escher, 2017) and to link the data from the repositories of each company through for example iCloud which the public can access for their benefits.

This study aims to discuss conceptually the benefits of data sharing practices, especially in decision making, innovation and education. This paper provides some overviews of why organizations should promote data sharing in the organizations. Specifically, this paper focuses on the importance of data sharing in decision-making, innovation and education.

Significance of the study

This study sheds some light on the benefits of data sharing that could outweigh its harms or disadvantages. This study also addresses the barriers to data sharing that lead many organizations to refuse open data sharing. Strict laws that could protect data are necessary to optimize data sharing fully. Technology use is also crucial to guarantee the privacy, confidentiality, and security of data, as this increases the confidence of data owners and encourages the adoption of more data sharing practices. In addition, this study can extend the literature on data sharing and directly enhance the researchers, scholars and other stakeholders' knowledge of the importance of data sharing and the laws that govern the data sharing policy as well as the technology available in securing the data, especially the private and confidential data. This will improve stakeholders' knowledge and understanding of the process involving data sharing. This study also can be a reference for stakeholders in making decisions about their own data sharing practices (either to share or not to share), especially if the technology and the laws needed to protect data security are not clearly and transparently declared by the organizations. Although data sharing in general is very beneficial, some organizations are not always willing to spend their money on buying the latest technology and hire or outsource experts to improve their data security which not only could jeopardize their whole data system security but also risk the private and confidential data from leaking to unauthorized parties which could harm the data owners. The organizations that encourage data sharing but fail to provide the necessary data protection and security measures are violating the rights of data owners under the privacy and confidential acts. By not abiding the acts, the organizations act irresponsibly by freeing themselves from any potential lawsuits due to the lack of data security provided. This is not only breaching the organizations' corporate and social responsibility but also data owners' right to data security and protection.

Literature Review

Nowadays, many issues found in organizations are mostly due to performance, efficiency, satisfaction, ethical-related problems and the like (Grunig, Grunig, & Ehling, 2013; Choi, Kumar, Yue, & Chan, 2022; Acciarini, Cappa, Boccardelli, & Oriani, 2023). The primary reason for the existence of many of these challenges is that organizations lack the proper data or historical knowledge needed to address and resolve them (Alzubaidi, Bai, Al-Sabaawi, Santamaría, Albahri, Al-Dabbagh, & Gu, 2023; Kuzio, Ahmadi, Kim, Migaud, Wang, & Bullock, 2022). As a result, many people turn to hard and lengthy processes to deal with the problems, and by the time the issue is addressed, other issues arise, which also need time and extended research and application to manage and handle them. This indirectly increases the organization's burden to not only manage the issues at hand but can also cause adverse consequences on the operation, cost etc if not overcome quickly. With the emergence of the big data revolution, accurate and real-time data might be obtained from data sharing to address problems, perform a strong predictive analytical assessment, and provide potential practical alternatives or solutions (Nilashi, Keng Boon, Tan, Lin, & Abumalloh, 2023). The main difficulty with data sharing is that individuals and organizations are hesitant to share their data due to several issues such as confidentiality, property rights and privacy matters (Wang, Xu, Fujita, & Liu, 2016). Nonetheless, these problems could be quickly and effectively resolved with the help of modern technology and stringent legal regulations. For

instance, data owners' identities could be made anonymous (Basso, Matsunaga, Moraes, & Antunes, 2016; Tene, & Polonetsky, 2012) or masked with dummy identities (Wu, Shen, Lian, Su, & Chen, 2020) that are indistinguishable from the actual data owners' identity. By protecting the identity that directly identifies the data owner, the data shared are secured and protected while maintaining their legitimacy and validity as a source for problem-solving, prediction, and decision-making. This is achieved by safeguarding the identity of the data owner. This will encourage more data sharing practices especially if all widely understand and accept the benefits of data sharing. Data sharing has a plethora of potential advantages that may enhance people's lives and increase the performance of organizations.

Methods

This paper is conceptual. It involves a qualitative method of compiling and synthesizing articles related to the themes under study. It also involves reviewing the content of the articles to understand the pattern of information related to data sharing. Specifically, the articles related to data sharing were compiled and synthesized according to themes such as data sharing, decision making, innovation, and education and also the linkages between data sharing and decision making, innovation and education. By focusing on these variables as the main themes will expose the readers to the importance of data sharing practices in general and the benefits of data sharing especially in relation to decision-making, innovation and education.

