



Prototyping Technology Adoption among Entrepreneurship and Innovation Libraries for Rural Health Innovations

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Prototyping Technology Adoption among Entrepreneurship and Innovation Libraries for Rural Health Innovations

Abstract

Purpose: The purpose of this research study is to empirically investigate the FIGMA prototyping technology adoption factors among Entrepreneurship and Innovation Libraries for providing support to startups by developing and evolving the prototype solutions in collaboration with health libraries.

Methodology: This study uses the Technology Adoption Model (TAM) as a framework and the Partial Least Squares Structural Equation Modeling (PLS-SEM) method of Structural Equation Modeling (SEM) using SmartPLS 3.2.9 software version to investigate the prototyping adoption factors among Entrepreneurship and Innovation libraries for rural health innovations. A total of 40 libraries, spread over 16 Entrepreneurship and Innovation libraries, participated in this survey, including participants from Europe (35%), Asia (15%), and America (50%).

Findings: The findings show that Previous Experience, Social Impact, Brand Image, and System Quality have a significant positive impact on

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4 Entrepreneurship and Innovation libraries' Perceived Usefulness (PU) of
5 prototyping technology. Perceived ease of use of prototype technology is
6 positively influenced by usability, training materials, documentation,
7 experience, and self-efficacy. Together, Perceived Usefulness and
8 Perceived Ease of Use have a significant influence on behavioural
9 intention. Behavioural Intention is positively impacted by minimal
10 investment and a shallow learning curve. Technology adoption is
11 furthered by behavioural intention. **The control variables, for instance
12 location, gender and work experience (as librarian) were found not
13 having any impact on FIGMA technology adoption.**

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20 **Implications:** Through strategic partnerships with other libraries
21 (including health libraries), policy makers, and technology providers, the
22 adoption of prototype technology can be further accelerated. The
23 important ramifications for policymakers, technology providers, the
24 public, and Entrepreneurship and Innovation libraries to create a self-
25 reliant innovation ecosystem to foster rural health innovation based on
26 entrepreneurship are also listed in the article.

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31 **Originality:** This research is distinctive since it integrates several areas of
32 study, including entrepreneurship, advances in rural healthcare, and
33 libraries. A novel idea that hasn't been thoroughly investigated is the
34 collaboration between Entrepreneurship and Innovation libraries and
35 health libraries for supporting businesses. This study offers insights into
36 the factors that drive technology adoption and offers practical advice for
37 policy makers and technology providers. It also advances understanding
38 of the adoption of FIGMA prototyping technology among libraries for
39 rural health innovation. Overall, this study provides a novel viewpoint on
40 the nexus between different disciplines, showing the opportunity for
41 cooperation and innovation in favor of rural health.

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49 **Keywords:** Health libraries; Entrepreneurship and Innovation libraries;
50 Health innovations; Rural health innovations; Business Model
51 Innovations; Value proposition innovations; Small businesses, Startups;
52 Entrepreneurship; Prototyping Technology; Technology adoption.

53 54 55 56 **1. Background**

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58 The health sector is a steadily expanding industry with a growing
59 market. The pandemic caused changes in the healthcare sector, but it also
60 led to innovations, like the development of Covid vaccinations, the

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4 digitization of healthcare delivery, the development of new medical
5 technologies, etc. Technologies, such as the use of telemedicine, remote
6 patient monitoring, and automated or asynchronous solutions, had a
7 significant effect on minimizing the pandemic's effects (Young, 2022).
8 Additionally, due to the epidemic, health institutions must digitally
9 change their services. For instance, providing patients with medical
10 treatments online, giving them virtual access to medical information, etc.
11 (Charbonneau and Vardell, 2022).
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16 Policymakers, entrepreneurs, medical experts, academics, and
17 researchers all turned their attention to the pandemic and now view the
18 health industry as a prime opportunity for innovation. This was
19 demonstrated by rising health sector budget expenditures as a percentage
20 of national GDP and rising investment in healthcare (Young, 2022). The
21 pandemic's impact on digital changes led to a rise in technology usage
22 among consumers and medical care providers. As a result, the health
23 industry now relies heavily on technology like artificial intelligence, 5G,
24 Big data, and cloud computing to address its problems (Young, 2022).
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Despite the increased focus on the health sector, efforts must be made
to reduce gaps between rural and urban areas. The disparities are a result
of the resource shortages that rural areas have, including a lack of doctors,
beds, and medical supplies (Kumar et al., 2020). The rural health sector also
has limited opportunities and capacities to contribute to health
improvements, such as challenges in forming partnerships with local,
national, and international health agencies, as well as funding issues
(Lenstra and Roberts, 2022). Rural health libraries that can help with
innovation in this area face these challenges. Therefore, to close the gaps
between rural and urban health, research efforts must initially focus on
rural health improvements. Furthermore, any effort made to advance rural
health will also help to innovate urban health.

In literature, health libraries—public libraries and university libraries
with a focus on the health field—have been cited as important proponents
of health innovations. As a source of reliable and well-organized health
information, as a source of resources relevant to health, such as periodicals
and patent access, and as a source of synthesized health pieces of evidence
compiled through systematic reviews, their function in the health domain
had been to provide these services (Kwoh and Kim, 2009; Becker et al.,
2010; Oh and Noh, 2013; Horrigan, 2016; Phipps, 2019; Pelczar et al., 2021;
Charbonneau and Vardell, 2022). They collaborate with other national and

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4 international health organizations, which promotes increased knowledge
5 sharing and innovation (Kinengyere, 2019).
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8 University libraries were deemed an essential part of the innovation
9 environment for companies with limited resources (Gupta et al., 2021a;
10 2022a; 2022b; 2022c; 2022d). Contrary to health libraries, these libraries as
11 studied by the authors of this paper were owned by the universities with
12 no special focus on the medicine domain (Gupta et al., 2021a; 2022a; 2022b;
13 2022c; 2022d). In other words, they were focused on offering traditional
14 services to students and faculty as well as resources for businesses for their
15 market success. These libraries lack health domain expertise, but they
16 provide great support for assisting in promoting entrepreneurship both
17 locally and internationally. Supporting small enterprises is a third objective
18 of public libraries as well. However, health libraries lack entrepreneurial
19 culture (Dhainaut et al., 2020) and are likely to have limited capabilities to
20 support entrepreneurs. In the following article, we refer to public libraries
21 and university libraries that encourage entrepreneurship initiatives in an
22 economy as Entrepreneurship and Innovation library. Here, the term
23 "Entrepreneurship and Innovation Library" is created to distinguish it from
24 "entrepreneurial libraries," which are defined as libraries with an
25 entrepreneurial culture to innovate their services and not focused on
26 offering support to entrepreneurs.
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29 Entrepreneurship and Innovation libraries aid businesses in the
30 development of their business models by conducting market research for
31 them and providing them with vital information on both domestic and
32 international markets. In the USA, their support for small businesses
33 throughout the pandemic had been quite clear. Due to the pandemic, these
34 libraries had to undergo a digital transformation, which expanded the use
35 of technology, such as social networking sites (Nadi-Ravandi and Batooli,
36 2022). The health libraries have a wealth of health knowledge but lack the
37 competence to support entrepreneurs (inside the institutions or outside
38 parties). On the other side, Entrepreneurship and Innovation libraries are
39 becoming more adept at assisting startups. Together, these libraries can
40 reinvent the health industry.
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43 Although startups, especially in rural regions, have a positive impact
44 on health advances, their failure rates are higher (almost 98%) and there is
45 minimal startup research on topics like entrepreneurship, business
46 frameworks, and regulation (Chakraborty et al., 2021). Startups should
47 commercialize their ideas that address the genuine needs of the health
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4 market if they want to flourish in the sector and aid in the development of
5 the country. They should research customers' actual demands and
6 familiarise themselves with the medical industry to make this happen.
7 However, in practice, entrepreneurs are ignorant of the challenges that the
8 health systems face (Dhainaut et al., 2020). To put it another way, the
9 creative solutions must address problems that are unique to medicine and
10 be simple enough for rural areas to adopt. For instance, telemedicine
11 solutions should make it simpler for rural patients to use the technology
12 and should aid in digitally connecting patients and their healthcare
13 providers.
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20 Entrepreneurship plays a key role in rural health breakthroughs. In
21 healthcare institutions like hospitals, universities, and libraries, this
22 activity does not exist (Dhainaut et al., 2020). To reinvent rural health, third
23 parties (entrepreneurs outside of health institutions) must step forward.
24 These medical facilities, especially health libraries are now acting as co-
25 innovation partners, disseminating medical knowledge to startup teams,
26 and encouraging rural people to contribute as users of innovation to their
27 needs.
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32 Health libraries owing to their proximity to medical experts, rural
33 people, and other libraries, could help to involve these stakeholders in
34 contact with the startup team to foster prototyping sessions and thereby
35 support the customer development process. Otherwise, due to a lack of
36 technology expertise and startup branding concerns, individuals will be
37 hesitant to contact the startup team (Gupta and Fernandez-Crehuet,
38 2021b). Their insights and the opinions of the rural people about the
39 invention assist the startup team in continually testing their value
40 proposition hypotheses and ultimately deploying successful innovations.
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46 Social networking technology could connect potential customers and
47 health domain experts with libraries and startups for startup activities.
48 Personal sources, for instance, family and friends, government
49 organizations, for instance, centers related to health, and healthcare
50 professionals are the most influential sources of covid-19 information
51 on social media (Nabi et al., 2023). The social media then disseminated
52 Covid-19 related information to the public for their information and
53 actions which reforms the social capital. Social capital and social media
54 could be great platforms to access the potential stakeholders of health
55 innovation solutions for undertaking experiments for customer
56 development. However, there exist digital gaps between rural and urban
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4 areas (Nadi-Ravandi and Batooli, 2022) that should be addressed to
5 innovate successfully in rural areas.
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7 The term "media literacy" describes the capacity to use and create
8 media messages in a variety of contexts, including news, social media, and
9 entertainment. Contrarily, health literacy describes the capacity to acquire,
10 process, and comprehend fundamental health information and services to
11 make wise decisions. Those with higher media literacy are better able to
12 analyze health information critically and recognize credible and reliable
13 sources of this information. There exists a positive correlation between
14 Health Literacy and Media Literacy (Afshar et al., 2020). As a result,
15 individuals can identify whether health information is true and
16 trustworthy, which can lead to an improvement in health literacy. Media
17 literacy can encourage people to take an active role in health promotion
18 initiatives. The ability to generate and distribute accurate, educational, and
19 entertaining health-related media messages can help people promote
20 positive habits and attitudes in their social networks. Those who are more
21 health literate can undoubtedly be of great assistance to entrepreneurs as
22 they research the medical problem space for their novel goods. They can
23 give entrepreneurs ideas, feedback, and communication support so they
24 can create products that effectively address the target population's health
25 requirements. Due to the increasing professional proximity of residents
26 who are more actively participating in health promotion activities, the
27 beneficial effects on health promotion will also assist entrepreneurial and
28 innovation libraries as well as health libraries in conducting customer
29 interactions. Libraries can aid in fostering media literacy and civic
30 engagement in local communities, but they must enhance their
31 pedagogical and media literacy expertise (Kine and Davidstone, 2021).
32 Additionally, the involvement of residents in prototyping activities is a co-
33 creational process that will help libraries to build their media literacy and
34 pedagogical skills because of the active participation of residents with
35 higher media literacy skills.
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52 The article's central argument is that Entrepreneurship and Innovation
53 libraries, which now have business support as their third mission, could
54 promote rural health entrepreneurship by utilizing the health libraries'
55 wealth of medical expertise and their proximity to medical professionals
56 and rural residents (preferably those that are actively involved in health
57 promotion activities and those with higher media literacy). The startup
58 team can accurately test their value proposition hypothesis and find a
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4 scalable and repeatable business model thanks to co-innovation with
5 health libraries.
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8 There are several prototype development technologies, but technology
9 acceptance depends on several aspects, including the amount of
10 investment required, how simple it is seen to be to use, how beneficial it is,
11 etc. Authors of this paper have already recognized the technology
12 adoption criteria (Gupta et al. 2022a), but there isn't any research in the
13 literature evaluating particular prototype technologies. In the context of
14 Figma technology, this article does a statistical analysis of the technological
15 adoption factors as identified by Gupta et al. (2022a). The choice of Figma
16 technology is based on the authors' professional backgrounds, the
17 adoption of this technology in several libraries, and the growing popularity
18 amongst designers.
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21 Figma¹ is an all-encompassing online design platform that enables
22 designers to work together to create solutions to problems utilizing
23 technology design tools. Figma offers a variety of tools that enable
24 designers to complete many design-related tasks, including wireframing,
25 brainstorming, graphics, user interface (UI), and user experience (UX). To
26 swiftly build and evolve the prototype solutions, it is feasible to construct
27 the time-based motion between the designs (known as animations) using
28 design elements provided by this technology. The goal of this study is to
29 determine the factors that motivate Entrepreneurship and Innovation
30 libraries to embrace Figma prototype technology. Research is motivated by
31 positive trends in the health industry, health libraries, Entrepreneurship
32 and Innovation libraries, startups, and entrepreneurship. The Technology
33 Acceptance Model (TAM) (Davis, 1985; Davis et al., 1989) was used as a
34 framework to achieve the research objectives, based on the adoption factors
35 from the previous research study of authors of this paper as reported in
36 (Gupta et al., 2022a). Entrepreneurship and Innovation libraries will
37 employ prototyping technology (with the help of health libraries), thus in
38 this article, the authors aim to scientifically examine the factors of
39 technology adoption from the perspective of Entrepreneurship and
40 Innovation libraries as its users. Health libraries make use of prototypes
41 rather than prototyping technology (for instance, videos, animations, and
42 software).
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¹ <https://www.figma.com/>

