Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Knowledge Sharing Platform Analysis among Big Data Expert Community

Sara Hosseinioun [1*], Rusli Bin Hj Abdullah [2]
[1] *Division of Advanced Technology, Shenandoah University, Winchester, USA*
[2] *Faculty of Computer Science and Information Technology, University Putra Malaysia, Kuala Lumpur, Malaysia*
**Corresponding Author Email: sara.hosseinioun@su.com*

ARTICLE INFO

Received: 21 Dec 2024

Revised: 15 Feb 2025

Accepted: 22 Feb 2025

ABSTRACT

In various scientific and business fields, a large volume of data needs to be analyzed and exchanged among users. This vast pool of data can provide answers to numerous questions and solve many problems when properly extracted by experts, known as data scientists. The collaboration of these data experts helps capture and share expertise, experiences, ideas and its crucial for the improvement and problem solving. The sharing of data and information must be balanced and controlled to maximize its effectiveness and creating an infrastructure to distribute high-performance, discovered knowledge across a geographically diverse community is essential. This study developed a website as a platform for sharing big data within the data scientist's community, using the Technology Acceptance theoretical model to focus on its usefulness and ease of use. The website, named the Expert Community website, was reviewed by two experts and launched for three months. A survey was designed based on the System Usability Scale, a reliable tool for measuring usability, distributed between 25 users for a usability test and to assess the website's applicability. Based on expert reviews and usability test results, the website was found to be effective in facilitating knowledge sharing within the data scientist's community.

Keywords: Big data community, big data expert, knowledge sharing, knowledge sharing platform.

INTRODUCTION

Big data has emerged as a critical asset for organizations seeking to enhance their decision-making processes, service delivery, and operational efficiency. To fully harness its value, it's essential to merge data from a wide range of sources, which requires cooperation and resource-sharing between companies and institutions to strengthen their analytical capabilities. When there is a strong, interactive relationship among users, whether individuals or organizations, data flows freely between them, these users can be recognized as forming a Big Data Community [1].

Users play a crucial role in big data systems, as their behavior directly influences both the generation and utilization of big data [2]. [3] emphasized that users' or community members' behavioral expectations shape various analytical aspects of knowledge-sharing services. These include attributes such as the satisfaction derived from helping others, as well as the intentions and reliability levels of participants in sharing knowledge [4]. However, within Big Data Communities, the high speed at which data is produced poses challenges in standardizing workflows and integrating data usage effectively [5]. In such complex scenarios, data scientists are responsible for managing these challenges by organizing large volumes of unstructured data and enabling meaningful analysis [6]. Their role involves uncovering insights to meet specific needs and solve defined problems. Much of the current research in big data and data science has concentrated on areas like data mining, statistics, and ontologies, which offer powerful tools for leveraging big data. Nonetheless, many of these fields primarily emphasize knowledge discovery, and there is no universal "discovery engine" capable of automatically identifying and extracting all types of information [7]. Moreover, redundancy is a common issue, often leading to wasted time and resources in the chaotic process of

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

organizing diverse knowledge. Therefore, establishing a collaborative platform that encourages experts to share their insights, expertise, and tools is essential for effective knowledge management in big data environments.

This study identified the gaps and key factors influencing knowledge-sharing platforms for data scientists to exchange insights and collaborate. Based on these findings, along with the Technology Acceptance Model discussed in the Literature Review section, a website was designed and launched for a period of three months. The platform was evaluated through expert reviews and the System Usability Scale. The results and analysis of this evaluation were presented in the Results and Discussion sections.

LITERATURE REVIEW

Research Background:

Big Data refers to massive amounts of information that can be either organized (structured) or disorganized (unstructured), and it can be generated by users, devices, or systems. Structured data follows defined formats, making it easily understood by systems and typically stored in locations like databases. In contrast, unstructured data encompasses content such as websites, blogs, news media, social networks, text repositories like academic papers or internal documents, as well as emails, images, videos, and other forms of content created by users [8].