The extant literature was summarized and synthesized from the articles published between 2000 and 2023. As data sharing is quite a new phenomenon, the business articles from McKingsley and the Society for Human Resource Management (SHRM) were also used to understand the role of data sharing in making sound and effective decision-making, advanced and better innovation and high-quality education. Generally, 10,500,000 results are displayed, of which 3,760,000 are associated with decision-making and data sharing, 4,600,000 with the advantages of data sharing for innovation, and 5,500,000 with the benefits of data sharing for education. However, this paper only focuses on the benefits of data sharing in improving and enhancing decision making, innovation and education. Thus, only a few articles are referred to advance the research knowledge regarding the topic under study. The study uses Nvivo software, version 12 to analyse the content of the articles related to data sharing in decision making, education and innovation. In brief, the result of the cluster analysis indicates that several themes such as quality of information are important in making decisions, while data analytics are found particularly important in learning (education). Innovation is found to have a close relationship with big data, business performance, technology and productivity. Figure 1 displays the result of the cluster analysis.

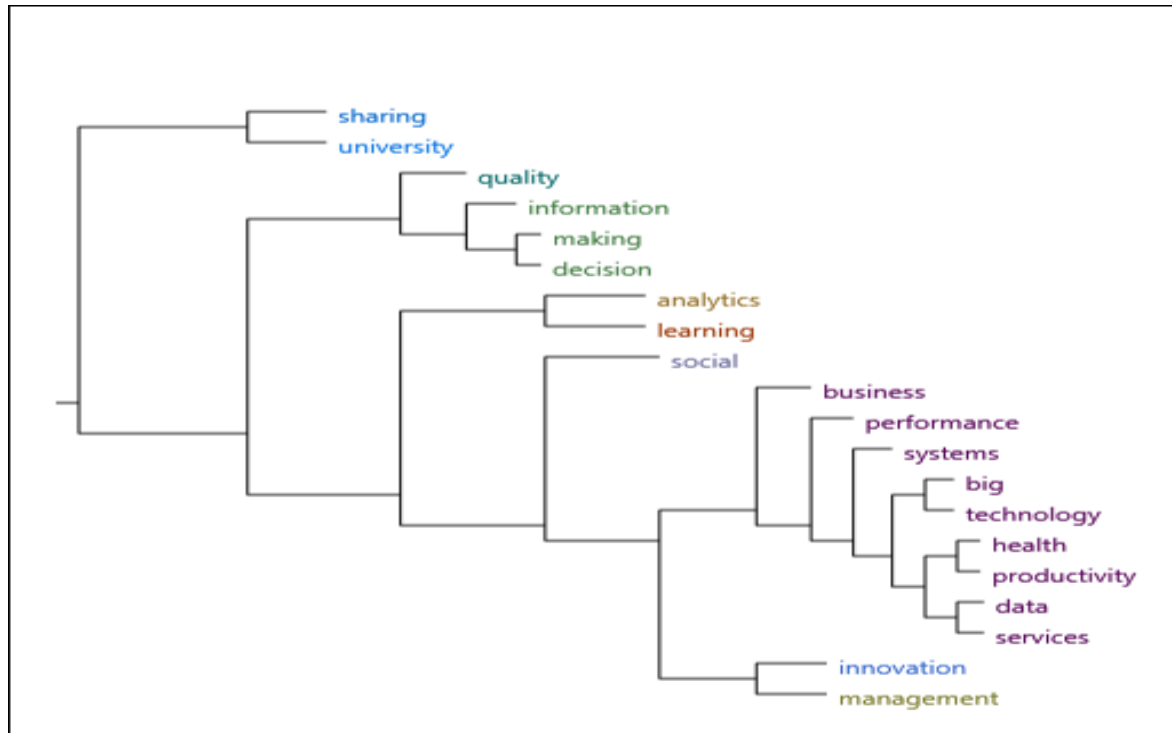


Figure 1: Cluster Analysis

The result of the word cloud also shows that data sharing is important for better decision making, education effectiveness and innovation. Figure 2 displays the result of the word cloud.



Figure 2: Word Cloud

Findings

The findings of the study highlight three important themes (decision making, innovation and education) mostly found in the studies related to data sharing. Especially, this study focuses on the benefits of data sharing in decision making, innovation and education.

Data Sharing and Decision-Making

Every day, people make decisions regarding their life or work. Making decisions is a fundamental responsibility of management at all levels and one of the most essential organizational activities (Fernandez, & Rainey, 2017). Decision making is a crucial factor in

organizations as wrong, inaccurate and/or untimely decisions can lead to serious consequences that could jeopardize and destroy the organizations (Lindebaum, Vesa, & Den Hond, 2020). Data is a new oil or new gold (Hirsch, 2013). Data come with important values regarding resources, including predictive analytic values (Deka, 2014). Data are resources as data could be useful for organizations to solve issues and improve their strategy or derive new insight from data sharing (Saggi & Jain, 2018). Data also possess predictive values as data can be used to predict or forecast future trends or patterns of behaviours from the series of data sharing available (Hassani & Silva, 2015). Predictive values are concerned with the answers to “what is likely to happen” (Maguire, 2004; Huang, Yao, Krisp, & Jiang, 2021), which is, through diagnostic analyses, future trends can be predicted based on the behaviours of the existing data (Himeur, Elnour, Fadli, Meskin, Petri, Rezgui,... & Amira, 2023). Data with predictive values especially are vital for effective decisions (Lee, Cheang, & Moslehpour, 2022).

