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Social Networking Sites Adoption Among Entrepreneurial Librarians for Globalizing Startup Business Operations

Abstract

Purpose

The purpose of this study is to identify the factors leading to the adoption of Social Networking Sites (SNS) by librarians of entrepreneurial libraries to provide support to the business community in their market research. Identification of these adoption factors will help to design SNS in a way that leads to their seamless diffusion in university libraries, making them capable of providing reliable and useful market knowledge to the business community.

Methodology

To meet the research objectives, this study is based on the Technology Adoption Model (TAM). The survey was conducted with 50 librarians of various universities across Europe, Asia, America, Africa, and Australia, sampled through non-probabilistic sampling techniques- purposive and snowball sampling. The collected data is analyzed through partial least squares structural equation modelling (PLS-SEM) to estimate the formulated structural equation model using SmartPLS 3.2.9 software version.

Findings

The results indicate that university librarians have a high perception of the usefulness and ease of using SNS for meeting their business objectives. The perceived usefulness is solely based on the prolonged adoption of SNS technology in the personal lives of the librarians. The Perceived ease of use is triggered by the increasing quality of evolving SNS technology, especially user-friendliness. They together foster the behavioral intention of the librarian to use the technology. Another factor motivating librarians for adopting the SNS technology is the brand image of the technology provider i.e., the higher the market brand of the provider, the greater the adoption probability. Previous working experience and formal training to use the technology do not have a significant impact on technology adoption as sufficient skills are gained because of their prolonged adoption in the personal as well as the professional sphere and increasing quality by technology providers (especially user-friendliness). This makes the efforts of librarians to adapt to the

evolution of these technologies self-directed and self-motivated. The prolonged use of technology, increasing market entry of brands, and improving quality of SNS will overcome librarian resistance to using SNS for market research-related support to the business community. Evolving technologies are more likely to be adopted seamlessly in entrepreneurial libraries.

Implications

This study has implications for librarians, entrepreneurs, and technology providers. Librarians should have flexible technology adoption policies in place to keep technology adoption synchronized with changing market conditions. Entrepreneurs should share clear and accurate business needs as well as practice ethical and lawful business practices. They should also help libraries to gain new skills to make future adoption easier. Technology providers should focus on improving the quality of their technology by increasing their functional utilities, performance, and reliability as well as making them more user-friendly.

Originality

This study investigates the technology adoption of SNS in libraries from the perspective of providing market research-related services to entrepreneurs rather than just digitalizing library services for student users.

Keywords: Academic libraries; Librarianship; Social Networking Technology; Market Research; Globalization; Business Model Innovation; Startups.

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Background

University libraries have been identified as one of the most powerful innovation ecosystem elements for resource-constrained startups striving for faster market expansion. They assist startups by providing them with resources to obtain market-related expertise to expand their operations globally (Gupta and Rubalcaba, 2021; Gupta et al., 2022). As a user of SNS technology, university libraries could assist resource-constrained startups in overcoming technological acceptance barriers and brand-related challenges. This relationship enables them to perform market research using library resources such as brand image, for instance, hashtags on the university library's SNS webpage), social networks, and human resources. Librarians with an entrepreneurial attitude, for instance, entrepreneurial librarians, are more likely to try out innovative ideas to improve library services. Supporting the business community, particularly through market research information, is one such innovation that is gaining traction throughout global universities. The market data could aid companies in gathering market-specific data, resulting in globalization across many countries, product evolution in home markets in response to customer wants, and business model innovation insights. Market research-driven business model innovation could aid businesses in improving existing models or inventing whole new ones, as was the case during the epidemic, also termed temporary business model innovation.

Startups are the creators of innovative products and play an important role in the growth of the national economy. Many startups, on the other hand, fail to make it in the market due to a lack of product/market fit. They usually run out of resources before reaching substantial market sales, which forces them to shut down their operations (Alves et al., 2006; Klotins et al., 2015; Giardino

et al., 2016; Unterkalmsteiner et al., 2016; Chanin et al., 2017). Exploring the market is necessary to achieve a better fit between the product value proposition and the market, but this is hampered by the limited resources available to startups. The gathering of market knowledge through open innovation ecosystem elements such as university libraries becomes critical to their success. Furthermore, the pandemic rendered several businesses' business models obsolete, necessitating the need for market-driven business model innovation. Because pandemic-related business model innovation may not be valuable beyond the pandemic, such development is referred to as temporary business model innovation (Clauss et al., 2021). The globalization of startup operations necessitates strategic decisions based on market research on which overseas markets to target for the product and which countries to target for product acceptance. This necessitates a more focused search across international marketplaces, based on knowledge of global and local competition as well as client demand patterns. Social networking sites (SNS) can be used to acquire information and communicate with potential clients and competitors. Regardless of the startup's business goal to be reached through market research, such as internationalization, business model innovation, or domestic market expansion, the result will be rational data-driven decision-making in business operations.

SNSs are online communities of people with common interests who connect to socialize by overcoming global distances (Watermeyer, 2012; Griffiths et al., 2014). Members of the social community post their content, for instance, creative videos, life events, etc., on social media sites for further discussion and critique. Facebook, Instagram, LinkedIn, YouTube, Twitter, and many other social media platforms are examples of social media sites. SNS had been widely used by businesses to establish close connections with potential and current customers, allowing them to conduct marketing activities such as understanding customer needs, advertising their products, sharing promotion-related information, and receiving customer product feedback online (Momen et al., 2020; Palalic et al., 2020; Sundararaj and Rajeesh, 2021). Additionally, small businesses utilize a variety of social networks throughout their lifespan, and both these networks and technology result in superior business performance (Peltier and Naidu, 2012). This helps their firms grow and encourages entrepreneurship. *The use of social media for business model innovation is a relatively new phenomenon and had not been explored in literature yet.*

Increased adoption across libraries to innovate their services for students, increased adoption across libraries to offer support to businesses, increased adoption among users, including business account members, and increased adoption among business communities to foster their business activities, such as digital marketing, are all positive trends on social media, some of which existed before the pandemic and some of which have become more prominent during the pandemic.

SNS usage in libraries to provide digital services to their academy's stakeholders, such as students, has been observed to result in increased user engagement, faster transmission of library content, better student outreach, and improved library services. For instance, SNS adoption in the library had been positively associated with an increase in student involvement (Chu et al., 2012; Chen et al., 2013; Semode et al., 2017; Williams, 2018; Chan et al., 2020; Akwang, 2021; Tharani, 2021). Additionally, university libraries are increasingly utilizing SNS technology to connect with their audience (Williams et al., 2019; Çakmak and Eroğlu, 2021; Choi and Joo, 2021). This suggests that library staff members were keen to develop new services based on the use of SNSs as well as to keep enhancing them by acquiring dynamic capabilities to fully utilize such technology. To consistently address the needs of their customers, librarians beli eve that constant innovation in their services is essential (Wójcik, 2019a).

Social media users in the United States have increased their spending of time across social media platforms in 2020 (Statista, 2021a) and Facebook had been the most popular social media site, with 2.85 billion monthly active users (Statista, 2021b). The increasing visibility and use of such platforms suggest that they could be useful for gathering market data and validating business model assumptions. Small businesses will find SNS adoption challenging due to a variety of problems, including a lack of resources to manage social media profiles (eMarketer, 2015; Michaelidou et al., 2011) and a lack of understanding to analyze data (Norris, 2013). Small firms will find it more difficult to attract people to engage in social interactions across social media to generate market intelligence or validate assumptions due to their lack of branding in the market due to their liability of newness (Gupta and Fernandez-Crehuet, 2020). These difficulties, which can be classified as a liability of newness and a liability of smallness, will make it more difficult for startups to make use of the power of social media. This is consistent with Kelly et al. (2013) findings, which show that advertisements on social media platforms will fail if customers are dubious of the advertising message. Due to startup branding problems, customers are likely to be dubious of the advertisement message or any other message seeking their collaboration. However, according to Kwon et al. (2021), small firms were forced to adopt SNS technology in their commercial activities due to the pandemic's instability. This shows that social media was employed as a tactic to survive in turbulent markets during a pandemic. As a result, their use is projected to expand beyond the epidemic.