According to the Oxford Dictionary, a community is defined as a social group, small or large, that shares common interests or characteristics. A community-based approach plays an important role in knowledge sharing, as it enables the informal exchange of expertise and experience among community members [3]. Online communities, in particular, promote social capital, foster mutual trust, and offer social support, as users interact and connect through digital platforms [9]. These communities often form around shared interests, with members united by mutual respect for those interests. Building on this concept, Big Data Communities (BDC) are described as networks of individuals and organizations, ranging from decision-makers and service providers to social media users, who are connected globally and exchange vast and diverse knowledge. Participants come from various sectors, including healthcare, business, government, science, education, and social media, engaging in dialogue, collaboration, and knowledge-sharing to enhance decision-making, services, and innovation.

Knowledge management centers on handling knowledge as actionable information, encompassing its creation or acquisition, storage, dissemination, and practical use [10]. At its core, it aims to deliver accurate and relevant knowledge from dependable sources to the right users at the right time. Typically, users engage in knowledge sharing when they are trying to solve problems, explore specific topics, or provide feedback on others' perspectives. According to [11], knowledge sharing is a process that involves learning from the experiences of others. As [12] explains, this process includes both the transfer and receipt of knowledge.

Knowledge transfer refers to the dissemination of an individual's ideas, methods, or expertise, while knowledge receiving involves acquiring that information from others [13]. As such, knowledge sharing can be understood as the exchange of community-relevant ideas, suggestions, and expertise among individuals [14]. To assess the current state of knowledge sharing, it is essential to explore the factors that influence and encourage users to share their knowledge. These influencing elements can be grouped into three main categories: behavioral, environmental, and technical factors, which align with users who generate big data, organizations that establish structural rules, and the information and communication technologies (ICT) that support these interactions.

1) Behavioral: These involve personal traits and motivations, such as the satisfaction individuals derive from helping others without expecting anything in return, and the reciprocal nature of benefit-sharing and mutual support [3]. They also include the trust among community members, encompassing beliefs in good intentions, competence, reliability, and benevolence [4]. Furthermore, this category emphasizes treating colleagues as peers and maintaining mutual trust and respect [3].

2) Environmental: These refer to organizational structures and dynamics, including formalization (the degree to which tasks are governed by formal rules and procedures), complexity (how specialized and segmented tasks are within a job), and centralization (the distribution of decision-making authority) [3] [15]. Additionally, motivation,

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

defined as the internal drive to share knowledge with co-workers, plays a crucial role in how effectively knowledge is shared within an organization [16].

3) Technical: This category includes the level of trust team members have in each other's expertise and the effectiveness of communication within the team. It also considers how timely and relevant the information exchanged is in relation to specific development tasks [17].

These combined factors help shape a knowledge-sharing environment where individuals, organizations, and technology work together to facilitate the flow and application of big data knowledge.

Technology Acceptance Model:

The Technology Acceptance Model (TAM) is an information systems theory that explains how and why users adopt and utilize technology. According to the model, two key factors influence a user's acceptance of a technological system: perceived usefulness and perceived ease of use [18]. [19] defined perceived usefulness as the extent to which a user believes that a particular system can improve their job performance. It described perceived ease of use as the degree to which a user believes that using the system requires minimal effort. Essentially, when a technology is user-friendly, it lowers the barriers to adoption. Conversely, if the system is difficult to navigate or understand, users are less likely to develop a positive attitude toward it, often rejecting it due to its complexity.

Gap Analysis:

The characteristics of data in BDC, whether small or large, create significant challenges in accessing, managing, and governing data, especially when sharing it between members. Data warehouses, which store vast amounts of sensitive information such as financial transactions, product details, medical procedures, insurance claims, research findings, and personal data, face these challenges as well. Organizations must ensure their privacy and security infrastructure, allowing employees to access only the relevant data for their department [20]. Data sharing must be carefully balanced and controlled to maximize its benefits, as large-scale datasets require organizations to efficiently share and integrate crucial information while maintaining strong ties with business partners [21].

The problem arises when the volume of accumulated data becomes so vast that identifying the most valuable information becomes increasingly difficult. Organizations are often limited to working with subsets of data and performing basic analyses due to the overwhelming size of the data, which can exceed the capacity of their processing systems [22]. The sheer volume of data necessitates stronger security measures for sharing, as failure to do so can expose big data to risks and threats, including network security breaches [23]. Additionally, processing large numbers of metadata records and datasets to meet the needs of many users is challenging, as is managing the flow of highly diverse data models, encoding formats, and access service interfaces [24].