According to rational decision-making model (Heracleous, 1994; March, 1994), it is very important to search for full and complete information regardless of cost and time, and need to weigh and check all the possibilities to arrive at the optimal decision. However, in the business world, which is full of uncertainty, intense competition and fast changes, time is money, and if the organizations are not quick and efficient at capitalizing on the opportunities, others will grab the chance (Holbeche, 2023). Thus, most decision makers do not follow the rational decision making model. Instead, they utilize the bounded rationality model in combination with intuition when making a decision, as this method is more effective at making decisions (Rubinstein, 1998; Dhami, Al-Nowaihi, & Sunstein, 2019).

However, with the data sharing available, especially with high quality and accurate data, decisions can be made in real-time, quickly and efficiently as all data with evidence are readily available that just need employees with good analytical ability to analyze and interpret the trends or the behaviour of the data from the series of existing data sharing (Hussain, Zhang, & Seema, 2023; Pramanik, & Bandyopadhyay, 2023). For example, suppose the company decides to launch a new product with data sharing available. In that case, the organization will know what product customers prefer to buy the most based on the data sharing available. Thus, this encourages more positive competition among the organizations, which could benefit society at large as these organizations will produce better quality products and/or services at affordable prices and can target the different kinds of customer segments in the market. Similarly, if the government plans to build a facility, with the data sharing available, the organization may make an informed choice and locate the facility in the most populous location that requires it the most. The government may not only cut down on wasteful expenditure on underutilized projects but also boost spending efficiency and improve the quality of government operations. Similarly, data sharing can also contribute to the organization's performance; data sharing helps managers and other decision-makers make effective decisions based on data indicators and can also help them predict effective decisions based on patterns or trends in the data displayed by the data-sharing indication.

Data Sharing and Innovation

Data sharing is especially needed in innovation as data sharing is necessary for innovation to be fully accomplished (Borgogno, & Colangelo, 2019; Franke & Shah, 2003). Innovation is critical, especially in today's business world, characterized by fast technological development and customer needs. Without innovation, organizations may not survive long amidst intense competition and changing customer needs (Kessler & Chakrabarti, 1996). Traditionally, innovation begins with improvised ideas without the help of much of the data sharing

(Dougherty, 2004). However, with data sharing, more information, insights, and better ways of doing things could be derived. Thus, more motivation and more new and developed ideas can be inspired to arrive at a better and more innovative development and advancement (Amabile & Pratt, 2016), which could significantly benefit the organization, community and society.

If business organizations share their data openly, many can benefit from them. For example, the road accident rate will decrease if the car production company has data about the cause of the accident and the type of cars involved. Thus, the company can investigate and compare with the existing data the cause of the problems and produce a new car with a more innovative design and better safety and security features. From the data sharing, the organizations can use as a guidance or benchmark to understand the latest developments and the latest technology regarding the car-making industry and the related businesses such as insurance companies, spare parts, and the technology to improve and enhance their business operation. Using data sharing to overcome shortcomings in the product and services and improve them to better features of higher quality can boost sales and could attract many customer segments easily. Society can also benefit from innovative development and organizations' positive competition in terms of better quality of end products and services and transparency in the operation, indirectly leading to health, safety, higher and better income spending and overall satisfaction. Thus, data sharing can be the driver contributing to more innovative ideas and development.