These trends suggest that tiny businesses, such as startups, should work with libraries to overcome their liabilities of newness and smallness, the liabilities which otherwise limit their ability to use social media effectively for market research. Based on market research undertaken by libraries through social media, strategic relationships with libraries be beneficial for startups wishing to globalize their company operations (Gupta et al., 2022). This is due to the following factors:

- SNS is already being used by libraries to help their academic stakeholders. Their knowledge of social media for information search and distribution will be useful to the corporate community. Increased student involvement had been established as a result of their capacity to embrace SNS.
- Because social media platforms have been widely accepted by users, they will be able to encourage rich social interactions among potential users to generate market knowledge and promote the brand. Initial branding challenges with startups will be overcome by the library's branding and its reach among its social media members.

Studies on the implementation of SNS in libraries with an emphasis on offering help to entrepreneurs are lacking in the literature. The use of social media in libraries to provide services to students and faculty has been extensively researched. Experiences with social media for academic purposes could provide the foundation for being able to assist entrepreneurs. However, because SNS access necessitates a higher level of information distribution and access, including crowdsourcing, it is critical to determine the characteristics that may influence librarian acceptance. The findings will aid social media service providers in further innovating their platforms to make it easier for librarians to correctly apply their social media adoption in academic experiences in the corporate arena. Identifying the elements that influence SNS technology uptake in libraries will assist libraries to provide trustworthy and long-term support to companies.

The Technology Acceptance Model (TAM) (Davis, 1985; Davis et al., 1989) was utilized as a framework to determine the elements driving the adoption of SNS in university library entrepreneurial activities to achieve this goal.

This paper is structured as follows: The following section presents the theoretical background and identifies the research framework by formulating research hypotheses. The next section on "Theoretical Background and Research Framework" provides TAM background and details about the research method applied in this article including the Structural Equation Modelling (SEM) method for data analysis. The results are presented in the "result Analysis" section and subsequently discussed in the "Discussion" section. The implication section presents implications for librarians and entrepreneurs followed by the presentation of conclusions as well as directions for future work.

Theoretical Background and Research Framework

Social Networking Sites Adoption in Libraries for digitalization of library services

Web 2.0 tools in libraries, particularly social networking sites (SNS), to develop engagement with students have already been mentioned (Chu et al., 2012; Chen et al., 2013; Semode et al., 2017; Williams, 2018; Chan et al., 2020; Akwang, 2021; Tharani, 2021; Williams et al., 2019; Çakmak and Eroğlu, 2021; Choi and Joo, 2021). The use of social media by libraries to digitize their services has resulted in more engagement with users, such as students, as well as faster transmission of library content, increased student outreach, and improved library services. The use of social media has become commonplace during pandemics and is anticipated to continue beyond it as well.

Hamad et al., (2017) reported the high social network awareness and substantial utilization for professional development in Jordan libraries. Ahenkorah-Marfo and Akussah (2016) reported that the majority of academic librarians are well-versed in social media and utilize it for both personal and professional purposes. Williams (2018) based on their study of six academic university libraries in Belgium and South Africa reported the increased adoption of social media in these libraries despite financial and infrastructure-related issues. The rising use of social media to digitize library services, as well as the continued use of such technology in personal life, has provided library employees with all of the skills needed to apply their knowledge to entrepreneurs rather than simply students or academics.

Social Networking Sites Adoption in Libraries for Supporting Businesses

Studies on how libraries use social media to support businesses, such as small and medium-sized businesses, are lacking in the literature (SMEs). The support of libraries to such businesses, particularly by using SNS technology for market research, has been established (Gupta and Rubalcaba, 2021; Gupta et al., 2022). The pandemic showed the effectiveness of libraries in the business community. The pandemic compelled libraries to help the business community, which was particularly hard hit by the disease, by digitizing their library services by using digital technologies. Although businesses have increased access to libraries during libraries to seek their support in their business activities, the impact of digital transformation has yet to be experimentally explored (Segal, 2020). According to a recent study (Whitman et al., 2020), libraries were able to provide resources to businesses in the event of a pandemic, and this might lead to resilience and recovery.

Libraries, according to Gupta and Rubalcaba (2021), can assist startups in globalizing their operations by serving as sources of foreign market information. The library assists entrepreneurs in making logical market decisions, simulating product demand validation, identifying client segments, and conducting market research with minimal effort while leveraging the library's global professional network and established university brand. The startup's global reach hinders its ability to study other markets, making it difficult to discover product adaptation needs in the target country.

Based on their advising experience with the globalization of Spanish startups in the United States of America (USA) market, Gupta et al., (2022) observed that entrepreneurs require ongoing library support to operate successfully in a very dynamic commercial environment. This is made feasible by strategic partnerships between them, which are cultivated through the use of social media technology. Depending on the product's innovativeness and the business necessity, librarians conduct a simple search via social networks or use crowdsourcing to get information. For example, the library assisted a Spanish business with market research in the United States by soliciting expert opinion from its social network, prototyping on social media, and conducting competitor analysis by analyzing their product adverts on social media accounts.

These studies show that libraries may assist startups in doing local and international market research by using the power of various social media platforms with informational access ranging from simple to extremely complicated tasks requiring collective intelligence.

Social Networking Sites Adoption among users

SNS usage was fast increasing among its users, especially librarians. This allowed these users to apply their SNS skills in a variety of professional fields, including consultancy, market research, digital marketing, and much more. According to a recent poll done by Statistica, the average amount of time spent on social media platforms in the United States increased in 2020. (Statista, 2021a). As of July 2021, Facebook was the most popular social media site, with 2.85 billion monthly active users (Statista, 2021b). This suggests that the pandemic has increased the number of people who use social media to create and strengthen their social interactions. Table 1 shows the number of users of various social media platforms as of January 2022, based on a survey reported in Statista (2022).

Table 1: Number of Users of social media as of January 2022

S. No.	Social Media	Number of Users (in millions)
1.	Facebook	2,910
2.	YouTube	2,562
3.	WhatsApp	2,000
4.	Instagram	1,478
5.	Twitter	436

The increased market share of these social media platforms indicates that consumers are using them more in their personal life, with more user-generated content across them. The finest source of secondary market information for firms is user-generated content.
This also includes business accounts set up by companies to market their products or services. The expanding user base indicates that social media is becoming more popular among the corporate community. Small businesses were forced to use SNS technology in their commercial operations because of the pandemic's volatility, according to Kwon et al. (2021). This suggests that in a pandemic, social media was used as a strategy to survive in volatile markets.

Social Networking Sites Adoption-Overall

The research was prompted by four promising trends on social media (Figure 1).

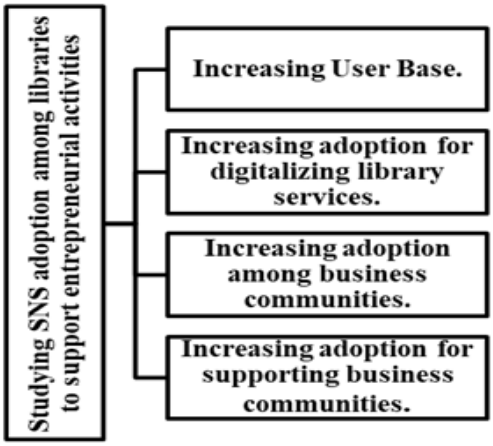

Figure 1: Factors motivating research study

The following are the opportunities across SNS that motivate undertaking this research study:

a) Increasing user adoption of social media is evident from the increasing user base of such technologies.
b) Growing acceptance of social media for business operations among the business community.
c) Enhanced social media technology among libraries for digitalizing their services.
d) Expanded library uptake in support of business communities especially during the pandemic.