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The format of this article is as follows: The section titled "theoretical background and research framework" provides background information on startups' and health libraries' contributions to health innovations generally and rural health innovations specifically. This section also discusses how businesses might support entrepreneurship, particularly through prototyping. Following that, the TAM's fundamentals are presented. The structural equation model which is taken from the previous work of authors of this paper as reported in (Gupta et al., 2022a), is discussed in detail in the following section on "Research model.". The "Methods" section describes the methods employed in the research for sampling, participant information, data collection, and analysis. The two-stage PLS-SEM algorithm execution for the evaluation of the measurement model and the evaluation of the structural model is presented in the "result analysis" section. The "Discussion" section follows with a discussion of the research's theoretical and practical contributions and finally, the study is concluded.

2. Theoretical Background and Research Framework

2.1. Rural Health Innovations and Startups

With their innovative solutions to reach disadvantaged markets, startups have the potential to disrupt the health industry (Chakraborty et al., 2021). The increased investments in the health industry show the growing significance of startups in the field. For instance, a total of 2.2 billion dollars in investments were made in the Indian health technology startup ecosystem. Following the coronavirus (COVID-19) pandemic, the value of startup capital in the healthcare industry grew². For instance, EIT Health recently awarded grants totaling up to €5.5 million from the Start-up Rescue Instrument to 11 startups that offer health-related solutions³. For instance, one such startup that received funding from EIT Health is the Austrian startup Allcyte GmbH (<https://www.exscientia.ai/>). This startup actively employs AI to precision engineer drugs more quickly and effectively so that people can live healthier and more fruitful lives⁴. The relevance of startups for bettering rural health cannot be overstated. An

² <https://www.statista.com/statistics/1344121/india-value-of-funding-for-healthtech-startups-by-stage/>

³ <https://eithealth.eu/news-article/eit-health-helps-11-start-ups-disrupted-by-covid-19/>

⁴ <https://www.exscientia.ai/>

American startup called Homeward Health, for instance, seeks to close the healthcare gap between urban and rural locations. Through in-person and online sessions, this startup connects medical professionals with rural patients. The Series B funding for this business recently totaled \$50 million⁵. Blackfrog Tech (<https://www.blackfrog.in/>), an Indian startup, is yet another fantastic example of how entrepreneurship can improve health in rural places. This start-up created Emvólio, a quick cooling device, to transport biologicals like Covid vaccinations in a temperature-controlled manner. With the least amount of loss possible, the Covid vaccination team was able to offer vaccination to rural India. This was made possible by the vaccines' need for temperatures between 2 to 8°C, which can be easily maintained using Emvólio⁶. Even though startups have a promising contribution to the field of health innovations, particularly in rural areas, their failure rates are higher⁷ and there is little startup research about domains like entrepreneurship, business frameworks, and legislation (Chakraborty et al., 2021).

2.2. Library support for rural health innovations

Public libraries' contributions to health advances in both urban and rural areas of the country are discussed in the literature. Some of the earlier research has concentrated on academic libraries that promote health breakthroughs. These public and university libraries are referred to as "health libraries" since they have competence in the field of health. These health libraries are mentioned in previous literature as having a role in health innovation as (a) a source of trustworthy and well-organized health information, such as information about cancer and COVID-19 (Kwoh and Kim, 2009; Becker et al., 2010; Oh and Noh, 2013; Horrigan, 2016; Pelczar et al., 2021); (b) a source of resources related to health information, such as access to health centers, health magazines, patent accesses, and health expertise (Kwoh and Kim, 2009; Oh and Noh, 2013); and (c) a source of synthesized evidence as gathered through systematic reviews (Phipps, 2019; Charbonneau and Vardell, 2022). Public libraries work with national and international organizations, such as the World Health Organization (WHO), to exchange rich knowledge to further improve the body of

⁵ <https://www.forbes.com/sites/ariyanagriffin/2022/08/03/this-startup-just-raised-50-million-to-bring-more-doctors-to-rural-areas/?sh=702e99c87107>

⁶ <https://www.forbesindia.com/article/take-one-big-story-of-the-day/how-a-clutch-of-startups-is-taking-healthcare-to-rural-india/68351/1>

⁷ <https://www.forbes.com/sites/davechase/2016/05/18/why-98-of-digital-health-startups-are-zombies-and-what-they-can-do-about-it/?sh=44343da8359a>

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4 knowledge connected to health. Additionally, libraries take to engage in
5 hackathons as providers of health resources to assist participants in finding
6 innovative solutions to issues in rural health. This enables hackathon
7 participants to benefit from the wealth of health resources that libraries
8 offer, such as access to bibliographic databases and health expertise.
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12 Libraries that provide health information have undergone digital
13 transformations because of the pandemic, which curtailed face-to-face
14 encounters between clients seeking health information and libraries
15 (Charbonneau and Vardell, 2022; Chisita et al., 2022). For instance, the
16 libraries provided online platforms for sharing health-related information
17 as well as services for online research and the provision of consistently
18 updated and trustworthy Covid-related information. The benefits of these
19 libraries for enhancing health in nations like Uganda are widely
20 documented by Alison (2019). Health libraries have a thorough awareness
21 of health issues, health domains, and proximities to the population (users
22 of library services).
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29 University of Toronto incubation programs, for instance, those led by
30 BRIDGE⁸ successfully incubated five African startups dealing with health
31 innovations in Africa⁹. These startups were declared winners of the Health
32 Entrepreneurship Challenge 2022. BRIDGE is a joint venture between the
33 UTSC management department and the UTSC library. The success of these
34 health-focused startups clearly articulates the importance of academia and
35 libraries for fostering entrepreneurship in domains like health.
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40 41 *2.3. Library as a market research resource for Startups*

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43 Previous research studies conducted by the authors of this paper
44 reported that for businesses with limited resources, university libraries are
45 a crucial component of the innovation ecosystem (Gupta et al., 2021a;
46 2022a; 2022b; 2022c; 2022d). To promote entrepreneurship in both local and
47 international markets, libraries actively support entrepreneurs. A few
48 public libraries also provide such assistance to entrepreneurs. Such public
49 and university libraries have served as resources for businesses by giving
50 them access to books, journals, market research tools, contacts with
51 specialists, experts from other countries' universities, and training
52 programs. Additionally, libraries are helping businesses by doing market
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⁸ <https://www.utsc.utoronto.ca/thebridge/>

⁹ <https://www.utsc.utoronto.ca/thebridge/african-impact-pitch-day-2022>

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4 research and supplying them with crucial data on both domestic and
5 foreign markets, thereby assisting them in the innovation of their business
6 models. Despite the paucity of research on libraries as information sources
7 for small firms like startups, the findings that have been published in the
8 literature, for instance, the results disseminated in (Gupta et al., 2021a;
9 2022a; 2022b; 2022c; 2022d), have been based on the authors' professional
10 interactions with these enterprises and university libraries. Based on the
11 actual experiences of a Spanish startup that employed the services of an
12 American university with a center in Madrid to do market research on the
13 USA. The significant contribution of libraries to the internationalization of
14 startup business is reported by Gupta et al. (2021a). In another work, Gupta
15 et al. (2022b) reported that social networking sites (SNS) could support
16 long-term collaborations between businesses and libraries to benefit both
17 parties. Gupta et al. (2022c) surveyed 50 librarians from universities in
18 Europe, Asia, America, Africa, and Australia to determine the adoption of
19 social networking technology by university libraries to provide market
20 research data to businesses. Gupta et al. (2022c) reported that libraries can
21 charge different prices for the services they provide to businesses using one
22 of four pricing models, free, freemium, subscription, and revenue-sharing.
23 Prototyping with customers is one way to conduct market research.
24 Customers can provide useful input on a product or service during the
25 prototype process, and businesses can use this data to make improvements
26 or changes. As a result, organizations are better able to comprehend their
27 target market's needs, preferences, and problem areas. Prototyping helps
28 to innovate business model value propositions, leading to better customer
29 value and successful market launches.