Data Sharing and Education

Data sharing encompasses all fields and disciplines, especially education (Jacoby, 2010). Education is an essential factor in people's life. Data sharing can be said to start in the academic world, where information, knowledge and research findings are shared, which expands learning and advances the knowledge and its application (Sedkaoui & Khelfaoui, 2019). The educational institution is the centre of knowledge where students learn and equip themselves for their lives and future careers. Unfortunately, many students may have graduated without appropriate jobs (Behle, 2020) and have to pay their debt from financing their studies, yet do not have jobs suitable for their academic qualifications (Avery & Turner, 2012). If data sharing is practised, ideally, not only business organizations but also education institutions would have accurate estimations of the type of courses to offer and the specific organizations or the industry that require jobs with the qualifications. Thus, education institutions can produce the grandaunts that meet the market needs with the necessary skills aided by knowledge of technology or software or any latest development. And also to equip or train the lecturers to teach the students not only knowledge but also prepare them for their future careers and can advise students correctly on what course or majors to specialize in and what organizations to target working that appreciate and require their education qualifications. This shows the importance of data sharing in improving education quality and in using data to make an accurate interpretation based on predictive analytics in order to groom the students to become effective future employees with better growth and development. Most of these data exist but are not shared and only shared for internal use but confidentially. Thus, many education institutions have some restrictions in accurately predicting the future demands of the academic courses offered, the industry's requirements and the employment numbers needed. The industries also may have their data and use it for strategic organizational planning, but they do not usually share it openly. Sometimes, these data were treated as their organizations' confidential document. This causes the issues of oversupply and undersupply of grandaunts compared with the industry's needs. Thus, not

only the students but also the industries will face the problems of lack of skilled and qualified human capital caused by a lack of data sharing cooperation between them.

Therefore, if the education institutions practice data sharing and have data sharing partnership with the industry, the education institutions can predict the type of courses or academic qualifications, skills, experience and numbers of grandaunts needed to meet the industry demands. Thus, education institutions can offer the courses or improvise the courses they have currently offered to include important subjects demanded by the industry and groom the students to meet the requirements needed by the industry. This can improve the employability rate, the quality of the courses offered and the efficiency and effectiveness of the education institutions.

Discussion and Conclusion

Going further, there are many significant benefits of data sharing, but there will also be negative aspects such as violation of privacy, intelligence and confidentiality issues, etc. However, all these can be managed and overcome with technological advancement and some extra work. For example, for confidential data or having privacy issues, the identity of the data owners can be masked or marked as anonymous to protect the identity of the owners, who are also protected by the privacy and confidential acts (i.e., laws). This also will prevent misuse or harm to the data owners through data sharing, causing many organizations to refuse data sharing for fear that data sharing will be used against the data owners. By masking or making the data owners' identity anonymous or putting the dummy identity to replace the identity of the data owners can overcome the issues that link the data owners with their confidential data such as bank accounts, identity card numbers or, income tax etc. This would help improve the conditions surrounding the reasons why many organizations are reluctant to be involved in data sharing practices, which inhibit many positive and potential benefits of data sharing, such as improvement in quality of education, health and safety, income, job opportunities and many more.

Theoretical Implications

This study will enhance understanding of data sharing among individuals, organizations, and other stakeholders on the benefits of data sharing, especially in decision-making, innovation, and education. Furthermore, it adds to the body of knowledge on data sharing because of the conclusions and justifications offered, bolstered by lucid and current instances of the substantial benefits of data sharing for innovation, education, and decision-making. These examples highlight the critical and useful application of data sharing that enhances organizational effectiveness and efficiency and helps it gain a competitive edge.

Practical and Social Implications

This study can be useful to individuals or organizations as data owners, data controllers, and data users to assist one another in encouraging data-sharing practices. The organizations should be concerned about the risks the data owners have to suffer if the organizations do not provide the highest security protection for data sharing and take all precautionary steps to avoid any unnecessary issues, such as having insurance cover the data sharing for any unauthorised breaching and imposing severe punishment and lawsuits on data scammers and thieves. This can increase data owners' perceptions of integrity and trust towards organizational data-sharing practices. Therefore, the study has significant practical and social implications that can increase trust and confidence among data owners and other stakeholders, thus improving the willingness of the data owners to share their data, which could benefit organisations and society at large.

Limitations and Suggestions for Future Research

This study has some limitations. First, this study does not empirically test the relationship among the variables under study as it is just a conceptual paper to shed some light on the benefits of data sharing. Thus, the specific significant benefits of data sharing on decision making effectiveness, innovation and education cannot be clearly outlined to provide an accurate predictive analytical evaluation of the outcomes. Secondly, this study uses the qualitative method of reviewing the literature on data sharing to arrive at the important themes regarding data sharing that can be fundamental for further development of the knowledge on data sharing. However, resorting to a qualitative alone cannot produce complete and accurate significant findings; it needs to be compensated or followed with the quantitative method to improve the generalization of the findings, thus increasing its predictive analytical values. Therefore, future studies should start with a qualitative method and follow with a quantitative method to study data sharing and expand the study to focus on more benefits of data sharing, which indirectly could encourage a broad acceptance of data sharing practices and cooperation or partnership in data sharing among the organizations and society to individual people whom could mutually benefit each other. However, concerns should also be exercised, especially in safeguarding the data owners' identity so that it would not be manipulated by third parties or anyone for their own commercial interests that could identify and harm the data owners.

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