Theoretical Framework: Technology Acceptance Model

Technology Adoption in business refers to the acceptance, integration, and use of technology in the business. Technology adoption had been a complex issue that had been catalyzed as well as hindered by numerous factors. In reality, most new technologies fail to be adopted by their intended audience. The multiple factors like costs, training requirements, social norms, quality issues, customer perception about its usefulness and ease of use, and much more, determine the adoption.
To predict the adoption of the technology at individual levels (and not organizational levels), Davis (1985) proposed Technology Adoption Model (TAM). This model suggests that the perception of

the user about the ability of the technology to be useful for his work (perceived usefulness) and easier to work with (perceived ease of use) determines his liking or disliking of the technology (attitude). His attitude further drives his intention to use the technology, finally leading to acceptance of technology. However, later it was reported Davis et al. (1989) found that attitude is a partial mediator of the relationship between perceived usefulness and perceived ease of use on behavioral intention to use the technology. In this study, the attitude latent variable was excluded from the research model.

Research Model

To achieve the research objectives, the research model includes 9 latent variables—System Quality (Q), Experience (E), Training (T), Computer self-efficacy (E), Brand Image (B), Perceived Usefulness (PU), Perceived Ease of Use (PEU), behavioral Intention (BI), Technology Adoption (System Use). The indicators (or items) of these latent variables are specified in the Questionnaire (Appendix-A). The number of indicators measuring the System Quality (Q) is 7, Experience (E) is 3, Training (T) is 3, Computer self-efficacy (E) is 3, Brand Image (B) is 3, and Perceived Usefulness (PU) is 6, Perceived Ease of Use (PEU) is 6, Behavioral Intention (BI) is 4 and Technology Adoption (System Use) is 3.

The structural equation model highlighting the relationship between indicators and constructs (measurement model) as well as between individual constructs (structural model) are shown in Figure 2.

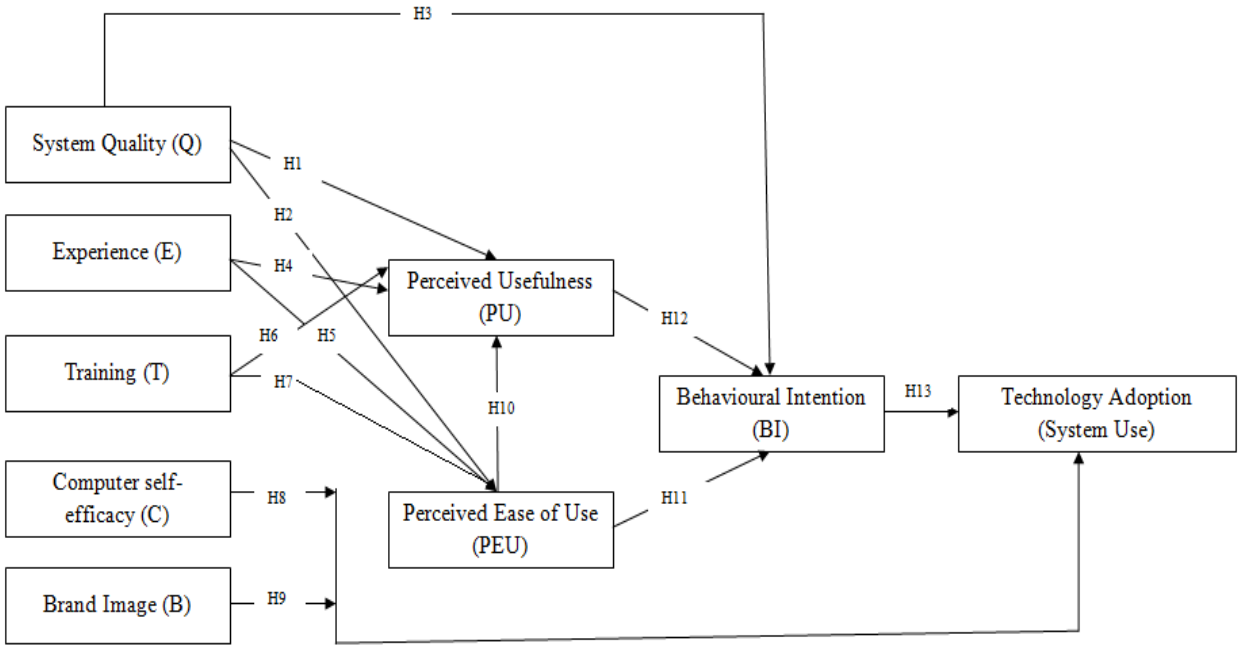

Figure 2: Research Model

Table 3 provides an explanation of each latent variable's of structural model.

Table 2: TAM Model Variables

TAM Variable	Variable meaning
External Variable	
System Quality (Q)	The ability of the technology to meet the user expectations. This includes multiple aspects like functionality, durability, performance, etc.
Experience (E)	Involvement of users in using technology in executing different tasks in the professional sphere.
Training (T)	Imparting skills to users to enable them to use the technology through formal organizational training programs.
Computer self-efficacy (C)	User belief about his ability to use computer technology (Omotayo and Haliru, 2020).
Brand Image (B)	User perception about the technology manufacturer in mind.
Core Variables	
Perceived Usefulness (PU)	The degree to which an individual believes that using a particular system would enhance his or her job performance (Davis, 1985).
Perceived Ease of Use (PEU)	The degree to which an individual believes that using a particular system would be free of physical and mental effort (Davis, 1985).
Outcome Variables	
Behavioral Intention (BI)	User intention to perform a given behavior (Ajzen, 2006).
Technology Adoption (System Use)	The actual adoption of the technology by the user.

System Quality (Q) as an external variable of TAM

The SNS quality is the ability of the technology to meet its user's expectations. This includes multiple aspects like functionality, durability, performance, trustworthiness, reliability, etc. For instance, the SNS which is very fast to be accessed and provides reliable market knowledge will

likely score high in terms of librarian perceived expectations. The customer perception of the system quality (for instance, SNS technology) is the main motivator factor leading to continued use of the system (DeLone and McLean 1992; DeLone and McLean 2003; Hsieh et al., 2008; Sigala 2009; Phillips et al., 2016). The information quality had been reported to be positively related to PU, PEU, and BI (Machdar, 2016; Ho et al., 2019; Prasetyo et al., 2021).

H1: System Quality (Q) positively affects the Perceived Usefulness (PU) of Social Networking Sites (SNS).
H2: System Quality (Q) positively affects Perceived Ease of Use (PEU) of Social Networking Sites (SNS).
H3: System Quality (Q) positively affects Behavioral Intention (BI) to use Social Networking Sites (SNS).

Experience (E) as an External Variable of TAM

The user's (for instance, librarian) continuous use of the technology helps him to acquire sufficient experience which is likely to enhance PU and PEU. Increased exposure to technology will increase the technological experience of librarians, making them capable to aggregate the market information scattered across SNS into meaningful knowledge. This knowledge makes their place central in providing reliable and quick responses to businesses. Increased exposure to technology will make access to it easier as well as make him better placed to perceive the utilities of the technology. A positive relationship between the user experience and PU as well as PEU had been reported (Pereira and Ávila, 2009; Mlekus et al., 2020). The researchers based on prior studies postulate that:

H4: Experience (E) positively affects the Perceived Usefulness (PU) of technology.
H5: Experience (E) positively affects the Perceived Ease of Use (PEU) of technology.

Training (T) as an External Variable of TAM

The training results in imparting skills to librarians for making them able to use the technology. This seems rational as only when a user has sufficient skills to operate a technology then he is likely to perceive it to be useful as well as find it easier to use. In a recent study (Izuagbe et al., 2019a), the authors reported that e-skills and perceived ease of use (PEU) are positively related. In a recent study (Jahangiri et al., 2021), the authors reported that training through various workshops and training courses may get familiarized with this technology thereby overcoming resistance to use it. The training could give them the necessary skills to be able to use this technology effectively, signifying that it will increase the perceived ease of use. The researchers based on prior studies postulate that:

H6: Training (T) positively affects the Perceived Usefulness (PU) of technology.
H7: Training (T) positively affects the Perceived Ease of Use (PEU) of technology.