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 *2.4. Prototyping & Prototyping Technology for market research*

Entrepreneurs create prototypes of different interactivities and fidelities to gather user feedback on the product. The startup team can validate their assumptions about the value proposition of their product by allowing people to interact with prototypes. For a Spanish startup to communicate with international clients and achieve their globalization goals in the USA, the real case study of prototyping is reported by Gupta et al. (2021c). The startup used a variety of prototypes, including interactive applications, photos, videos, and animations. "GPBBD-Gamified Prototype for Better Business Decisions" was the term of the interactive tool that they used with potential customer segments. It has been shown that using

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4 varying fidelity and interactive prototypes can aid in ideation, problem
5 validation, problem/solution fit, and product/market fit. It was
6 recommended to use low-fidelity, low-interactivity prototypes first to
7 avoid spending development dollars on sophisticated prototypes if
8 product assumptions turned out to be incorrect. More interactive and
9 fidelity-oriented prototypes are encouraged as the startup's learning
10 progresses and it gets closer to stages that are concerned with products,
11 including product/market fit. This is because using prototypes makes the
12 product more comprehensible, which enables buyers to give more accurate
13 feedback.
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20 Authors of this paper in their earlier work (Gupta et al., 2021c)
21 suggested five components that motivate entrepreneurs for adopting
22 prototyping technology namely usefulness (or usability), ease of use for the
23 company, ease of use for clients, time to develop a prototype, and
24 prototype recyclability. The findings were based on their consulting work
25 with a Spanish startup that investigated the US and German markets for
26 its sanitization product. The five-element adoption framework was further
27 improvised and re-constructed based on the Technology Adoption Model
28 as given by Davis (1985), drawing on their ongoing experiences with
29 businesses in Europe, America, and Asia (Gupta et al., 2022a). The
30 proposed framework suggests that entrepreneurs are motivated to adopt
31 prototyping technology based on multiple factors namely Previous
32 Experience (PE), Social Impact (SI), Brand Image (B), System Quality (SQ),
33 Usability (U), Training Materials and Documentation (TMD), Experience
34 (E), Self-Efficacy (SE), Involved Investment (II), and Learning Curve (LC),
35 Perceived Usefulness (PU), Perceived Ease of Use (PEU), Behavioural
36 Intention (BI) and Technology Acceptance (TA). The prototyping
37 technology adoption framework is represented in Figure 1.
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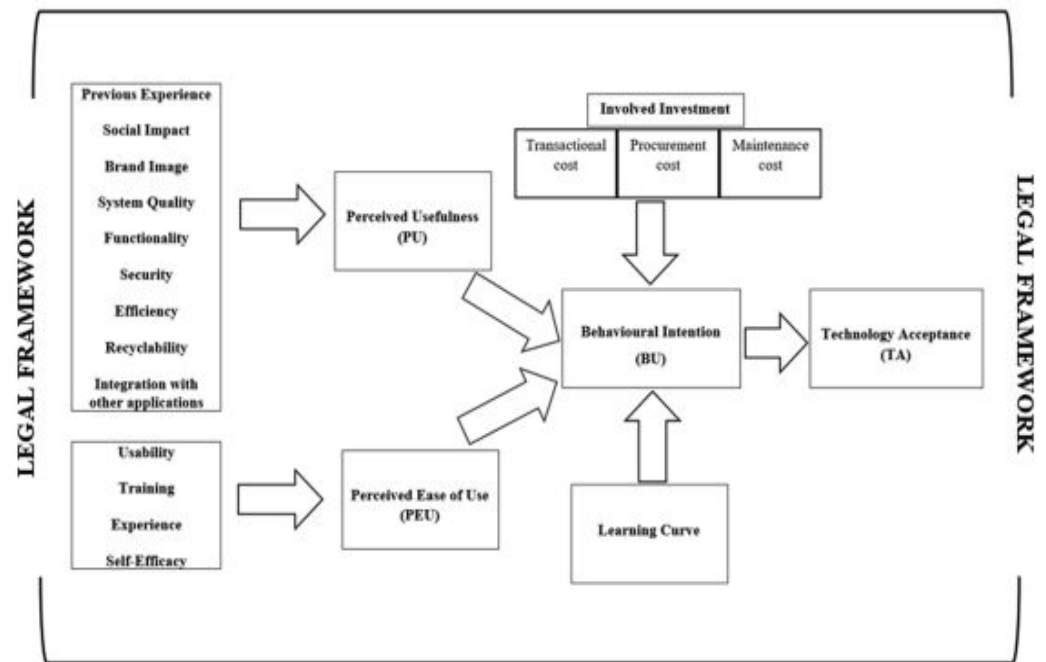


Figure 1: Prototyping technology adoption model (Gupta et al., 2022a) (© 2022 IEEE, republished with permission from the publisher)

The authors used a sample of 14 startups that had been operating since 2015, had adopted the prototype technology adoption framework, and had weathered a pandemic. The financial statement study of these businesses indicates that the use of a technology adoption framework has enhanced the business' financial characteristics. Thus, the framework has been evaluated in actual startup environments.

2.5. Research motivation: Leveraging the power of Health libraries, Entrepreneurship and Innovation libraries, Startups, and entrepreneurship

Health Libraries have made a significant contribution to health improvements, particularly in rural health, yet they still confront many difficulties. The limitations include a lack of financing, problems with the staff, a lack of infrastructure, a lack of technological proficiency among library patrons, and problems with partnerships (Kinengyere, 2019; Lenstra and Roberts, 2022). The aforementioned difficulties are exacerbated in rural settings due to variations between urban and rural environments (Rubenstein et al., 2021). For instance, in remote areas, libraries have limited funds, collaborations, and capacity to implement health improvement activities (Lenstra and Roberts, 2022). Rural residents may also acquire technology more slowly due to their lack of technological skills, which would slow the pandemic's effects on the digital world. The

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4 role of university libraries in fostering entrepreneurship and small
5 enterprises like startups contributing to technology advancements in the
6 health sector is becoming increasingly important as evident from the
7 preceding sections.
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10 Startups are unfamiliar with the health systems and the difficulties
11 they face (Dhainaut et al., 2020). Innovations are what lead to better health
12 care, and entrepreneurship plays a crucial part in these innovations. The
13 ability of entrepreneurs in the healthcare industry to address medically
14 specific issues with their technology-based solutions is crucial to their
15 success. To make this happen, individuals must have a deeper awareness
16 of medical concepts and work processes, in which the participation of
17 health practitioners is crucial (Young, 2022). Additionally, there is no
18 entrepreneurial culture in healthcare institutions and hence co-innovating
19 through partnerships between startups and health institutions is one
20 strategy to advance the health sector through entrepreneurship (Dhainaut
21 et al., 2020). By utilizing the vast amount of medically related information
22 held within healthcare facilities, startups provide breakthroughs in the
23 health sphere.
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26 The capacity of startups in the rural health sector to effectively examine
27 the problem domain—that is, to identify creative product value
28 propositions that may be readily embraced by the rural population—
29 strongly influences their ability to succeed. As discussed in the preceding
30 section, prototyping is one of the powerful techniques to elicit learning
31 about ideas by fostering customer interactions. The startup team must
32 maintain continuous communication with rural residents to develop
33 innovative value propositions using technologies that, on the one hand,
34 maximize the extraction of their expectations from the suggested solution
35 and, on the other, resolve the challenges associated with expectation
36 elicitation-related technologies adoption by rural residents. This is
37 accomplished with lower fidelity and less interactivity prototype solutions.
38 Due to their extensive involvement in rural health projects, health libraries
39 had excellent access to rural people, which might be useful to encourage
40 them to engage in contact with startup teams for prototyping sessions.
41 Because they have a deep awareness of the issues facing rural areas and
42 the medical fields, additional viewpoints from health libraries during
43 prototyping sessions will be helpful to co-innovate health solutions. The
44 startup team must successfully adopt the prototype development
45 technologies for successful prototyping. For some of the technologically
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savvy stakeholders among health library librarians and rural populations, etc., higher fidelity and interactive prototypes could be created.

In summary, the research was conducted by observing promising research trends (Figure 2):

- a) As seen during the pandemic, startups are becoming increasingly important in health advancements. This represents chances for improving health, particularly in rural regions, through creative products offered by businesses.
- b) The significance of public and university health libraries for health innovations in urban and rural settings. Increased knowledge of health-related issues, best - practices, proximity to customers, etc. are all reflected by their active involvement in health programs.
- c) The growing significance of libraries, both public and academic, in supporting entrepreneurship locally and globally. These libraries are furnished with tools like social networking, prototyping, and other resources that assist businesses in identifying and innovating their business models.

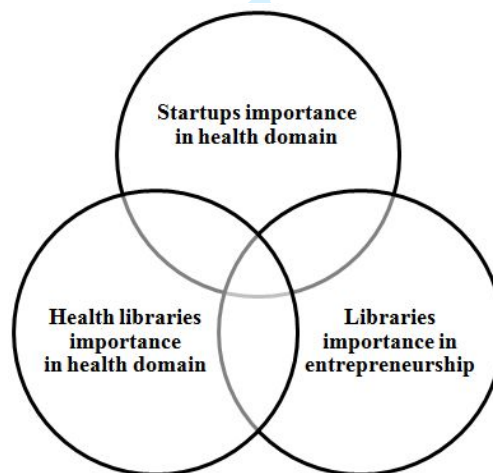


Figure 2: Research motivation.