The interconnection and interrelationship of massive datasets from various sources complicate their real-time analysis, management, and sharing [25]. Security issues also arise when sensitive data is transmitted from a local server to a big data platform, and there are concerns regarding the secure computation, storage, and eventual destruction of this data [26]. The reliability of data poses another challenge, as decisions based on unreliable or unrepresentative data are less valuable. [27] emphasized the need for data to be valid, of sufficient quality, and suitable for purposes such as decision-making. Given the complexity and volume of data, it is critical to ensure that datasets are comparable when merged, to maintain accuracy and usefulness [28]. Table 1 summarizes the key challenges of managing knowledge within the BDC.

Table 1. Knowledge sharing challenges among big data community

References	Accessibility	Reliability	validity	security	privacy
[20]		X	X	X	X
[21]	X	X			
[22]	X		X		

References	Accessibility	Reliability	validity	security	privacy
[23]				X	X
[25]	X	X			
[26]		X	X	X	
[28]		X	X		X
[27]	X	X		X	
Total	4	6	4	4	3

Big data, collected by various devices around the world and stored across different regions, requires a highly decentralized cyber-infrastructure for efficient processing and sharing. This infrastructure must support rapid advancements in internet and communication technologies, enabling a range of applications and facilitating the use of globally distributed digital resources. It also plays a critical role in data acquisition, storage, management, integration, processing, and utilization, allowing researchers to conduct reliable investigations. According to the findings presented in Table I, data reliability is the most crucial concern for many researchers, highlighting the importance of a dependable infrastructure. Furthermore, other factors such as accessibility, validity, and security further emphasize the undeniable need for a reliable and effective knowledge sharing platform.

Knowledge sharing within a BDC involves the collaboration of community members, including individual users and organizations, alongside the technical aspects that support the sharing process. To facilitate effective knowledge sharing, it is essential to improve the accessibility, reliability, validity, security, and privacy of the shared information. As previously noted, various factors influence knowledge sharing, which can be categorized into three areas: user behavior, environmental or organizational context, and technical aspects. Each of these factors directly affects the effectiveness of knowledge sharing.

RESEARCH METHODOLOGY

Based on Factors list in the Gap Analysis session the research website, called the "Expert Community," was created as a communication platform to facilitate knowledge sharing among members of the big data community. The design of the website was based on the Technology Acceptance Model (TAM), which emphasizes the perceived usefulness and ease of use. The goal was to create a functional website for knowledge experts within the BDC, following a five-step process outlined by [29] and [30].

In the first step, the website's goal was defined. According to [30], identifying and understanding the target user is crucial to determining the website’s objectives. In this case, the users are knowledge experts and members of the big data community, and the platform is designed to enable them to exchange and share knowledge.

The second step involved selecting the appropriate programming languages and technologies to support the platform. The website was developed using JavaScript, HTML (Hypertext Markup Language), and CSS (Cascading Style Sheets) for the user interface, ASP.net for backend development, and SQL Server for the database. Both the user interface and backend development were designed to integrate the website's content effectively.

The website was tested to ensure a smooth user experience and to identify and resolve any potential browsing issues. It was reviewed by two experts, one from industry and one from academia, to evaluate its features. The academic review focused on the literature and research-based factors outlined in the study. Both experts agreed that the website successfully addressed all research objectives, though they noted its potential for further enhancement to support global use. Additionally, they recommended using the System Usability Scale (SUS) to assess the site's usability.

After the website was launched, it was closely monitored for three months to collect user feedback and assess how well it aligned with the research objectives. A total of 25 participants created profiles and interacted with the research website, and they were asked to complete a questionnaire to share and evaluate their experience with the Expert

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

Community website. However, only 11 participants responded to the survey, and their feedback is presented in the following section.