Computer self-efficacy (C)

Computer self-efficacy is defined as the user's belief about his ability to use the computer technology (Omotayo and Haliru, 2020). The SNS use requires the use of computational infrastructure which signifies that librarians will hesitate to use the technology if they lack abilities to use the infrastructure supporting the technology. In a recent study (Omotayo et al., 2020), the results indicate that Computer self-efficacy has a positive relationship with the adoption of digital technology by users. Similar results are reported in (Adekunjo and Unuabor, 2018; Schlebusch, 2018). The researchers based on prior studies formulate the following hypothesis:

H8: Computer self-efficacy (C) positively affects technology acceptance by the librarian.

Brand Image (B)

Corporate brand image is the outcome of the marketing activities and organizational activities that create the collection of perceptions, beliefs, and impressions about the corporate in the minds of the target market (Aziz, 2018; Heinberg et al., 2018; Singh and Sarkar, 2019; Triatmanto et al., 2021) and had been the factor leading to competitive advantage (Buil et al., 2016). The brand image had been associated with word of mouth (Lovett et al., 2014) signifying those technologies with a greater brand image are more likely to be adopted due to strong word-of-mouth marketing. In the study (Corkindale et al., 2009), the corporate brand had been positively related to the adoption of the innovation among its users. In another study (Caviggioli et al., 2020), the sharing of technology adoption news had been associated with increased activities on Twitter (including positive sentiments), signifying the increased branding. In another study, the lack of global brand image is reported to be one of the reasons for the late adoption of technology (Jahanmir et al., 2018). The researchers based on prior studies formulate the following hypothesis:

H9: Brand Image (B) positively affects the overall technology acceptance by the librarian.

Perceived Ease of Use (PEU)

Perceived Ease of Use (PEU) is defined as the degree to which an individual believes that using a particular system would be free of physical and mental effort (Davis, 1985). It is logical to believe that when a user feels that technology is easier to use, he is more likely to be able to use it and find it useful. Further, the easier the technology to use; the higher the intention to use it. In a recent study (Mustafa et al., 2021), the PEU has a direct impact on the behavioral intention to choose a preferred library book format. Similar findings are also reported in (Izuagbe et al., 2019a) and (Rafique et al., 2021). The PEU has a direct impact on the PU of the technology as the easier the technology is to be used; the more it can be subjected to use by the user thereby enhancing his perceived usefulness. The direct impact of PEU on PU had been reported in (Constantinides et al., 2013) where the authors identified the factors responsible for the adoption of social networking sites for business process management.

The researchers based on prior studies formulate the following hypothesis:

H10: Perceived ease of use (PEU) has a positive effect on the perceived usefulness of the technology.

H11: Perceived ease of use (PEU) positively affects Behavioral Intention (BI) to use technology.

Perceived Usefulness (PU)

The degree to which an individual believes that using a particular system would enhance his or her job performance is called Perceived Usefulness (PU) (Davis, 1985). In the library context, the objective of using SNS is to establish communication with the users (for instance, students), and has been a great way of marketing library products as well as services (Izuagbe et al., 2019b; Jain, 2014). The library PU of SNS had been reported to be a strong indicator of intention to adopt the technology (Izuagbe et al., 2019b; Elkaseh et al., 2016). The following hypothesis is formulated for further investigation:

H12: Perceived Usefulness (PU) significantly and positively affects Behavioral Intention (BI) to use technology.

Behavioral Intention (BI)

The librarian's desire to use SNS to assist the business community with market research eventually leads to technological adoption. The librarian will be highly driven to improve his desire to adopt the SNS in the long run. This is consistent with earlier research suggesting that behavioral intent is substantially linked to technology adoption (Aburagaga et al., 2020; Al-Rahmi et al., 2021). The researchers based on prior studies formulate the following hypothesis:

H13: Behavioral Intention (BI) positively affects technology acceptance by the librarian.

Methods

Study setting

The research study was conducted with the librarians of different institutions and universities across the globe. These institutions or Universities have an entrepreneurial mindset—with a clear focus on continuous innovation to innovate their library services. One such service is towards supporting small businesses (including startups) by providing resources like market research support, access to secondary market research materials, professional referrals, and much more. The continuous investment in providing support to entrepreneurs by the participant libraries is a valuable knowledge source for the research study.

Participant recruitment

The research study participants included the librarians of academic institutions and universities located in Europe (28%), Asia (28%), America (24%), Africa (12%), and Australia (08%). The librarian includes those with less than 5 years, 5 to 10, and more than 10 years of experience. This helps to gather perspective about the technology adoption at various librarian levels because entrepreneurial libraries involve fostering open innovation by generating and implementing innovative ideas (for instance, related to social networking technologies to support entrepreneurs) across different hierarchical levels (including knowledge sources outside the library premises). The participants include 56% males and 44% female librarians. The participants have diverse

experiences ranging from less than 5 years (40%), 5 to 10 years (36%), and more than 10 years (24%). Table 3 highlights the participant demographic profiles.

The participants were selected through a series of purposive and snowball sampling (non-probabilistic sampling). The librarians in our professional proximity were requested for their participation and their referral for reaching new research study participants. Based on the referrals, the initial list is composed of the official communication details of 75 librarians. These librarians were approached for their voluntary participation by mailing them the questionnaire (Appendix-A) and the informed consent form. The request was accepted by 50 librarians leading to a 75% response rate.

Table 3: Participant Profiles.

Parameter	Number	Percentage (%)
Continent		
Europe	14	28
Asia	14	28
America	12	24
Africa	06	12
Australia	04	08
Gender		
Male	28	56
Female	22	44
Prefer not to say	Nil	Nil
Work Experience		
Less than 5 years	20	40
5 to 10 years	18	36
More than 10 years	12	24

Data collection

The data about the indicators of latent variables were collected through the online questionnaire (Appendix-A) through Google forms. Before actual data collection, a pilot test was conducted with 10 librarians in our professional network. Their feedback resulted in modification in a few portions of the questionnaire leading to the modification of three questions and the dropping of two questions. The questionnaire is divided into *nine* sections. Each section pertains to aspects

measuring the TAM model variables (Table 2), proceeded by the informed consent section and demographic detail section. The participants are asked to rate their agreement or disagreement with the indicators of latent variables on a 5-point Likert scale; 1 represents strong disagreement and 5 represents strong agreement.
Also, there is a quantitative question in each section to allow librarians to share the information about the TAM construct under consideration that drove their reasoning behind their responses.

Data analysis

Structural equation modelling (SEM) is used to model, estimate, and test the stated hypothesis empirically. The reason for employing SEM is grounded on two reasons i.e., (a) the lower sample size of 50 librarians as the number of universities providing support to the business community is still smaller and (b) the inability to assume about the variable's distributions. The partial least squares structural equation modeling (PLS-SEM) is used to estimate the formulated structural equation model based on which the hypothesis acceptance or rejection decisions are made (assessment of structural model) provided the measurement model is accessed to be reliable and valid. The indicators of individual latent variables are interchangeable hence the constructs are reflexively measured (reflexive measurement model). The structural equation model is accessed in two stages to meet research objectives as suggested in (Hair et al. 2016; Sarstedt et al. 2014). The First stage involves the assessment of the measurement model by evaluating the indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability is demonstrated if the indicator loading is greater than 0.70, Internal consistency reliability if the rho_A reliability coefficient is greater than 0.70, Convergent validity if Average Variance Extracted (AVE) for each latent variable is greater than 0.50, and Discriminant validity if AVE square root for each latent variable is greater than its correlation with other latent variables (Fornell-Larcker Criterion). If the measurement model evaluation indicates reliability and validity, the next stage includes an assessment of the structural model to decide acceptance or rejection of the formulated hypothesis. The SmartPLS 3.2.9 software version is used for partial least squares structural equation modeling (PLS-SEM). The test for common method bias as well as a test for effect size is used to determine the impact of small sample size (if any) on the analyzed results. The test for common method bias determines whether there is a bias in the gathered dataset due to the measurement model. To test for common method bias, the comprehensive Collinearity evaluation approach suggested in (Kock, 2015) is applied. The effect size test, which uses the f2 effect size, determines how meaningful the association between the variables is. Table 9 shows the test for common method bias, whereas Table 10 shows the effect size test.