2.6. Theoretical Framework: Technology Acceptance Model

The acceptance, integration, and usage of technology by end users are referred to as technology adoption. Users often adopt technology in a bell-shaped pattern known as the technology adoption lifecycle, with a small percentage of early adopters embracing it before the vast majority of other users. The usefulness of technology to its users is one of several factors that affect its adoption. Even if the technology is simple to use as well as useful to its end users but cost-prohibitive to acquire, its adoption may take some

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4 time or even fail. Thus, a variety of interrelated factors affect adoption
5 decisions. Technology providers must pinpoint the elements that will
6 encourage people to adopt new technology. If these aspects are correctly
7 understood, the technology's user acceptance process will also be correctly
8 understood, resulting in successful technology design and implementation
9 (Davis, 1985).
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13 To predict the adoption of the technology at individual levels (and not
14 organizational levels), Davis (1985) proposed Technology Adoption Model
15 (TAM). The Technology Adoption Model (TAM) was established to
16 achieve this goal of defining the technology adoption criteria (Davis, 1985).
17 According to this concept, a user's attitude toward technology is influenced
18 by how valuable and simple he perceives the technology to be for his work
19 (perceived utility) and how easy it is to use (perceived ease of use). His
20 attitude encourages him to utilize the technology more, which eventually
21 results in the end user accepting the technology. The two key factors
22 influencing people's acceptance of technology are perceived usefulness
23 and perceived ease of use. Later, it was revealed that attitude is a partial
24 mediator of the relationship between perceived usefulness and perceived
25 ease of use on Behavioral intention, as found by Davis et al. (1989).
26 However, many other factors affect perceived usefulness and perceived
27 ease of use, such as social influence, training, etc. A technology that could
28 be easily adopted by consumers can be commercialized thanks to the
29 identification of these variables.
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41 **3. Research Model**

42 *3.1. Research Hypothesis*

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44 The prototyping technology adoption framework as proposed by
45 Gupta et al. (2022a) contains 14 latent variables which are broken down
46 into three groups: External variables, Core variables, and outcome
47 variables. Previous Experience (PE), Social Impact (SI), Brand Image (B),
48 System Quality (SQ), Usability (U), Training Materials and Documentation
49 (TMD), Experience (E), Self-Efficacy (SE), Involved Investment (II), and
50 Learning Curve (LC) are some of the external variables. Perceived
51 Usefulness (PU) and perceived ease of use (PEU) are core variables.
52 Behavioural Intention (BU) and Technology Acceptance (TA) are outcome
53 variables. This adoption framework was proposed from the perspective of
54 entrepreneurs that are developing prototypes to validate their product
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value proposition assumptions with their potential customers. To meet the research objective of identifying the factors influencing librarians' adoption of Figma prototype technology to provide resources for entrepreneurs developing innovations in rural health, this framework should be leveraged as a reference model.

The indicators (or items) measuring these latent variables are given in the Questionnaire (Appendix-A). The number of indicators measuring the Previous Experience (PE) is 3, Social Impact (SI) is 3, Brand Image (B) is 4, System Quality (SQ) is 7, Usability (U) is 3, Training Materials and Documentation (TMD) is 3, Experience (E) is 3, Self-Efficacy (SE) is 3, Involved Investment (II) is 3, and Learning Curve (LC) is 3, Perceived Usefulness (PU) is 6, Perceived Ease of Use (PEU) is 6, Behavioral Intention (BI) is 4 and Technology Acceptance (TA) is 3.

The measurement models and the structural model make up the structural equation model. The indicators and latent variables are connected via the measurement model. Latent variables are connected via a structural model. The structural model that accentuates the relationships between latent variables is shown in Figure 3. Table 1 explains each latent variable of a structural model.

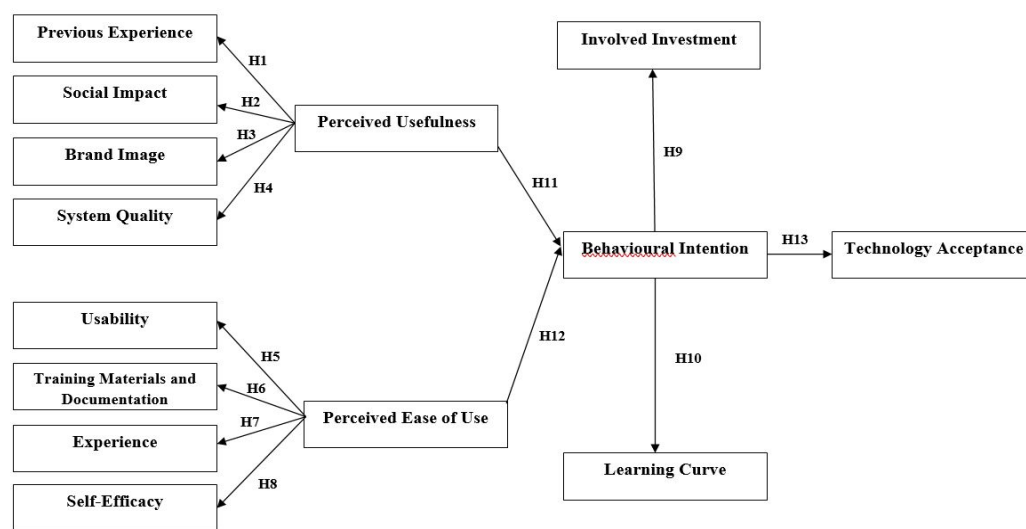


Figure 3: Research Model (Elaboration of Figure 1).

Table 1: TAM Model Latent Variables.

| TAM Variable | Variable meaning |
|-------------------|------------------|
| External Variable | |

| | |
|--|---|
| Previous Experience (PE) | Continual usage of Figma technology in the performance of professional duties before adopting it for solving current business problems. |
| Social Impact (SI) | The influence of those in close social proximity to technology users, such as recommendations by peers, startup teams and online communities, etc. |
| Brand Image (B) | The impression that users have of the technology provider. |
| System Quality (SQ) | The technology's capacity to live up to user expectations. This includes Functionality, Security, Efficiency, Recyclability, and Integration with other applications. |
| Usability (U) | The extent to which technology is easy to learn and use. For instance, great user experience while interacting with technology interfaces increases technology usability. |
| Training Materials and Documentation (TMD) | Training sessions and manuals to help users build their technology skills. |
| Experience (E) | Protracted and continuous usage of the technology in a professional setting. For instance, continued use of FIGMA for prototyping. |
| Self-Efficacy (SE) | Users of technology have a sense of confidence in their ability to successfully apply technology to meet their business objectives. |
| Involved Investment (II) | This represents the monetary costs related to the search for technology (transactional costs), the purchase of technology (procurement costs), and the costs related to maintaining it (Maintenance costs). |

| | |
|----------------------------------|--|
| Learning Curve (LC) | A learning curve is a correlation between how well a user learns new technology and how many tries or how long it takes to finish the learning activity. |
| <i>Core Variables</i> | |
| 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). |
| <i>Outcome Variables</i> | |
| Behavioral Intention (BI) | User intention to perform a given behaviour, for instance, technology adoption (Ajzen, 2006). |
| Technology Adoption (System Use) | The actual adoption of the technology by the user. |

To achieve study objectives, the relationships between latent variables in the adoption framework (Figure 3) are formulated as hypotheses that are investigated in the study report.

The following hypotheses are tested in this research study to ensure that it meets its stated objectives.

- H1:** Previous Experience (PE) has a significant positive influence on the Perceived Usefulness (PU) of prototyping technology.
- H2:** Social Impact (SI) has a significant positive influence on the Perceived Usefulness (PU) of prototyping technology.
- H3:** Brand Image (B) has a significant positive influence on the Perceived Usefulness (PU) of prototyping technology.
- H4:** System Quality (SQ) has a significant positive influence on the Perceived Usefulness (PU) of prototyping technology.
- H5:** Usability (U) has a significant positive influence on the Perceived Ease of Use (PEU) of prototyping technology.

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4 **H6:** Training Materials and Documentation (TMD) have a significant
5 positive influence on the Perceived Ease of Use (PEU) of prototyping
6 technology.
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9 **H7:** Experience (E) has a significant positive influence on the Perceived
10 Ease of Use (PEU) of prototyping technology.
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12 **H8:** Self-Efficacy (SE) has a significant positive influence on the
13 Perceived Ease of Use (PEU) of prototyping technology.
14
15 **H9:** Minimal Involved Investment (II) has a significant positive influence
16 on the Behavioural Intention (BI) of prototyping technology.
17
18 **H10:** Shallow learning Curve (LC) has a significant positive influence on
19 the Behavioural Intention (BI) of prototyping technology.
20
21 **H11:** Perceived Usefulness (PU) has a significant positive influence on the
22 Behavioural Intention (BI) of prototyping technology.
23
24 **H12:** Perceived Ease of Use (PEU) has a significant positive influence on
25 the Behavioural Intention (BI) of prototyping technology.
26
27 **H13:** Behavioural Intention (BI) has a significant positive influence on the
28 Technology Acceptance (TA) by the librarian.
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31 *3.2. Control Variables*

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33 Control variables may obscure the impact of determinants on the
34 adoption of a technology. The participant's demographics like location,
35 gender and work experience (as librarian), are regarded as the control
36 factors in this study as they have the potential to affect the investigated
37 correlations between TAM variables. For instance, participants with more
38 professional experience or skill levels may be more likely to adopt the
39 technology than those with lesser work experience.
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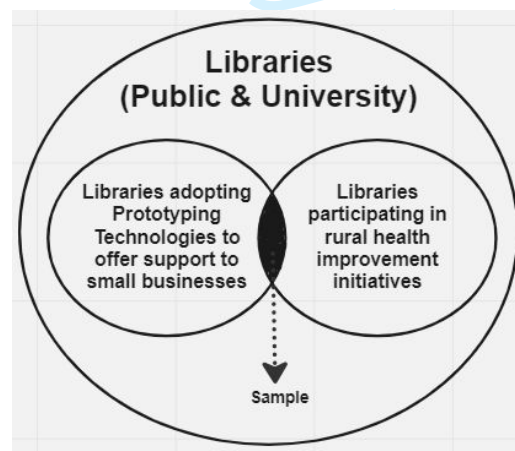
45 **4. Methods**

46 *4.1. Study settings*

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48 The research study's participants were Entrepreneurship and
49 Innovation libraries and library staff who were chosen based on whether
50 or not they met all the three listed criteria: (a) libraries that support
51 entrepreneurs with market research, either independently or in
52 partnership with other universities or their libraries, or academic
53 departments or public libraries; (b) libraries that develop prototypes of
54 varying levels of interactivities and fidelities for small businesses using
55 Figma technology; and (c) participation of libraries in rural health
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4 innovation programs (even without the involvement of prototypes, for
5 instance, involvement in community development programs)
6 independently or in close collaboration with health libraries, health
7 universities or any other health agency.
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11 The last two criteria make sure that library personnel are proficient in
12 using prototyping technology and have some knowledge of rural health
13 improvement and hence basic understanding of rural health issues and
14 population characteristics. This offers them the potential to combine two
15 interdisciplinary experiences in this research study and help in transferring
16 research results to health libraries. The samples were chosen because they
17 met all the previously mentioned criteria and were within close
18 professional proximity of both the authors of this article and the other
19 participating librarians in the research investigation. As a result, the
20 sampling procedure is a mix of purposive and snowball. Additionally,
21 libraries are becoming more involved in initiatives aimed at enhancing
22 rural health, like community development initiatives. The sample
23 characteristics are shown in Figure 3.
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Figure 3: Sample characteristic.