RESULTS

The Expert Community website was created to offer a platform where experts can exchange knowledge. Users are required to create a profile and provide personal information, such as their name and date of birth. For privacy and comfort, users have the option to make this personal information invisible or hidden. Additionally, members must specify their area of expertise, which helps facilitate easier communication based on their experiences.

After logging into the Expert Community website, experts have the option to engage in general discussions with all users or select a specific topic-based chat room for more focused conversations. This feature enhances the platform's ability to facilitate knowledge sharing among members by providing spaces tailored to various areas of expertise and interest.

To illustrate the interactions between users and the Expert Community system, a use case diagram has been developed. This diagram, presented in Figure 1, outlines the scenarios in which members engage with the system. The system offers seven core services aligned with its primary objective: providing a functional communication platform for experts. These services facilitate seamless knowledge exchange and collaboration among users.

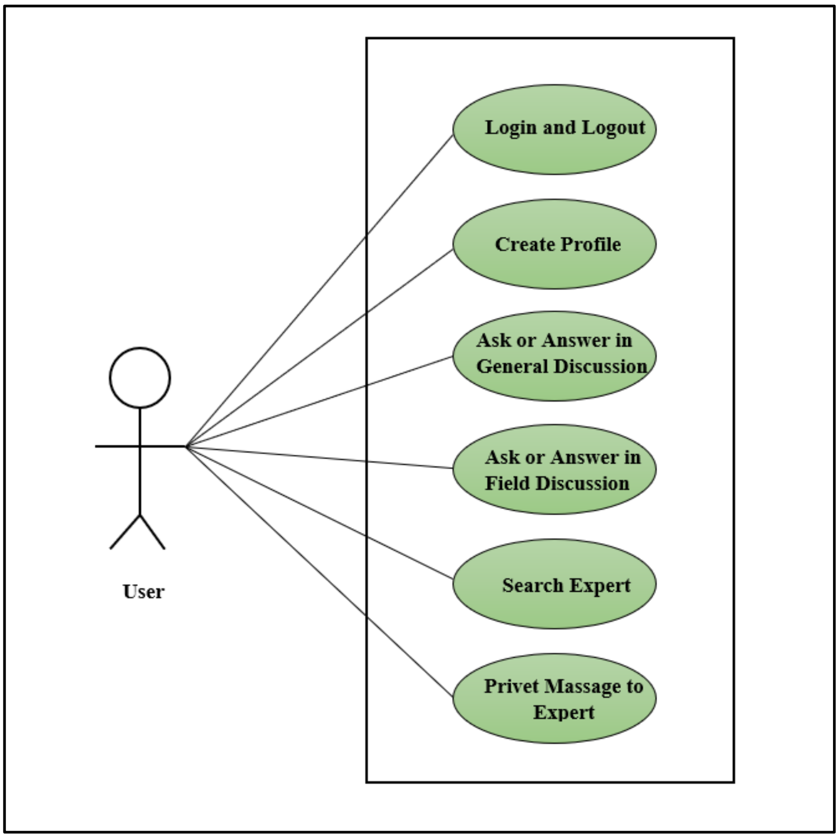

Figure 1. Use case diagram for user interaction

The system architecture of the Expert Community is structured into three layers, as shown in Figure 2. The top layer, known as the presentation layer, serves as the user interface of the web application and allows users to access the second layer through web browsers. The application layer handles core services like login and search, and includes application programming interfaces (APIs), which enable communication between different software applications. An entity framework links the second and third layers, offering an automated way to manage data storage and retrieval. The final layer, called the data layer, consists of databases used for storing and accessing information.

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

The Expert Community website was shared with 25 big data users, inviting them to explore and exchange knowledge. These users were also given a usability questionnaire; however, only eleven participants completed and returned the survey. The responses were analyzed based on the demographics of the participants and their levels of agreement with various usability statements.