Result Analysis

The path model (structural equation model) with the latent variable and indicators is shown in Figure 1. The estimated values are then accessed in two stages as explained below.

Stage 1: Reflexive Measurement Model Assessment.

Table 4 lists the numerous metrics for accessing the indicator reliability, internal consistency reliability, and convergent validity.

Table 4: Validity and Reliability of Model.

Latent Variables	Indicators	Indicator Loading	rho_A	AVE	Validity (okay?)	Reliability (okay?)
System Quality (Q)	Q1	0.560	0.894	0.547	Yes	Yes
	Q2	0.552				
	Q3	0.783				
	Q4	0.857				
	Q5	0.821				
	Q6	0.927				
	Q7	0.800				
Experience (E)	E1	0.743	0.763	0.602	Yes	Yes
	E2	0.756				
	E3	0.826				
Training (T)	T1	0.533	0.71	0.556	Yes	Yes
	T2	0.721				
	T3	0.711				
Computer Self-efficacy (C)	C1	0.948	0.835	0.612	Yes	Yes
	C2	0.721				
	C3	0.646				
Brand Image (B)	B1	0.860	0.858	0.683	Yes	Yes
	B2	0.679				
	B3	0.921				
Perceived Usefulness (PU)	PU1	0.410	0.887	0.565	Yes	Yes
	PU2	0.775				
	PU3	0.822				

	PU4	0.907				
	PU5	0.877				
	PU6	0.594				
Perceived Ease of Use (PEU)	PEU1	0.538	0.947	0.671	Yes	Yes
	PEU2	0.721				
	PEU3	0.893				
	PEU4	0.883				
	PEU5	0.876				
	PEU6	0.911				
Behavioral Intention (BI)	BI1	0.726	0.894	0.668	Yes	Yes
	BI2	0.799				
	BI3	0.881				
	BI4	0.854				
Technology Adoption (System Use)	A1	0.925	0.926	0.772	Yes	Yes
	A2	0.802				
	A3	0.905				

Table 5 highlights that the measurement model is having Indicator reliability, Internal consistency reliability as well as Convergent reliability. As most of the indicators of the latent variables have a loading greater than 0.70 (except a few), the indicator reliability is confirmed. The measurement model is having Internal consistency reliability as the rho_A reliability coefficient for all latent variables is individually greater than 0.70. The model is having Convergent validity as the computed Average Variance Extracted (AVE) for each latent variable is greater than 0.50.
The Discriminant validity using the Fornell-Larcker Criterion is given in Table 5. Table 5 shows that the measurement model is having discriminant validity. This is because the AVE square root of each latent variable is greater than their correlation with other variables. (For instance, 0.817 of BI is greater than all correlation values in column 1 of Table 5).

Table 5: Discriminant validity (Fornell-Larcker Criterion).

	BI	**B**	**C**	**E**	**PEU**	**PU**	**Q**	**A**	**T**
BI	0.817								

B	0.033	0.826							
C	0.156	-0.198	0.782						
E	0.204	0.242	0.070	0.776					
PEU	0.796	-0.265	0.215	0.215	0.815				
PU	0.557	0.120	0.144	0.144	0.299	0.752			
Q	-0.050	0.040	0.167	0.167	0.736	0.345	0.740		
A	0.339	0.364	0.101	0.101	-0.019	0.145	0.116	0.879	
T	-0.102	-0.070	-0.042	-0.042	-0.183	0.076	-0.062	-0.062	0.745

Stage 2: Structural Model Assessment.

Using the bootstrapping procedure of SmartPLS 3.2.9, the significance level of both the measurement model and structural model are tested. To accomplish the testing of the significance level, the T-statistics are computed and highlighted in Table 6 (for the structural model) and Table 7 (for the measurement model). The confidence level is 95% (or $\alpha = 0.05$).

Table 6: T value of Hypothesis after bootstrapping.

Hypothesis Number	Hypothesis	β Value	T value	P-Value	Hypothesis Testing outcome
H1	System Quality (Q) ➔ Perceived Usefulness (PU)	0.274	0.921	0.358	Rejected
H2	System Quality (Q) ➔ Perceived Ease of Use (PEU)	0.709	**7.372**	**0.000**	Accepted
H3	System Quality (Q) ➔ Behavioral Intention (BI)	-0.202	1.148	0.252	Rejected
H4	Experience (E) ➔ Perceived Usefulness (PU)	0.169	0.834	0.405	Rejected
H5	Experience (E) ➔ Perceived Ease of Use (PEU)	-0.061	0.622	0.534	Rejected
H6	Training (T) ➔ Perceived Usefulness (PU)	0.123	0.568	0.570	Rejected

H7	Training (T) ➔ Perceived Ease of Use (PEU)	-0.177	1.517	0.130	Rejected
H8	Computer self-efficacy (C) ➔ Technology Acceptance (A)	0.665	0.665	0.507	Rejected
H9	Brand Image (B) ➔ Technology Acceptance (A)	0.379	**2.255**	**0.025**	Accepted
H10	Perceived ease of use (PEU) ➔ Perceived Usefulness (PU)	0.108	0.444	0.657	Rejected
H11	Perceived ease of use (PEU) ➔ Behavioral Intention (BI)	0.672	**1.982**	**0.029**	Accepted
H12	Perceived Usefulness (PU) ➔ Behavioral Intention (BI)	0.637	**4.784**	**0.000**	Accepted
H13	Behavioral Intention (BI) ➔ Technology Acceptance (A)	0.302	**2.351**	**0.019**	Accepted

Results highlighted in Table 7 indicate that outer loadings are significant as the value of T Statistics is larger than 1.96 for all loadings.

Table 7: Outer Loading.

Indicator	T Value	P-Value	Significant?
A1 ←Technology Acceptance	17.477	0.000	Accepted
A2 ←Technology Acceptance	3.104	0.002	Accepted
A3 ←Technology Acceptance	10.248	0.000	Accepted
B1 ←Brand Image	3.961	0.000	Accepted
B2 ←Brand Image	12.579	0.000	Accepted
B3 ←Brand Image	3.612	0.000	Accepted
BI1 ←Behavioral Intention	4.738	0.000	Accepted
BI2 ←Behavioral Intention	21.610	0.000	Accepted
BI3 ←Behavioral Intention	12.212	0.000	Accepted
BI4 ←Behavioral Intention	3.234	0.001	Accepted
C1 ←Computer Self-efficacy (C)	2.494	0.013	Accepted

C2 ←Computer Self-efficacy (C)	2.221	0.011	Accepted
C3 ←Computer Self-efficacy (C)	3.051	0.002	Accepted
E1 ←Experience (E)	2.306	0.021	Accepted
E2 ←Experience (E)	3.388	0.001	Accepted
E3 ←Experience (E)	2.994	0.003	Accepted
PEU1 ←Perceived Ease of Use (PEU)	5.687	0.000	Accepted
PEU2 ←Perceived Ease of Use (PEU)	17.178	0.000	Accepted
PEU3 ←Perceived Ease of Use (PEU)	19.582	0.000	Accepted
PEU4 ←Perceived Ease of Use (PEU)	16.564	0.000	Accepted
PEU5 ←Perceived Ease of Use (PEU)	36.989	0.000	Accepted
PEU6 ←Perceived Ease of Use (PEU)	2.737	0.006	Accepted
PU1 ←Perceived Usefulness (PU)	5.669	0.000	Accepted
PU2 ←Perceived Usefulness (PU)	8.423	0.000	Accepted
PU3 ←Perceived Usefulness (PU)	16.562	0.000	Accepted
PU4 ←Perceived Usefulness (PU)	17.240	0.000	Accepted
PU5 ←Perceived Usefulness (PU)	3.665	0.000	Accepted
PU6 ←Perceived Usefulness (PU)	2.01	0.000	Accepted
Q1 ←System Quality (Q)	3.761	0.000	Accepted
Q2 ←System Quality (Q)	12.557	0.000	Accepted
Q3 ←System Quality (Q)	21.555	0.000	Accepted
Q4 ←System Quality (Q)	18.322	0.000	Accepted
Q5 ←System Quality (Q)	52.372	0.000	Accepted
Q6 ←System Quality (Q)	10.784	0.000	Accepted
Q7 ←System Quality (Q)	2.06	0.000	Accepted

T1 ←Training (T)	2.288	0.023	Accepted
T2 ←Training (T)	1.98	0.000	Accepted
T3 ←Training (T)	2.224	0.000	Accepted

Table 6 reveals that out of 13 hypotheses, only five have a value of T greater than 1.96 i.e., only five hypotheses are tested to be True. System Quality (Q) with (β=0.274, t-value=0.921, p>0.05), did not impact PU of SNS, leading to the rejection of hypothesis 1. System Quality (Q) with (β=0.709, t-value=7.372, p<0.05), did impact the PEU of SNS, leading to the acceptance of hypothesis 2. Similarly, System Quality (Q) with (β=-0.202, t-value=1.148, p>0.05), did not impact BI to use SNS, leading to the rejection of hypothesis 3. Training does not have significant impact on PU with (β=0.123, t-value=0.568, p>0.05) and PEU with (β=-0.177, t-value=1.148, p>0.05) respectively.