48 The libraries can participate in customer engagements and the future
49 improvement of prototype solutions. Libraries are becoming more
50 interested in helping entrepreneurs, and this support can take many forms,
51 from providing physical space to providing sophisticated market-related
52 information, like by adopting social networking technologies (Gupta et al.,
53 2021a; 2022b). The provision of providing access to prototyping resources,
54 such as 3D printers, to business owners, was made possible in large part
55 by libraries. It is observed that a limited number of libraries are actively
56 involved in the development or evolution of prototypes rather than simply
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4 serving as providers of prototyping resources, such as access to 3D printers
5 or video creation software. Even while only a small number of libraries
6 provide these services because of their entrepreneurial ethos and close
7 relationships with academic departments, they are extremely valuable to
8 small enterprises with limited resources. Small enterprises will be assisted
9 in precisely innovating their business model value propositions by the
10 prototype creation service, high social proximity of libraries with potential
11 customers, and strong brand recognition. Technological expertise together
12 with the knowledge of rural health will help to improve the adoption of
13 prototype technologies for breakthroughs in rural health.
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21 *4.2. Participant recruitment*

22 A total of 60 participants in total were chosen for the study based on
23 snowball and purposive sampling. Participants were presented with the
24 informed consent form. Those who gave their consent to participate
25 received an electronic questionnaire in the form of a Google form link
26 (Appendix-A). A total of 40 library staff accepted the request, yielding a
27 67% response rate. Participants in the study came from 16 universities and
28 public libraries spread out across Europe (35%), Asia (15%), and America
29 (50%), located in rural and urban areas. Participants in the study are
30 seasoned professionals with a minimum of three years of experience. There
31 are 55% men and 45% women among the participants. The contributors'
32 experience spans a wide range, including 3 to 5 years (45%), 5 to 10 years
33 (40%), and more than 10 years (15%). The demographic profiles of the
34 participants are shown in Table 3.
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Table 3: Participant Profiles.

| Parameter | Number | Percentage (%) |
|------------------|--------|----------------|
| Continent | | |
| Europe | 14 | 35 |
| Asia | 6 | 15 |
| America | 20 | 50 |
| Gender | | |
| Male | 22 | 55 |

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|------------------------|----|----|
| Female | 18 | 45 |
| Work Experience | | |
| 3 to 5 years | 18 | 45 |
| 5 to 10 years | 16 | 40 |
| More than 10 years | 6 | 15 |

4.3. Data collection

The 40 library employees who consented to take part in the research study received the electronic questionnaire as a Google form, as was previously discussed. The questionnaire was adjusted as per responses to the feedback from the pilot test, which involved 10 library employees. The final questionnaire has 14 sections (Appendix-A). Each section examines the latent variable indicators (Figure 2). On a 5-point Likert scale, where 1 denotes strong disagreement and 5 denotes strong agreement, participants are asked to score their level of agreement or disagreement with the indicators of latent variables. Additionally, each section includes a quantitative question that enables librarians to discuss the knowledge of the TAM concept under examination that guided their responses.

4.4. Data analysis

The data obtained from 40 library personnel were analyzed using the structural equation modelling (SEM) method known as partial least squares structural equation modelling (PLS-SEM) (Wold, 1985). The analysis process led to the formulation of the hypothesis being accepted or rejected, which allowed for the identification of the factors that encourage librarians to successfully embrace the prototype technology. Measurement Model Assessment (in this study, the assessment is of a reflexive measurement model) and Structural Model Assessment are the two steps of the PLS-SEM model of SEM assessment (Hair et al. 2016; Sarstedt et al. 2014). Evaluation of indicator reliability, internal consistency reliability, convergent validity, and Discriminant validity are all part of the measurement model assessment process.

The measurement model has Convergent validity if Average Variance Extracted (AVE) for each latent variable is greater than 0.50. There are several ways of calculating the Discriminant validity and one such way is

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4 as proposed in (Fornell-Larcker Criterion). This approach states that
5 Discriminant validity is proven if the AVE square root of each latent
6 variable is greater than the correlation of that variable with other latent
7 variables. The measurement model has Indicator reliability if the **indicator**
8 **loading is above 0.60 (for exploratory study) (Hair et al., 2021)** and Internal
9 consistency reliability if the rho A reliability coefficient is greater than 0.70.
10 After the measurement model has been successfully validated, the
11 structural model assessment is carried out.

12
13 All endogenous latent variables' coefficients of determination (R²) are
14 evaluated in this assessment. This number represents the percentage of the
15 dependent latent variable's variation that can be predicted by the
16 independent latent variables in a structural model. Additionally, the path
17 coefficients, which show the strength of the association between two latent
18 variables in a structural model, are computed. This research study aims to
19 investigate a set of hypotheses for each path of the structural model (inner
20 model). To determine whether the path coefficients are significant, the
21 bootstrapping procedure is used. For all path coefficients, this technique
22 determines the empirical t and p values at predetermined significance
23 levels. In this study, a 95% confidence level (or $\alpha = 0.05$) is considered. If T
24 Statistics is greater than 1.96 for all path coefficient values and p-value
25 lower than 0.05 in the outer and inner models, the path coefficients are
26 significant.

27
28 The sample size is capped at 40 since libraries are just gradually adopting
29 prototype technology to promote small firms in the health sector. The
30 research goals won't be met by the study using a random sample of all
31 university libraries. The sampling criteria ensured to investigate among the
32 "particular" categories of libraries only which best meets research
33 objectives. The sample size was constrained by the small number of
34 libraries that adopted prototype technology, provided support for market
35 research, and took part in rural health initiatives. The purpose of the study
36 question is to acquire a better understanding of how Figma technology is
37 being used by a specific group of libraries (as per sampling criteria). In
38 these circumstances, even if it is not possible to have a large sample size,
39 this is valuable to generate valuable information and insights. These
40 findings can then be used to guide future research studies that will use
41 bigger samples. As more and more libraries begin supporting enterprises
42 through prototyping, particularly in the rural health domains, this will be
43 possible in the future. The PLS-SEM approach is well-suited for small
44 sample sizes (Dale et al., 2012).
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Two evaluations are conducted; one for testing common method bias (to determine whether the collected dataset contains bias resulting from the measurement model) and another to test effect size (to identify how meaningful the association between the variables is), to determine the impact of small sample size on the outcome. For the effect size testing, Cohen's f^2 (Cohen, 1988) and the comprehensive collinearity evaluation technique (Kock, 2015) for common bias testing are employed. Table 9 displays the common method bias test, whereas Table 10 displays the effect size test. Partial least squares structural equation modelling (PLS-SEM) is performed using the SmartPLS 3.2.9 software application.

5. Result analysis

The PLS-SEM involves two stages, namely the assessment of the measurement model and the assessment of the structural model, as was covered in the preceding section. This section explains these two phases.

Stage 1: Reflexive Measurement Model Assessment

Measuring indicator reliability, internal consistency reliability, and convergent validity is part of the evaluation of the measurement model. Tables 4 and 5 provide the values for these reliability and validity measures. The execution of the second stage, or structural equation model assessment, follows the successful validation of the measurement model.

Table 4: Validity and Reliability of Model.

| Latent Variables | Indicators | Indicator Loading | rho_A | AVE | Validity (okay?) | Reliability (okay?) |
|--------------------------|------------|-------------------|-------|-------|------------------|---------------------|
| Previous Experience (PE) | PE1 | 0.812 | 0.887 | 0.708 | Yes | Yes |
| | PE2 | 0.925 | | | | |
| | PE3 | 0.78 | | | | |
| Social Impact (SI) | SI1 | 0.975 | 0.812 | 0.679 | Yes | Yes |
| | SI2 | 0.698 | | | | |
| | SI3 | 0.774 | | | | |
| Brand Image (B) | B1 | 0.877 | 0.785 | 0.527 | Yes | Yes |

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|---|------|-------|-------|-------|-----|-----|
| | B2 | 0.654 | | | | |
| | B3 | 0.625 | | | | |
| | B4 | 0.722 | | | | |
| System Quality (SQ) | SQ1 | 0.874 | 0.779 | 0.567 | Yes | Yes |
| | SQ2 | 0.745 | | | | |
| | SQ3 | 0.788 | | | | |
| | SQ4 | 0.652 | | | | |
| | SQ5 | 0.669 | | | | |
| | SQ6 | 0.778 | | | | |
| | SQ7 | 0.741 | | | | |
| Usability (U) | U1 | 0.652 | 0.712 | 0.684 | Yes | Yes |
| | U2 | 0.698 | | | | |
| | U3 | 0.702 | | | | |
| Training Materials and Documentation (TMD) | TMD1 | 0.822 | 0.756 | 0.613 | Yes | Yes |
| | TMD2 | 0.812 | | | | |
| | TMD3 | 0.710 | | | | |
| Experience (E) | E1 | 0.705 | 0.785 | 0.580 | Yes | Yes |
| | E2 | 0.752 | | | | |
| | E3 | 0.823 | | | | |
| Self-Efficacy (SE) | SE1 | 0.873 | 0.802 | 0.713 | Yes | Yes |
| | SE2 | 0.898 | | | | |
| | SE3 | 0.756 | | | | |
| Involved Investment | II1 | 0.962 | 0.714 | 0.696 | Yes | Yes |

| | | | | | | |
|------------------------------------|------|-------|-------|-------|-----|-----|
| (II) | II2 | 0.782 | | | | |
| | II3 | 0.743 | | | | |
| Learning Curve (LC) | LC1 | 0.855 | 0.801 | 0.699 | Yes | Yes |
| | LC2 | 0.854 | | | | |
| | LC3 | 0.798 | | | | |
| Perceived Usefulness (PU) | PU1 | 0.922 | 0.846 | 0.692 | Yes | Yes |
| | PU2 | 0.800 | | | | |
| | PU3 | 0.722 | | | | |
| | PU4 | 0.855 | | | | |
| | PU5 | 0.802 | | | | |
| | PU6 | 0.876 | | | | |
| Perceived Ease of Use (PEU) | PEU1 | 0.744 | 0.862 | 0.649 | Yes | Yes |
| | PEU2 | 0.716 | | | | |
| | PEU3 | 0.763 | | | | |
| | PEU4 | 0.804 | | | | |
| | PEU5 | 0.887 | | | | |
| | PEU6 | 0.902 | | | | |
| Behavioural Intention (BI) | BI1 | 0.653 | 0.702 | 0.605 | Yes | Yes |
| | BI2 | 0.667 | | | | |
| | BI3 | 0.972 | | | | |
| Technology Acceptance (TA) | TA1 | 0.682 | 0.793 | 0.642 | Yes | Yes |
| | TA2 | 0.802 | | | | |
| | TA3 | 0.905 | | | | |