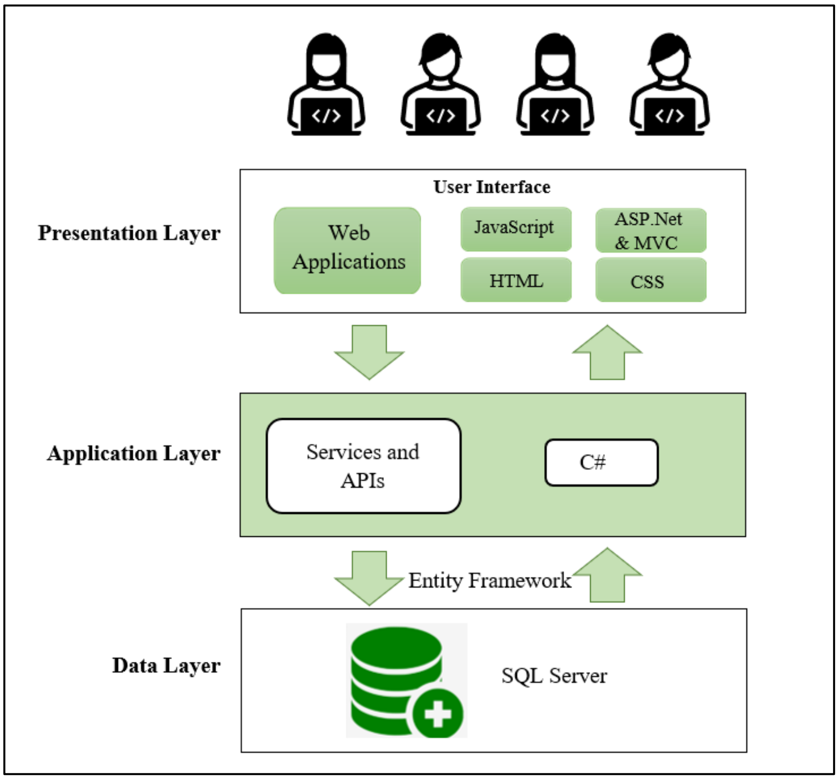

Figure 2. System architecture of expert community website

After exploring the Expert Community website, survey participants responded to questions assessing the site's usability. Among the eleven respondents, the majority were male (63.64%), while females made up 36.36%. Most participants fell within the age ranges of 31–40 and 41–50, each representing 36.36% of the total. Additionally, over half of the respondents identified as experts in communication platforms, and none reported having low proficiency with communication applications.

Participants were also asked about their interest in various topic-based chat rooms and could select multiple options. A total of 25 responses were recorded. The most popular choice was the "General Discussion" room, selected by 50% of respondents. "Machine Learning" followed with 20%, while "Information Systems" and "Software Development" each received 10%. The least popular topics were "Business Management" and "Network Security," each garnering 5% of the responses.

The study employed the System Usability Scale (SUS), a well-established tool developed by [31], to assess the usability of the prototype. SUS was chosen because it is simple to administer and proven to be reliable, even with a small sample size.

The scale consists of 10 items, where odd-numbered questions highlight positive aspects of usability and even-numbered ones address negative aspects. The responses from the eleven participants were analyzed, and individual SUS scores were calculated for each respondent, as shown in Table 2.

According to [31] guidelines for interpreting SUS scores, a score above 68 is considered above average, while a score below 68 is considered below average. Specifically, scores over 80.3 indicate excellent usability, whereas scores under 51 reflect poor usability. Additional categories include: 68 to 80.3 for good usability, exactly 68 as acceptable or "okay," and 51 to 68 as poor usability.

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

Table 2. Summary system usability scale for 11 respondents

Respondents	SUS Scores
R1	87.5
R2	85
R3	87.5
R4	87.5
R5	80
R6	92.5
R7	92.5
R8	82.5
R9	72.5
R10	87.5
R11	90

As shown in Table 2, 9 out of 11 respondents rated the site as having excellent usability, while the remaining 2 rated it as good. These results indicate that the Expert Community website met a satisfactory level of usability for the purposes of this research.

Table 3 shows that the odd-numbered questions (1, 3, 5, 7, and 9), which highlight the positive aspects of the system, have mean scores between 4 and 5. This indicates that participants generally agreed or strongly agreed with these statements. In contrast, the even-numbered questions (2, 4, 6, 8, and 10), which focus on the system's negative features, have mean scores between 1 and 2. This suggests that respondents mostly disagreed or strongly disagreed with the negative statements, further supporting the system's positive usability perception.