The Experience with SNS technologies earlier does not impact PU (β=0.169, t-value=0.568, p>0.05) leading to the rejection of hypothesis 6. Hypothesis 7 is also rejected i.e., Experience does not have a strong impact on PEU (β=-0.061, t-value=1.517, p>0.05). Computer self-efficacy (C) does not impact technology acceptance (A) (β=0.130, t-value=0.665, p>0.05) leading to the rejection of hypothesis 8.

The Brand Image (B) has a positive impact on overall technology acceptance (A) (β=0.379, t-value=2.225, p<0.05) leading to acceptance of hypothesis 9. Similarly, the Perceived Ease of Use (PEU) has no impact on perceived usefulness (PU) (β=0.108, t-value=0.444, p>0.05) leading to the rejection of hypothesis 10. However, PEU has a positive impact on Behavioral Intention (BI) to use technology (β=0.672, t-value=1.982, p>0.05) leading to acceptance of hypothesis 11. The Perceived Usefulness (PU) has a positive impact on Behavioral Intention (BI) to use technology (β=0.637, t-value=4.784, p<0.05) leading to acceptance of hypothesis 12. Hypothesis 13 is also accepted because there is a positive impact of Behavioral Intention (BI) on Technology Acceptance (A) (β=0.302, t-value=2.351, p<0.05).

The goodness-of-Fit Index (GFI), which represents the overall fit of the model, is computed to be 0.992. As this value is over the recommended value of 0.90, this means that the SEM model is fit.

Table 8: Test for common method bias.

	BI	**B**	**C**	**E**	**PEU**	**PU**	**Q**	**A**	**T**
BI									0.18
B									0.19
C									0.16
E					0.19	0.22			
PEU	0.35					0.24			

PU	0.59								
Q	0.38				1.01	0.31			
A									
T					0.16	0.17			

The model is free of common method bias because the variance inflation factors (VIFs) have a value smaller than 3.3.

Table 9: Effect Size Test.

	BI	**B**	**C**	**E**	**PEU**	**PU**	**Q**	**A**	**T**
BI									1.01
B									0.82
C									0.97
E					0.988	0.678			
PEU	1.622					0.788			
PU	1.545								
Q	1.114				0.786	1.03			
A									
T					0.867	1.14			

The effect size is moderate as well as large because the values are greater than 0.15 and 0.35 respectively. This signifies that the research has practical significance and is not impacted by the small sample size.

Discussion

The present study attempts to identify the factors that motivate entrepreneurial libraries to adopt SNS to support businesses in globalizing their business operations by making market-related information accessible to them (to generate market knowledge), helping them identify a unique value proposition. The previous studies have investigated the adoption of SNS in libraries to establish social communication with other members of academia, especially students. Their focus had been to provide value to students by making library resources accessible to them online. This study is distinct from other studies as the focus is to study technology adoption factors in libraries that provide practical information to businesses (rather than students) by leveraging the knowledge

scattered among members in close social proximities of the libraries. The knowledge sources in library social proximity could include peer university libraries, companies, experts, and other entities (that could take the role of potential customers for prototype validation, demand prediction, etc.) like students, their parents, faculties, etc., besides accessing the market-related information already scattered in SNS like competitor advertisements, current pain points as represented through trending hashtags and much more. In this case, the library's task is much more effortful and difficult as the meaningful knowledge for startups is to be derived by aggregating diversely scattered market-related information across the SNS (for instance, competitor-related information). The types of library interaction with external knowledge sources will be communication and knowledge gathering, which will be more intense and complex as opposed to those happening to communicate with students in academia. The use of SNS for businesses by libraries requires sufficient skills to use access, search, and aggregate knowledge from the social networks as opposed to the one that happens just to connect libraries with students virtually. The technology adoption of SNS in academic libraries with a focus on engaging with students will not be applicable with businesses as primary stakeholders. This study brings five important points of discussion:

First, system quality has a direct impact on librarians' Perceived Ease of Use and Behavioral Intention to use SNS and not on Perceived Usefulness. The popularity of SNS like Facebook, YouTube, LinkedIn, Twitter, etc. is growing exponentially as evident from the ever-increasing average monthly active users (Statista, 2021a; Statista, 2021b) (users include businesses as well). The increased adoption of the technologies in personal lives had resulted in attracting a lot of attention from their users (including librarians). The continuous rise in SNS technology providers, as well as incremental innovations, had been focused on increasing functional benefits to users by making it more user-friendly. The increasing quality of SNS is helping librarians to implement their SNS knowledge in their professional settings i.e., doing market research for the entrepreneurs. The increasing SNS quality is thus increasing the PEU. In other words, the librarians are finding it easier to adopt the emerging SNS technologies for supporting the business community. The SNS has been designed to be used by diverse customer segments and the utilities are provided to analyze the activities happening at SNS. For instance, Facebook is quite simple to be used by all customer segments and has some great tools to access important information that is just a few clicks away. The Facebook business suite (https://en-gb.facebook.com/business/facebook-business-suite) provides a set of utilities to manage Facebook, Instagram, and messenger accounts on a single platform along with the utilities to connect, share and perform analytics with minimal efforts. The rise in third-party applications like Sociograph.io and Scoreboard Social further enhances the quality of SNS, which further boosts the PEU and PU respectively. SNS are designed in a way to provide an abstraction to the librarian, hiding the underlying complexity of social networks from them and making the information accessible with no effort. Due to the wider adoption of the SNS in user's lives, librarians are already having positive perceptions about their usefulness. Thus, increasing quality does not have a significant impact on PU as PU is already established due to prolonged use of SNS. Further, PEU does not have a significant impact on PU as the former is

enhanced by increasing quality and the latter because of prolonged adoption of technology. The increased adoption of SNS (higher PU) and the ability to master them without any specialized guidance (higher quality), makes librarian intention (BI) to use them in professional settings rather than just in the personal sphere, much stronger.

Chu et al. (2012) reported that one of the challenges with the adoption of SNS in libraries is that technologies are changing so fast, which may limit the ability of libraries to keep pace with them. However, as the technology is innovating, the focus of SNS is to provide greater value to users including non-technology savvy users resulting in diffusion across heterogeneous customer segments. This signifies that increasing the benefits at zero monetary cost and minimal training requirements, increases customer perceived quality leading to a strong intention to adopt the technology. As the response made by one of the librarians to the open-ended question, "*It is quite easy to use Facebook for providing market-related knowledge to startups. Accessing Facebook for professional purposes is not different from what we do to connect with our family and friends. Analytics operation is just fewer clicks away. Such tools are effortless to use without any second thought about their abilities*".