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

| | PE | SI | B | SQ | U | TMD | E | SE | II | LC | PU | PEU | BI | TA |
|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| PE | 0.84 | | | | | | | | | | | | | |
| SI | 0.78 | 0.82 | | | | | | | | | | | | |
| B | 0.65 | 0.65 | 0.73 | | | | | | | | | | | |
| SQ | 0.72 | 0.59 | 0.61 | 0.75 | | | | | | | | | | |
| U | 0.59 | 0.55 | 0.68 | 0.52 | 0.83 | | | | | | | | | |
| TMD | 0.61 | 0.61 | 0.52 | 0.61 | 0.39 | 0.78 | | | | | | | | |
| E | 0.75 | 0.67 | 0.67 | 0.67 | 0.68 | 0.43 | 0.76 | | | | | | | |
| SE | 0.69 | 0.64 | 0.70 | 0.69 | 0.78 | 0.53 | 0.69 | 0.84 | | | | | | |
| II | 0.73 | 0.53 | 0.71 | 0.73 | 0.71 | 0.41 | 0.68 | 0.78 | 0.83 | | | | | |
| LC | 0.74 | 0.59 | 0.63 | 0.71 | 0.62 | 0.49 | 0.52 | 0.77 | 0.56 | 0.84 | | | | |
| PU | 0.62 | 0.63 | 0.62 | 0.56 | 0.66 | 0.52 | 0.57 | 0.82 | 0.65 | 0.74 | 0.83 | | | |
| PEU | 0.66 | 0.61 | 0.64 | 0.87 | 0.63 | 0.59 | 0.53 | 0.65 | 0.63 | 0.77 | 0.80 | 0.81 | | |
| BI | 0.61 | 0.66 | 0.52 | 0.65 | 0.71 | 0.63 | 0.46 | 0.63 | 0.74 | 0.67 | 0.69 | 0.78 | 0.78 | |
| TA | 0.70 | 0.63 | 0.53 | 0.62 | 0.76 | 0.66 | 0.48 | 0.56 | 0.78 | 0.69 | 0.72 | 0.71 | 0.59 | 0.80 |

According to an analysis of Table 5, the measurement model has Indicator reliability, Internal consistency reliability, and Convergent reliability. This is due to the values of the indicators for latent variables falling within the acceptable range, such as loading between 0.60 and 0.70 for exploratory research (indicator reliability), rho_a reliability coefficient for each latent variable being individually greater than 0.70 (internal consistency reliability), and Average Variance Extracted (AVE) for each latent variable being greater than 0.50 (Convergent validity). Because there has been little past research in the area of library support for rural health innovation, the study is exploratory in nature. Therefore, a loading value of 0.60 to 0.70 is deemed acceptable in an exploratory study (Hair et al., 2021).

Table 5 analysis indicates that the measurement model has Discriminant validity. This is due to the Fornell-Larcker Criterion, which states that Discriminant validity is present if each latent variable's AVE square root is greater than its correlation with other variables. Tables 4 and 5 together signify that the measurement model (outer model) has higher quality levels.

Stage 2: Structural Model Assessment

In the preceding section, it was explained that the bootstrapping procedure is performed and that a confidence level of 95% (or $\alpha = 0.05$) is taken into account to test the significance of path coefficients (and subsequently, hypothesis testing). This process yields the calculation of p and t values for each path in the structural model (Table 6). To test the significance of the pathways between indicators and latent variables, such values are also produced for the measurement model (outer model) (Table 7). If T Statistics is greater than 1.96 for all path coefficient values in the outer and inner models, the path coefficients are significant. Additionally, for path relationships to be considered significant, the p-value must be lower than 0.05.

Table 6: T value of Hypothesis after bootstrapping.

| Hypothesis Number | Hypothesis | β Value | T value | P-Value | Hypothesis Testing outcome |
|-------------------|------------|---------------|---------|---------|----------------------------|
| | | | | | |

| | | | | | |
|----|--|-------|-------|-------|----------|
| H1 | Previous Experience (PE)→Perceived Usefulness (PU) | 0.171 | 2.351 | 0.046 | Accepted |
| H2 | Social Impact (SI)→Perceived Usefulness (PU) | 0.214 | 4.325 | 0.032 | Accepted |
| H3 | Brand Image (B) → Perceived Usefulness (PU) | 0.143 | 4.113 | 0.04 | Accepted |
| H4 | System Quality (SQ)→Perceived Usefulness (PU) | 1.212 | 2.986 | 0.025 | Accepted |
| H5 | Usability (U)→Perceived Ease of Use (PEU) | 1.097 | 3.324 | 0.024 | Accepted |
| H6 | Training Materials and Documentation (TMD)→ Perceived Ease of Use (PEU) | 1.231 | 3.423 | 0.040 | Accepted |
| H7 | Experience (E)→Perceived Ease of Use (PEU) | 0.129 | 3.564 | 0.030 | Accepted |
| H8 | Self-Efficacy (SE)→ Perceived Ease of Use (PEU) | 1.645 | 3.237 | 0.007 | Accepted |

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|-----|---|-------|-------|-------|----------|
| H9 | Involved Investment (II)→ Behavioural Intention (BI) | 0.239 | 2.012 | 0.025 | Accepted |
| H10 | Learning Curve (LC)→ Behavioural Intention (BI) | 0.098 | 2.987 | 0.037 | Accepted |
| H11 | Perceived Usefulness (PU)→ Behavioural Intention (BI) | 0.394 | 4.589 | 0.036 | Accepted |
| H12 | Perceived Ease of Use (PEU)→ Behavioural Intention (BI) | 0.596 | 6.875 | 0.000 | Accepted |
| H13 | Behavioural Intention (BI)→ Technology Acceptance (TA) | 0.442 | 4.289 | 0.023 | Accepted |

Table 7: Outer Loading.

| Indicator | T Value | P-Value | Significant? |
|---------------------------------|---------|---------|--------------|
| B1 ← Brand Image (B) | 2.981 | 0.016 | Accepted |
| B2 ← Brand Image (B) | 8.923 | 0.036 | Accepted |
| B3 ← Brand Image (B) | 2.986 | 0.000 | Accepted |
| B4 ← Brand Image (B) | 4.327 | 0.001 | Accepted |
| BI1 ← Behavioral Intention (BI) | 5.893 | 0.020 | Accepted |
| BI2 ← Behavioral Intention (BI) | 4.442 | 0.000 | Accepted |
| BI3 ← Behavioral Intention (BI) | 3.987 | 0.021 | Accepted |
| BI4 ← Behavioral Intention (BI) | 3.112 | 0.001 | Accepted |

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|---------------------------------------|--------|-------|----------|
| E1 ←Experience (E) | 3.234 | 0.020 | Accepted |
| E2 ←Experience (E) | 2.915 | 0.014 | Accepted |
| E3 ←Experience (E) | 2.817 | 0.001 | Accepted |
| II1 ←Minimal Involved Investment (II) | 2.985 | 0.000 | Accepted |
| II2 ←Minimal Involved Investment (II) | 2.225 | 0.006 | Accepted |
| II3 ←Involved Investment (II) | 3.002 | 0.000 | Accepted |
| LC1 ←Learning Curve (LC) | 3.678 | 0.071 | Accepted |
| LC2 ←Learning Curve (LC) | 4.021 | 0.005 | Accepted |
| LC3 ←Learning Curve (LC) | 4.662 | 0.000 | Accepted |
| PE1 ← Previous Experience (PE) | 3.987 | 0.018 | Accepted |
| PE2 ← Previous Experience (PE) | 3.194 | 0.072 | Accepted |
| PE3 ← Previous Experience (PE) | 4.2973 | 0.000 | Accepted |
| PEU1 ←Perceived Ease of Use (PEU) | 5.862 | 0.004 | Accepted |
| PEU2 ←Perceived Ease of Use (PEU) | 5.983 | 0.031 | Accepted |
| PEU3 ←Perceived Ease of Use (PEU) | 3.209 | 0.022 | Accepted |
| PEU4 ←Perceived Ease of Use (PEU) | 3.289 | 0.000 | Accepted |
| PEU5 ←Perceived Ease of Use (PEU) | 5.2982 | 0.000 | Accepted |
| PEU6 ←Perceived Ease of Use (PEU) | 2.874 | 0.002 | Accepted |
| PU1 ←Perceived Usefulness (PU) | 3.677 | 0.072 | Accepted |
| PU2 ←Perceived Usefulness (PU) | 3.591 | 0.009 | Accepted |
| PU3 ←Perceived Usefulness (PU) | 3.598 | 0.000 | Accepted |
| PU4 ←Perceived Usefulness (PU) | 4.328 | 0.30 | Accepted |
| PU5 ←Perceived Usefulness (PU) | 2.911 | 0.000 | Accepted |

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|--|--------|-------|----------|
| PU6 ← Perceived Usefulness (PU) | 2.457 | 0.025 | Accepted |
| SI1 ← Social Impact (SI) | 3.297 | 0.002 | Accepted |
| SI2 ← Social Impact (SI) | 3.334 | 0.034 | Accepted |
| SI3 ← Social Impact (SI) | 6.789 | 0.028 | Accepted |
| SQ1 ← System Quality (SQ) | 4.445 | 0.000 | Accepted |
| SQ2 ← System Quality (SQ) | 6.897 | 0.000 | Accepted |
| SQ3 ← System Quality (SQ) | 4.136 | 0.044 | Accepted |
| SQ4 ← System Quality (SQ) | 5.429 | 0.022 | Accepted |
| SQ5 ← System Quality (SQ) | 5.411 | 0.001 | Accepted |
| SQ6 ← System Quality (SQ) | 3.975 | 0.021 | Accepted |
| SQ7 ← System Quality (SQ) | 5.172 | 0.042 | Accepted |
| SE1 ← Self-efficacy (SE) | 2.322 | 0.023 | Accepted |
| SE2 ← Self-efficacy (SE) | 2.199 | 0.011 | Accepted |
| SE3 ← Self-efficacy (SE) | 3.1222 | 0.022 | Accepted |
| TA1 ← Technology Acceptance (TA) | 2.888 | 0.022 | Accepted |
| TA2 ← Technology Acceptance (TA) | 2.911 | 0.019 | Accepted |
| TA3 ← Technology Acceptance (TA) | 4.591 | 0.002 | Accepted |
| TMD1← Training Materials and Documentation (TMD) | 3.228 | 0.000 | Accepted |
| TMD2← Training Materials and Documentation (TMD) | 2.912 | 0.000 | Accepted |
| TMD3← Training Materials and Documentation (TMD) | 3.339 | 0.020 | Accepted |
| U1 ← Usability (U) | 4.598 | 0.019 | Accepted |