Table 3. Descriptive statistics of usability test survey

Items	N	Minimum	Maximum	Mean	Std. Deviation
Q1	11	4.00	5.00	4.1818	.40452
Q2	11	1.00	2.00	1.6364	.50452
Q3	11	4.00	5.00	4.5455	.52223
Q4	11	1.00	3.00	1.6364	.67420
Q5	11	3.00	5.00	4.2727	.64667
Q6	11	1.00	2.00	1.5455	.52223
Q7	11	4.00	5.00	4.5455	.52223
Q8	11	1.00	2.00	1.4545	.52223
Q9	11	4.00	5.00	4.7273	.46710
Q10	11	1.00	2.00	1.6364	.50452

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

DISCUSSION

The research listed the knowledge sharing factors among BDC and validated them by developing and testing of a website, using the System Usability Scale (SUS) as the evaluation method. The SUS questionnaire consists of 10 items, and recent studies have shown that it provides a comprehensive measure of overall system satisfaction. It also allows for analysis of two sub-scales: learnability (based on items 4, 7, and 10) and usability (based on the remaining seven items). Figure 3 presents the participants' responses to the questionnaire, which are analyzed in the following section.

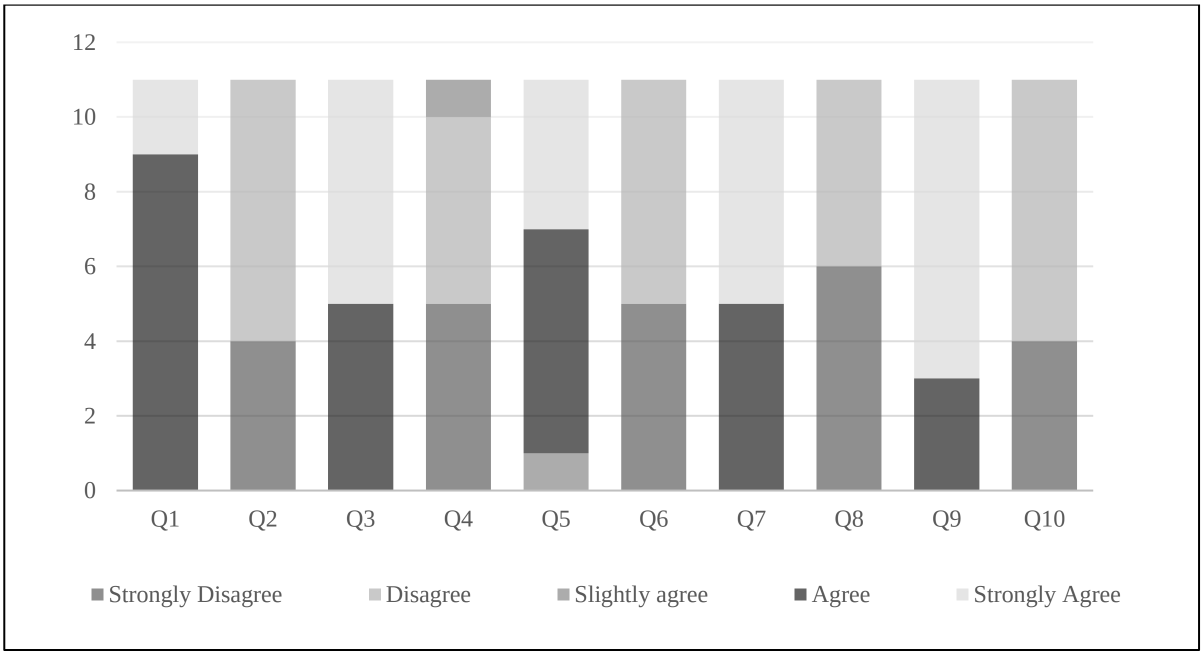

Figure 3. Respondents feedback results on prototype

Item Q1 in Figure 3 corresponds to the statement, "I think that I would like to use the Expert Community website frequently." Nine respondents strongly agreed with this, indicating a high level of user interest. This item also aligns with the concept user behavioral interest, which reflects the volume of user activity within the community.