Second, previous experience of using SNS in job settings does not have a significant impact on PU and PEU. Although continuous use of SNS will enhance its acceptability of SNS, the librarians seem to be motivated to use the technology driven by their personal experiences with it. This signifies that librarians perceive usefulness and ease of use based on active use of SNS in personal settings. Hamad et al. (2017) reported that the SNS is frequently used by library staff owing to the increased adoption of Information and Communication Technologies, for instance, smartphones. The increased use of SNS is likely to increase their familiarity with such technologies. Such familiarity negates the impact of the experience of library employees with SNS on its usage or their opinions toward it for enhancing their professional skills and promoting library services (Hamad et al., 2017). Further, these technologies are designed for less technology-savvy users as well. The experience with using them in personal settings already establishes the perceived usefulness and ease of use among the librarians rather than those driven based on job experiences. This is in line with the findings of (Chu et al., 2012) that the librarians are familiar with social networking technologies because of the longer time these technologies had been in use. This signifies that as time progresses, the user becomes more and more comfortable with the technology and could update his skills incrementally with the innovation in the technology. As many libraries have started giving support to businesses and many are in the process to start so, the latter set of universities will find SNS useful and easy even though they never employed it earlier in professional settings. The adoption of SNS in personal settings overcomes one of the adoption challenges i.e., the time that library staff needs to master the new technology as reported (Chu et al., 2012). The way the people look at the information on SNS is the same way they repeat these tasks for businesses except that they must work with diversely larger information across multiple platforms. As the response made by one of the librarians to the open-ended question, "*I use Facebook and LinkedIn in my life to connect with family and friends. I am quite comfortable establishing the same for my library and accessing the business-related information for the*

startups whenever required. I don't think that I need to be worried about its implementation and use even though I have never used it in my professional setting yet".

Third, the training with SNS does not have much impact on PU and technology adoption. The reason is that SNS are growing in popularity these days. The innovation in communication, as well as hardware technology, has resulted in making smartphones and the internet accessible to the wider public. Thus, the number of active users on social sites is escalating, especially the number that grew larger during the pandemic. The users are self-motivated to explore the SNS for their reasons. The SNS is the most diffused technology within the lives of the people, and they already perceive it as useful. Further, SNS technologies are designed keeping in mind the diversity in user segments. The availability of third-party applications Sociograph.io and Scoreboard Social is also easy to use for collecting information from the SNS profiles of the competitors. In personal use of SNS, the difficulty to use SNS is overcome by taking help from family, and friends or self-learning through online tutorials and videos. This helps to raise the PU and PEU to motivate librarians to adopt SNS in professional settings. Once they decide to adopt it, the skills required to provide support to businesses especially providing market knowledge through analytics of online activities on their own SNS, potential customer's SNS pages (for instance, shared stories), and those of competitors, can be built over existing skills through self-learning, accessing easy tutorials, or taking help from family and friends. The user-friendly design of the SNS and third-party applications overcome the need for specialized training programs in the organization and the hesitation of library staff to adopt the technology. This is in line with the findings disseminated in (Chu et al., 2012), which reported that the librarians learn the tools intuitively rather than providing formal training in libraries. In addition to this, acquiring SNS skills through self-practice, conferences/workshops, and friends/colleagues is also reported in (Semod et al., 2017) mentioned the librarians gain most of their SNS skills. As the response made by one of the librarians to the open-ended question, "*I am used to Social networking sites. In my family, everyone uses it. I find the technology useful and easy to use. I find no problem in using it for helping the business community with the information they are looking at. Although, the use of such technology in entrepreneurial libraries needs skills that are just a bit extra than what we have already developed. This extra value is likely to be acquired by your small efforts"*.

Further, the prolonged exposure to SNS technology self-motivates the librarians to make self-directed technology adaption efforts to synchronize with the incremental technological innovations.

Fourth, Computer self-efficacy does not influence technology adoption decisions. The reason is that with an increased focus on entrepreneurial support in libraries, digital transformations already in place and increased use of computational infrastructure have increased the computer-related skills of the librarians. Further, using SNS does not require many specialized computer skills. The use of SNS needs computer skills comparable to those required by routine jobs of the librarians. As the response made by one of the librarians to the open-ended question, "*I am using the computer for most of my work activities. It is fun to integrate social networking sites with business activities, as it does not require any specialized skills. The use of such technology on mobile and computers*

is nothing different from their use in professional settings. What differs is the audience of the interaction with social networking sites-personal use vs business community".

Fifth, Brand Image positively impacts technology adoption decisions. Numerous SNS technologies are in the marketplace. Most technologies need no installation or buying costs, they are easy to initiate as well as use and incur no monetary costs. The libraries adopt the technology based on two factors-the technology owner's brand image (for instance, Facebook is more popular than the Meitu app as used in China) and the business needs of the business. In the latter case, if the competitor is active on LinkedIn, then the libraries will do competitor analysis by adopting LinkedIn technology. The active users across the apps keep on changing but the adoption strongly depends on the company's brand image and ability to satisfy business needs. As the response made by one of the librarians to the open-ended question, "*There are numerous social networking sites. The one to be implemented for a longer-term depends on the popularity of the technology, especially those owned by big brands. However, we need to be flexible to adopt the technology depending on the market as well as industry characteristics of the business i.e., presence of potential customers and competitors on particular social networking site*".

One concern concerning the adoption of these technologies includes privacy norms, for instance, European data protection legislation (Kosta et al., 2010). The adoption of SNS will incur plenty of social interactions and sharing of personal information which must be accessed within the regulatory frameworks. For instance, libraries and startups must make it explicit how customers' personal information will be stored, shared, and accessed. Taking explicit consent should be considered satisfying data regulations across the globe to avoid privacy risks.

The SNS is continuously innovated to provide higher value to its customers. Collective intelligence across social networks requires complex data analysis techniques but must be encapsulated from its intended customers. In other words, the SNS innovations should be able to provide reliable information to customers based on rigorous data analysis without exposing them to the technical complexities of data analysis. These technologies should be easy to use for non-technical users. For instance, NodeXL is an open-source social network analysis tool that helps non-technical users to analyze social networks for decision makings (Hansen, 2011). One such innovation across the social networking technologies could be the integration of NodeXL within the social networking technologies to make the task much easier for its users. The big data (Liu and Shen, 2018), Artificial Intelligence (Cox et al., 2019), adoption of open source technologies (Choi and Pruett, 2019), adoption of emerging technologies like Haptic technology (Wójcik, 2019b) and innovative technical ways of social network analysis, for instance, structured multilevel system (Khamparia et al., 2020) and prediction models based on data mining and link prediction analysis (Gao, 2020) and Personalised recommendation systems (Yi et al., 2018), could help libraries innovate their services.

Implications

This study has some meaningful implications for the following elements of the innovation ecosystem.

a) Librarians

Sufficient exposure to SNS is good to be motivated to adopt SNS to provide support for entrepreneurs. They need to have flexible technology adoption policies in place as the selection of particular technology depends on market conditions of business, which are continuously changing with time. For instance, the potential customer may be active on multiple SNS and may switch to a new one. The adoption decision must be flexible to be synchronized with changing market situations. However, almost all technologies want to be competitive by increasing functional utility and making them user-friendly. The experience with existing technologies is likely to be scalable across new emerging technologies. The changing technologies may create a marginal gap in user competencies i.e., users must do some hands-on with new technology to understand it better, this could be easily accomplished through self-learning and access to easy-to-use tutorials. This makes the library purely entrepreneurial and dynamic to adjust to changing business conditions. The reduction in technology training costs as measured in monetary and temporal units is another factor that will overcome the technology adoption barriers in universities with limited resources. The ability to adopt new technologies will make it possible to provide reliable market knowledge to businesses as per changing market trends.

b) Entrepreneurs

The entrepreneurs could find the support of libraries useful owing to their limited competencies in knowledge acquisition from the market due to limited resources and branding issues. startups with technical entrepreneurs should not completely rely on library support. They should work jointly with the libraries to enhance the skills of libraries in using new technologies, which could help them strengthen their support for the business community. They could provide meaningful information to libraries to help them optimize their search in online social networks, especially by providing them with market demographic information, clear business goals, a clear understanding of the product or service they wish to internationalize, and artifacts to communicate with potential customers (like prototypes). They should ensure that their business operations are conducted ethically and within the boundaries of established law to maintain the university's reputation.

c) Technology Providers

The social networking technology providers should try to make their technologies as valuable as possible to the users, including less technology-savvy users. They should make their access as simple as possible so that it could be used with zero training efforts. The third parties providing the platforms for providing analytical solutions across social networking technologies should make it higher in functional value besides ensuring they satisfy non-functional constraints, including user-friendliness. The ability to integrate functionalities of multiple social networking sites to achieve two-way communication (for instance, Hootsuite, a social media management platform that integrates multiple SNS under one platform). Further, a single platform to integrate multiple SNS to analyze information scattered across

them, without investing efforts, taking advantage of natural language processing technology and data science, could be beneficial for librarians. Technological innovations could improve the SNS adoption across libraries. They must consider the privacy regulations across globe and should inbuild the innovative mechanisms for data analysis across the social networks.