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|--------------------|-------|-------|----------|
| U2 ← Usability (U) | 3.998 | 0.011 | Accepted |
| U3 ← Usability (U) | 3.881 | 0.000 | Accepted |

All the hypotheses (H1 to H13) are true, as shown in Table 6. T statistics for each of these hypotheses are greater than 1.96, with a P value of less than 0.05. Hypothesis H1 is accepted because Previous Experience (PE) with ($\beta=0.171$, $t\text{-value}=2.351$, $p\text{-value}=0.046$) affects Perceived Usefulness (PU). Hypothesis H2 is accepted because Social Impact (SI) with ($\beta =0.214$, $t\text{-value}=4.325$, $p\text{-value}=0.032$) affects Perceived Usefulness (PU). Hypothesis H3 is accepted because Brand Image (B) with ($\beta =0.143$, $t\text{-value}=4.113$, $p\text{-value}=0.04$) affects Perceived Usefulness (PU). Hypothesis H4 is accepted because System Quality (SQ) with ($\beta=1.212$, $t\text{-value}=2.986$, $p\text{-value}=0.025$) affects Perceived Usefulness (PU). Hypothesis H5 is accepted because Usability (U) with ($\beta=1.097$, $t\text{-value}=3.324$, $p\text{-value}=0.024$) affects Perceived Ease of Use (PEU). Hypothesis H6 is accepted because Training Materials and Documentation (TMD) with ($\beta=1.231$, $t\text{-value}=3.423$, $p\text{-value}=0.040$) affects Perceived Ease of Use (PEU). Hypothesis H7 is accepted because Experience (E) with ($\beta=0.129$, $t\text{-value}=3.564$, $p\text{-value}=0.030$) affects Perceived Ease of Use (PEU). Hypothesis H8 is accepted because Self-Efficacy (SE) with ($\beta=1.645$, $t\text{-value}=3.237$, $p\text{-value}=0.007$) affects Perceived Ease of Use (PEU). Hypothesis H9 is accepted because Involved Investment (II) with ($\beta=0.239$, $t\text{-value}=2.012$, $p\text{-value}=0.025$) affects Behavioural Intention (BU). Hypothesis H10 is accepted because Learning Curve (LC) with ($\beta =0.098$, $t\text{-value}=2.987$, $p>0.037$) affects Behavioural Intention (BU). Hypothesis H11 is accepted because Perceived Usefulness (PU) with ($\beta=0.394$, $t\text{-value}=4.589$, $p\text{-value}=0.036$) affects Behavioural Intention (BI). Hypothesis H12 is accepted because Perceived Ease of Use (PEU) with ($\beta =0.596$, $t\text{-value}=6.875$, $p\text{-value}=0.000$) affects Behavioural Intention (BI). Hypothesis H13 is accepted because Behavioural Intention (BI) with ($\beta=0.442$, $t\text{-value}=4.289$, $p\text{-value}=0.023$) affects Technology Acceptance (TA). The goodness-of-Fit Index (GFI), which measures how well the model fits overall, is calculated to be 0.927, which is higher than the suggested threshold of 0.90, indicating that the SEM model is fit.

Table 8: Test for common method bias.

Table 9: Effect Size Test.

| | PE | SI | B | SQ | U | TM D | E | SE | II | LC | PU | PEU | BI | TA |
|-----|----|----|---|----|---|---------|---|----|----|----|-----------|-----------|-----------|-----------|
| PE | | | | | | | | | | | 0.78 2 | | | |
| SI | | | | | | | | | | | 0.97 7 | | | |
| B | | | | | | | | | | | 1.12 | | | |
| SQ | | | | | | | | | | | 1.29 | | | |
| U | | | | | | | | | | | | 0.87 9 | | |
| TMD | | | | | | | | | | | | 0.89 1 | | |
| E | | | | | | | | | | | | 1.02 | | |
| SE | | | | | | | | | | | | 1.16 | | |
| II | | | | | | | | | | | | | 0.77 3 | |
| LC | | | | | | | | | | | | | 0.88 9 | |
| PU | | | | | | | | | | | | | 0.79 8 | |
| PEU | | | | | | | | | | | | | 0.67 8 | |
| BI | | | | | | | | | | | | | | 1.21 2 |
| TA | | | | | | | | | | | | | | |

Because the variance inflation factors (VIFs) have a value less than 3.3, the model is free of common method bias. Because the values are more than

0.15 and 0.35, respectively, the effect size is both moderate and large. This shows that the research is relevant and that the limited sample size has no bearing on its findings.

The coefficient of determination (R^2) to predict the measure the predictive accuracy of the model is given in Table 10.

Table 10: R^2 of the endogenous latent variables of the structural equation model.

| Constructs | R^2 | Outcome | Contributors to R^2 |
|----------------------------|-------|----------|---|
| Technology Acceptance (TA) | 0.724 | High | Behavioural Intention (BI) |
| Behavioural Intention (BI) | 0.529 | Moderate | Perceived Usefulness (PU) & Perceived Ease of Use (PEU) |

The coefficient of determination, R^2 , is 0.724 for the Technology acceptance (TA) endogenous latent variable. This means that Behavioural Intention (BI) highly explains the 72.5% variance in Technology acceptance. The coefficient of determination, R^2 , is 0.529 for the Behavioural Intention (BI) endogenous latent variable. This means that Perceived Usefulness (PU) and Perceived Ease of Use (PEU) moderately explain 52.9% variance in Behavioural Intention.

The effect of control variables on technology adoption is tested by testing the path connecting these variables with technology adoption variable of structural model. Table 11 highlight the hypothesis testing of relationship between control variables and technology adoption.

Table 11: Hypothesis testing (control variables).

| Hypothesis | β Value | T value | P-Value | Hypothesis Testing outcome |
|---|---------------|---------|---------|----------------------------|
| Location (L) → Technology Adoption (TA) | 0.151 | 1.12 | 0.066 | Rejected |
| Gender (G) → Technology Adoption (TA) | 0.090 | 1.29 | 0.172 | Rejected |

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|---|-------|------|-------|----------|
| Work Experience (as librarian) → Technology Adoption (TA) | 0.116 | 1.01 | 0.369 | Rejected |
|---|-------|------|-------|----------|

6. Discussion

6.1. Theoretical Contributions

To assist Small and Medium-Sized Enterprises, such as startups, to successfully advance rural health through their successful commercialization, this article looked into the elements that drive the Entrepreneurship and Innovation Library staff to adopt prototype technology, such as Figma. The results identify many factors that increase the Figma technology adoption among librarians owing to their significant positive influence on adoption. Technology adoption strongly depends on two factors, namely Perceived Usefulness and Perceived Ease of Use, which is in line with the findings as disseminated in (Davis, 1989). Perceived Usefulness and Perceived Ease of Use impact Behavioural Intention to use the technology that leads to technology adoption.

Factors like Previous Experience, Social Impact, Brand Image, and System Quality have a significant positive impact on Perceived Usefulness. The previous usage of this technology by library employees has improved their assessment of its value in achieving their business objectives. Even though Figma is simpler to use and has a straightforward GUI for designing systems, prior familiarity with this technology makes it simpler to persuade library personnel to use it. One of the attendees said, "*The technology was used by our librarian during a week-long training. The fact that his team used Figma to complete the workshop project was enough to inspire him to deploy this technology in the library. Previous experience overcomes people's unwillingness to use new technology*".

Social Impact has a significant positive impact on the usefulness of technology as perceived by librarians. These days, libraries are a part of library consortiums and work closely with academic institutions all over the world. Successful adoption of technology in one library provides a strong "word of mouth" branding about the usefulness of the technology among consortium members. When a library successfully implements technology, word quickly spreads throughout its network, encouraging other libraries to follow suit. One of the attendees remarked, "*When we had*

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4 *to investigate the possibility of delivering medications online during a pandemic*
5 *in a small community, we used Figma technology successfully. We were aback by*
6 *how simple it was to prototype with this technology. We couldn't wait to inform*
7 *our partners of this information and the lessons we had learned. Positive feedback*
8 *from our partners led to some of them implementing this technology as well".*
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12 Another significant factor in determining how useful people view
13 technology is the brand image. There are several prototype technologies,
14 and the library community is just beginning to embrace this technology.
15 Libraries have been advancing their offerings to businesses by adding
16 prototyping as a new service because they recognize the importance of
17 prototyping. When there are numerous technologies available, libraries
18 choose one based on the market reputation of the technology suppliers and
19 their judgments of the provider's reputation. On September 15, 2022, the
20 well-known software business Adobe purchased Figma for \$20 billion¹⁰¹¹.
21 This branding is enough to persuade libraries to have favorable opinions
22 of the value of this technology in resolving business problems. The
23 perceived usefulness is positively impacted by System Quality. Librarians
24 are more likely to find technology beneficial when it has features that make
25 it easier to develop prototypes quickly, improve them regularly, and
26 interface with other applications. However, as librarians use technology
27 more frequently, their grasp of system quality improves. Thus, Previous
28 Experience, Social Impact, Brand Image, and System Quality together
29 enhance perceived usefulness.
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40 Technology's perceived ease of use is improved by higher usability,
41 training materials, documentation, experience, and self-efficacy. For
42 instance, Figma's simple GUI and user-friendly features make it simple for
43 librarians to use the technology. The availability of several instructional
44 manuals and video tutorials about Figma allows librarians to learn how to
45 utilize this technology on their own. These resources offer information that
46 is simple to understand, assisting librarians in learning technology skills
47 that improve their perceptions of how simple it is to use technology. The
48 perceived ease of use likewise rises as librarians gain more experience with
49 the technology. Additionally, their perception of the technology's
50 perceived ease of use is influenced by their confidence in successfully using
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¹⁰ [https://en.wikipedia.org/wiki/Figma_\(software\)](https://en.wikipedia.org/wiki/Figma_(software))

¹¹ <https://techcrunch.com/2022/10/20/figma-ceo-dylan-field-on-why-he-sold-to-adobe/>