Item Q2 relates to the statement, "I found the Expert Community website unnecessarily complex." A total of 63.63% of respondents disagreed, while four participants strongly disagreed, suggesting that most users did not find the system overly complicated.

Item Q3, "I thought the Expert Community website was easy to use," received 45.45% agreement and 54.54% strong agreement, indicating that all respondents found the website user-friendly.

Item Q4 corresponds to the statement, "I think that I would need the support of a technical person to be able to use the Expert Community website." Here, 45.45% of participants either disagreed or strongly disagreed, reinforcing the idea that the system is intuitive and easy to learn without external assistance.

Item Q5 corresponds to the statement, "I found the various functions in the Expert Community website were well integrated." About 54.54% of respondents agreed, while 45.45% strongly agreed. One participant slightly agreed, indicating that overall, users found the system well-integrated and functionally cohesive.

Item Q6 relates to the statement, "I thought there was too much inconsistency in the Expert Community website." All participants disagreed with this statement, suggesting that users perceived the website as consistent and coherent in its design and functionality.

Item Q7 corresponds to the statement, "I would imagine that most people would learn to use the Expert Community website very quickly," which evaluates the system's learnability. The results showed that 54.54% of respondents strongly agreed that the website is easy to learn and use, while the remaining participants agreed with this statement.

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

Item Q8 relates to the question, “I found the Expert Community website very cumbersome to use,” which assesses the system’s convenience. The majority of respondents disagreed or strongly disagreed with this statement, indicating that they found the website easy to use and manageable.

Item Q9 refers to the statement, “I felt very confident using the Expert Community website.” A strong 72% of participants strongly agreed with this, suggesting that users felt comfortable and confident while navigating the Expert Community website.

Finally, item Q10 corresponds to the statement, “I needed to learn a lot of things before I could get going with the Expert Community website.” A strong 63% of respondents strongly disagreed with this statement, indicating that they found the website simple to use and did not require extensive learning to begin using it effectively.

CONCLUSION

This study listed several factors affect knowledge sharing among BDC and developed a website designed to serve as a platform for knowledge sharing among the data science community, guided by the TAM with an emphasis on perceived usefulness and ease of use. Named the Expert Community website, the platform was reviewed by two experts and operated over a three-month period. A usability survey, based on the System Usability Scale, a trusted tool for evaluating system usability, was distributed to 25 users to assess the platform's effectiveness and relevance.

REFERENCES

[1] Nya C. and TanL., 2016, "Enhancing knowledge sharing and research collaboration among academics: the role of knowledge management," *Higher Education,* 1(1), 525-556.
[2] Zhunge H. and Sun X., 2016, "Semantics, Knowledge, and Grid on Big data.," *Future eneration computer systems,* 64(1), 163-164.
[3] Lin T.C., Wu S. and Lu C.T.,2012, "Exploring the affect factors of knowledge sharing behavior: The relations model theory perspective.," *Expert Systems with Applications,* 39(1), 751-764.
[4] Chen C.J. and Hung S., 2012, "To give or to receive? Factors influencing members’ knowledge sharing and community promotion in professional virtual communities," *Information & Management,* 47(1), 226-236.
[5] Janssen M. and Wahyudi A., 2017, "Factors influencing big data decision-making quality, " *Journal of Business Research,* 8(1), 70-83.
[6] Davenport T., 2012, "Data scientist: The sexiest job of the 21st century," *Harvard Business Review,* 90(10), 6-10.
[7] Englmeier K. and Murtagh F., 2017, "What Can We Expect from Data Scientists?," *Journal of theoretical and applied electronic commerce research,* 12(1), 45-60.
[8] Das M., Cui R., Campbell D., Agrawel G. and Ramnath R., 2015, "Towards Methods for Systematic Research on Big Data," in *IEEE conf. on Big Data.*
[9] Hsiao C. and Chiou J., 2012, "The impact of online community position on online game continuance intention: Do game knowledge and community size matter?," *Information & Management, ,* 49(1), 292-300.
[10] Abdullah R., 2008, *Knowledge management system in a collaborative environment* (Kuala Lumpur,Malaysia: University Putra Malaysia).
[11] Darr E. and Kurtzberg T., 2000, "Our Investigation of Partner Similarity Dimensions on Knowledge Transfer," *Organizational Behavior and Human Decision Processes,* 82(1), 28-44.
[12] Hendriks P., 1999, "Why share knowledge? The influence of ICT on the motivation for knowledge sharing," *Knowledge and Process Management,* 6(2), 91-100.
[13] Kim S.J., Hong J. and Suh E., 2012, "A diagnosis framework for identifying the current knowledge sharing activity status," *Expert Systems with Applications,* 39(1), 13093-13107.
[14] Yu T.K., Lu L.c., and Liu T.F., 2010, "Exploring factors that influence knowledge sharing behavior via weblogs," *Computers in Human Behavior,* 26(1), 32-41.
[15] Lin W., 2008, "The exploration factors of affecting knowledge sharing – The case of Taiwan’s high-tech industry," *Expert Systems with Applications,* 35(1), 661-676.