Contribution of Paper

The significant contributions that the research has made to theory, methodology, and practice are highlighted in this section.

a) Theoretical Contribution

The thesis makes two contributions to the body of knowledge. First, expanding our understanding of how SNS adoption in libraries affects businesses generally, and second, assisting librarians in utilizing SNS adoption in their personal lives to create support for the business community. The study has significance for firms who want to publicly innovate with libraries to overcome their weaknesses of newness and small size.

b) Methodological Contribution

The innovative methodology of this thesis is another addition. This study examines the universities that actively promote businesses by implementing SNS. The results are conceptualized using the TAM model, and data analysis is done using the structural equation modelling (SEM) method. Utilizing various statistical techniques improves the results' validity and reliability.

c) Practical Contribution

The results of the thesis have several applications for businesses and libraries. The results assist libraries in strategically implementing SNS and developing capabilities over time. The findings of using SNS for market research and taking advantage of the advantages of social proximity in library social networks could potentially be helpful to business owners. Additionally, by outlining their company challenges more clearly, entrepreneurs can minimize the time spent visiting libraries for market research using SNS.

Conclusion & Future work

The purpose of this study is to find out what motivates librarians to use social media to help entrepreneurs. The analysis was conducted using the Technology Acceptance Model (TAM), as well as external factors such as system quality, experience, training, self-efficacy, and brand image. The research model accurately explains librarians' behavioral intention to use the technology, which leads to its actual implementation. The classic TAM's latent variables are validated, namely, perceived ease of use influences perceived usefulness, perceived usefulness influences behavioral intention, and behavioral intention lead to real system use. Interaction with social media sites to give support for entrepreneur business operations necessitates efforts to gather knowledge that is dispersed throughout a distributed system of social media sites. The system's quality contributes to the librarian's perceived ease of use and usefulness of the technology, resulting in its acceptance. Prior familiarity with technology and formal instruction, on the other hand, had little bearing on Perceived Ease of Use and Perceived Usefulness. As a result,

implementing these technologies in a university library does not necessitate specialist training or prior experience with the technology. The requirement for self-directed and self-motivated training to keep up with technological advancements and expanding company volatility could be self-directed and self-motivated. This is because librarians consider such technologies to be valuable and simple to use in their daily life, as well as a part of providing virtual library services to students via social media.

Although self-directed, they could be useful for boosting innovation culture in libraries, so they can better serve start-ups, the experience gained through long-term adoption of technology in personal and professional spheres eliminates the need for specialized formal training programs or prior job experience. The commercial goal of SNS technology suppliers is to expand their market shares by making technology more accessible to the general public. This is accomplished through increasing both functional and non-functional utilities (including making it user-friendly). The branding image of technology suppliers, as well as the market parameters of the entrepreneur's business, impact technology adoption.

As technology advances and more material is disseminated through social media, libraries will find it simpler to incorporate these technologies as they improve in terms of usefulness, performance, dependability, and availability, as well as becoming more user-friendly. Librarians' impressions of these technologies in terms of usefulness and convenience of use will continue to improve as they draw on the perceptions that have been shaped by their acceptance in personal settings. As a result, technological advancements in social networking sites are very likely to be easily adapted in library settings. The most difficult problem, however, is to develop technology adoption strategies in universities that allow them to quickly adopt new technologies (for example, new social media platforms) in response to changing business conditions (for instance, switching of potential customers to new SNS).

This rise in the number of active users across social media platforms is a potential opportunity for entrepreneurs, as significant market intelligence may be obtained through social media. This, however, necessitates a digital transformation to include digital platforms for data-driven strategic decision-making. Furthermore, the SNS played an important role, particularly during the pandemic, in assisting startups in innovating their existing business models, thereby maximizing existing market opportunities, and increasing the likelihood of future sustainability of these transitory business models.

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Compliance with ethical standards

The informed consent was taken from all participants before started collecting data from them. They were made fully aware of the objectives of the research, methods to be employed, non-disclosure of results, and confidentiality of their information.

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Appendix-A

Questionnaire

Informed Consent

The objective of this survey is to gather your perspectives on the adoption of Social Networking Technology (SNS) in library services with a focus on providing support to the business community. Your libraries are actively engaged in helping the business community in their market research by using different technologies, especially SNS. Participation is voluntary; however, your perspectives will be very helpful to make a real contribution to making your support easier, useful, reliable, and accurate using SNS. The data provided by you will only be used as aggregated responses to the survey and individual details will never be disclosed.

Rating Scale: 5-point Likert scale; 1 represents strong disagreement and 5 represents strong agreement.

Section I

System Quality (Q)

Q1: SNS are fast to access and trigger to fetch meaningful information.
Q2: SNS provides rich functionality to meet market research objectives.
Q3: SNS provides a rich Graphical User Interface (GUI) to work with.
Q4: It is highly secure to be used especially from a user privacy point of view.
Q5: It is possible to achieve all business objectives using the SNS utilities.
Q6: It is great not to be responsible for the maintainability of the SNS.
Q7: I do not encounter a problem with SNS accessibility.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section II

Experience (E)

E1: I had worked previously using the SNS (or related) services for market research.
E2: I have actively used SNS in my different professional activities (including communicating about library activities to the external world).
E3: The SNS had been used by me in undertaking my previous job assignments.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section III

Training (T)

T1: I can accomplish my tasks using SNS with prior training sessions.
T2: I can use SNS as the training opportunities exist in my organization as well as online.
T3: I have good access to training on SNS technology.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section IV

Computer self-efficacy (C)

C1: I can always use a computer to accomplish my task without the additional help of another person.
C2: I understand the words/terms related to computers.
C3: I know how to use the computer to accomplish my task even if I had never used similar technology before.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section V

Brand Image (B)

B1: The library selects the SNS which are owned by renowned entrepreneurs.
B2: The library selects the SNS which are owned by companies with high brand values.
B3: The library selects the SNS which have high brand companies as their clients.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section VI

Perceived Ease of Use (PEU)

PEU1: Learning to operate SNS will be easier for me.
PEU2: I will find it easier to operate SNS to do what I wish to do.
PEU3: My interaction with SNS will be clear and understandable.
PEU4: I would find SNS flexible to interact with.
PEU5: It would be easier for me to become skillful in using SNS.
PEU6: I would find SNS easier to use.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section VII

Perceived Usefulness (PU)

PU1: Using SNS will help me to accomplish market research tasks more quickly.
PU2: Using SNS will help me to improve my Job performance (related to providing support to entrepreneurs).
PU3: Using SNS will help me to improve my productivity at my Job.
PU4: Using SNS will help me to improve my effectiveness on the job.
PU5: Using SNS will help me to make it easier to do my job.
PU6: I would find SNS useful in my job.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section VIII

Behavioral Intention (BI)

BI1: I want to use SNS and their future advancements for providing support to businesses.
BI2: I feel comfortable using SNS in providing support to entrepreneurs.
BI3: I rely on the market information provided by SNS.
BI4: I will recommend the use of SNS to all entrepreneurial libraries.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?

Section IX

Technology Adoption (A)

A1: I will use SNS to provide support to entrepreneurs.
A2: I will use SNS over other traditional co-located interactions with customers and other knowledge sources.
A3: I will expand the digital skills of library staff on SNS.

Open Question (optional): Would you like to share your experiences that drove your reasoning behind your answers?