Journal of Information Systems Engineering and Management
2025, 10(43s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/
Research Article

[16] Siemsen E., Roth A. and Balasubramanian S., 2008, "How motivation, opportunity and ability drive knowledge sharing: The constraining-factor model," *Journal of Operations Management,* 26(1), 426-445.
[17] Chena X., Li X., Clark J. and Dietrich G.B., 2013, "Knowledge sharing in open source software project teams: A transactive memory system perspective," *International Journal of Information Management,* 33(1), 553-563.
[18] Chuttur M., 2009, "Overview of the Technology Acceptance Model: Origins, Developments, and Future Directions. Sprouts," *Sprouts,* 1(1), 9-37.
[19] Venkatesh V. and Davis F., 1996, "A Model of antecedence of perceived ease of use: development and test.," *Decision Science,* 27(3), 451-481.
[20] Sivarajah U., Kamal M., Irani Z. and Weerakkody V., 2017, "Critical analysis of Big Data challenges and analytical methods," *Journal of Business Research,* 70(1), 263-286.
[21] Al-Nuaimi E., Al-Neyadi H., Mohamad N. and Al-Jaroodi J.,2015, "Applications of big data," *Journal of Internet Services and Applications,* 6(1), 1-15.
[22] Chandhini C. and Megana L., 2013, "Grid Computing - A Next Level Challenge with Big Data," *International Journal of Scientific & Engineering Research,* 4(3), 105-117.
[23] Chen C. and Zhang C., 2014, "Data-intensive applications, challenges, techniques, and technologies: A survey on Big Data," *Information Sciences,* 275(1), 314-347.
[24] Nativi S., Mazzetti P., Santoro M., Pepeschi F., Craglia M. and Ochiai O., 2015, "Big Data challenges in building the Global Earth Observation System of Systems," *Environmental Modelling & Software,* 68(1), 1-26.
[25] Che D., Safran M. and Peng Z., 2013, "From Big Data to Big Data Mining: Challenges, Issues, and Opportunities," *Database Systems for Advanced Applications,*7827(1), 1-15.
[26] Dong X., Li R., He H., Zhou W., Xue Z. and Wu H., 2015, "Secure Sensitive Data Sharing on a Big Data Platform," *Tsinghua Science and Technology,* 20(1), 72-80.
[27] Lai M. and Hsiao S., 2015, "Developing data colle1ction and management systems for decision-making: What professional development is required?," *Studies in Educational Evaluation,* 42(1), 63-70.
[28] Fredriksson C., 2015, "Knowledge Management with Big Data Creating New Possibilities for Organizations," *Gothenburg: Nordiska kommunforskarkonferensen.,* 1(1), 1-14.
[29] Saidy N., "5 Steps for a Successful Website Design," medium.com, Date of access: 25/11/2016. https://blog.nicolesaidy.com/5-steps-for-a-successful-website-design-90290066f326.
[30] Varshneya R., "5-Step Web Design Process to Create Winning Websites.," business.co, Date of access: 17/6/2019. https://www.business.co: https://www.business.com/articles/5-step-web-design-process/.
[31] Brooke J., 1996, "A quick and dirty usability scale," *Usability Evaluation in Industry ,* 1(1), 1-8.