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4 this technology (self-efficacy). Figma, a user-friendly application, facilitates
5 quick learning and ultimately increases PEU factor contributions.
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8 Involved Investment, Learning Curve, Perceived Usefulness, and
9 Perceived Ease of Use, all have a significant effect on Behavioural
10 Intention. Libraries employ prototype technology because they believe it
11 to be easy to use and valuable, which is motivated by perceived usefulness
12 and perceived ease of use. However, involved investment and learning
13 curve are two other aspects that contribute to behavioural intention.
14 Utilizing this technology is incredibly affordable. For instance, Figma
15 Professional costs \$12 per editor per month, whereas Figma Organization
16 costs \$45 per editor per month¹². The basic starting membership plan is
17 free. The behavioural intention to embrace the technology is positively
18 impacted by the technology's decreased costs. Additionally, the minimal
19 maintenance expenses are another factor that supports higher BI.
20 Additionally, Figma's shallow learning curve shows that learning to use
21 this technology is easier for librarians. When a new technology is chosen
22 for adoption in a library, the adoption process includes gradual learning.
23 A low learning curve speeds up the learning process and supports
24 experiential learning by librarians. Finally, Behavioural Intention drives
25 libraries to use prototype technology.
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28 These findings suggest that once implemented, Figma technology had
29 a higher likelihood of being used by library staff, which would facilitate its
30 adoption and benefit health startups. Although the perceived usefulness of
31 this technology was driven by its higher quality and brand recognition,
32 previous experience and social impact also had a significant role. This
33 means that the library consortium should concentrate on regularly
34 exchanging information about the adoption of new technologies and
35 aiding their peers in successfully understanding the value of technology
36 through their actual experiences with them. Perceived ease of use is
37 another essential aspect to improve behavioural intention. Figma makes it
38 far simpler for librarians to use this technology thanks to its simpler GUI
39 and user experience as well as the availability of simple training materials.
40 But continued usage of this technology strengthens it even more
41 (accumulation of more experience). Due to these variables and continued
42 use, librarians will rapidly boost their self-efficacy towards it, furthering
43 their perception that this technology requires no physical or mental effort
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¹² <https://www.figma.com/pricing/>

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4 on their part. Additionally essential is the peer libraries' assistance. To
5 expand their experience, self-efficacy, and training, for instance, peer
6 libraries could arrange training sessions and offer their expertise to their
7 peers. Because Figma technology providers have commercialized this
8 cloud-based technology at a lesser cost, libraries with tight budgets and
9 infrastructure can easily purchase and maintain it. Additionally, the flat
10 learning curve makes it ideal for libraries with small staff, limited
11 technological expertise, and limited infrastructure.

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17 These findings suggest that peer library support may enhance the
18 actual adoption of technology by promoting perceived utility, perceived
19 usability, and behavioural intention. Additionally, corporate libraries
20 might assist health libraries in successfully implementing this technology,
21 which is now constrained by a lack of funding, staffing issues,
22 infrastructure issues, a lack of technologically savvy library users, and
23 issues with collaborations (Kinengyere, 2019; Lenstra and Roberts, 2022).
24 This will aid health libraries in learning the entrepreneurial skills necessary
25 to support health-focused startups on their own, while also allowing them
26 to gain the dynamic capabilities to do so based on partnerships with
27 Entrepreneurship and Innovation libraries.

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34 Huang (2022) reported that to better serve their patrons' requirements
35 and deliver wonderful experiences, libraries are eager to incorporate
36 cutting-edge technologies, such as Artificial Intelligence (AI) applications.
37 It was also reported that people-related components including human
38 resources, librarian desire and experience, assistance from managers, and
39 support are only a few of the documented technology adoption factors.
40 Because FIGMA technology has been investigated as easily adoptable,
41 meaning people-related challenges are unlikely to hinder its adoption
42 which makes it possible for libraries to leverage across such technologies
43 without getting impacted by hindrance factors.

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49 Additionally, the results revealed that participant location, gender, and
50 work experience (as librariaan) had no influence on the adoption of FIGMA
51 technology (Table 11). As a result, regardless of the aforementioned control
52 variables, the research findings are consistent and valid across a wide
53 range of audiences of the research results. The control variables does not
54 have an impact on practitioners or stakeholders when using the
55 determinants found in this study.

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60 The geographic location of the librarians' places of work (Europe, Asia,
and America) had little impact on how quickly they adopted Figma

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4 technology. This implies that Figma's advantages and usability are
5 universal, regardless of national issues, such as infrastructure variations.
6 This might be partially explained by the fact that in the libraries studied in
7 this research, there had been increasing focus on digital transformations,
8 support for businesses, the development of entrepreneurial skills among
9 its audience, and supporting government policies to promote enterprises.
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13 Gender did not show up as a determinant in the adoption of Figma
14 technology. This suggests that both male and female librarians—or those
15 with various gender identities—perceive Figma as beneficial and simple to
16 use. Regardless of gender, technology seems to be equally available to and
17 applicable to librarians. One explanation would be the increasing attention
18 being paid to digital transformations and the entrepreneurial approach to
19 innovate library services. Emerging technologies are developed to be used
20 with little training by non-expert users.
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24 Surprisingly, the adoption of Figma technology was unaffected by the
25 number of years of professional experience as a librarian. This shows that
26 regardless of their level of experience, whether they are inexperienced
27 beginners or seasoned pros, librarians of all levels view and use Figma in
28 a comparable way. One explanation could be that Figma technology is
29 made in such a way that it enables librarians, irrespective of their level of
30 job experience, to rapidly comprehend and efficiently utilise its
31 capabilities. Figma's functionality and user interface may be simple and
32 easy to use, making it available to librarians of any expertise level. Another
33 reason is that this technology does not require any specialized training to
34 master it. Consequently, working as a librarian has no impact on one's
35 capacity to learn this technology. Last but not least, regardless of their level
36 of job experience, the librarians who were a part of your inquiry may have
37 displayed a general openness to innovation. Because librarians were more
38 open to experimenting with and adopting cutting-edge tools like Figma
39 into their work practices, this readiness to explore and adopt new
40 technology may have a greater impact than the influence of prior work
41 experience. In libraries, there is a rising entrepreneurial culture that
42 encourages experimentation and new ideas.
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55 56 6.2. *Practical Contributions*

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58 This study makes pertinent recommendations for technology
59 suppliers, policymakers, and libraries. This is highlighted below:
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a) Libraries

- **Bridging the gap between health and Entrepreneurship and Innovation libraries:** The necessity for collaboration between business and health libraries to promote entrepreneurship and innovation in rural health is highlighted by the research. Such cooperation is necessary for both building competencies in weaker areas, such as the health domain in the instance of Entrepreneurship and Innovation libraries, and for providing each other with helpful assistance. This will make it easier for business and health libraries, which have different specialties, to collaborate more successfully in the future.
- **Promoting the use of prototyping technologies:** According to research, prototyping technologies like FIGMA can help assist businesses in rural health markets to achieve product/market fit. This might motivate more entrepreneurs to investigate the usage of such technology, which might result in the creation of better healthcare options for those living in rural areas. This will increase the startup community's success rate due to successful market research for a better product/market fit.
- **Increasing libraries' ability to foster entrepreneurship:** The relevance of libraries in supporting businesses, especially in rural regions, is emphasized by research. It encourages other libraries to create comparable programs and services to boost entrepreneurship in their regions by displaying the capabilities of Entrepreneurship and Innovation libraries in this area. This could be supported by practical knowledge exchanges between libraries about essential training and real-world skills in prototyping acquired because of their experiences with such programs with library staff and entrepreneurs. In the end, this will help to build health solutions for rural communities that are more effective and efficient.
- **Supporting rural health innovation:** This study has the potential to contribute to the creation of fresh, creative health solutions that can enhance the health and well-being of rural populations by encouraging entrepreneurship and innovation in rural health. For rural populations, rural healthcare practitioners, and health libraries, this may have substantial practical ramifications.

b) Prototyping Technology Suppliers

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- **Identification of technology adoption factors:** The report reveals the FIGMA technology adoption factors for prototyping in the healthcare industry. This knowledge can assist technology companies in creating more convenient and efficient prototyping tools that cater to the unique requirements of Entrepreneurship and Innovation libraries (as technology users) and health libraries and entrepreneurs (as prototype users).
 - **Enhancing Innovation:** The study may pinpoint possible regions where FIGMA technology might be used to promote breakthroughs in rural healthcare. This knowledge can aid in the development of new features or functionalities by technology providers that will better promote innovation in the healthcare industry.
 - **Collaboration Opportunities:** The study might provide chances for tech companies, health libraries, and Entrepreneurship and Innovation libraries to work together. This partnership may result in the creation of more useful resources for healthcare entrepreneurs, including funding opportunities, mentoring, and training programs.
 - **Living labs:** To test and assess new technologies, in actual environments, living labs, or "real-world testing environments," can be created by technology providers. Technology companies may find it advantageous to test their prototyping tools and services in "living labs" where users and stakeholders can provide insightful feedback (including health and Entrepreneurship Innovation libraries). The design and development of living laboratories that concentrate on rural health innovations can be informed by the study's results on user needs and preferences, viable application areas, and collaboration opportunities in the healthcare industry. Living laboratories can give healthcare entrepreneurs access to prototyping technology and support services including mentoring, training, and funding options to aid in the development and improvement of their goods and services. Living labs can also give technology suppliers the chance to work with Entrepreneurship and Innovation libraries, health libraries, and other stakeholders to co-create and co-design innovative solutions that specifically address the requirements of rural health communities. Living labs can encourage innovation and hasten the adoption of new technologies

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4 in the healthcare industry by utilizing the assets and skills of various
5 stakeholders.
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9 **c) Policymakers**

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- **Supporting rural health innovation:** The study's findings can be used by policymakers to make legislation and programs that promote innovation in rural healthcare. For instance, governments may use the study results to create funding plans that encourage the creation and use of prototype technologies in rural health settings.
 - **Building collaborative networks:** The findings of the study can be used by policymakers to pinpoint areas where entrepreneurs, healthcare practitioners, Entrepreneurship and Innovation libraries, and health libraries can work together. Policymakers can contribute to the development of a more integrated and productive ecosystem for rural health innovation by encouraging collaboration. In addition to their conventional duty of providing library services to students, policymakers might create regulations that encourage collaboration between libraries and assist them in adding business support as a third mission.
 - **Promoting economic development:** Policymakers can encourage economic development in rural areas by encouraging innovation and entrepreneurship in the field of rural health. In areas that have historically suffered from poverty and unemployment, this can help to spur economic growth by luring investment, creating jobs, and increasing investment.
 - **Improving healthcare outcomes:** Policies and programs that enhance healthcare outcomes in rural areas can be informed by research study findings. Policymakers can assist in addressing the special difficulties that rural people confront in accessing high-quality healthcare by fostering the development of efficient health solutions and technologies.
 - **Fostering innovation ecosystems:** By encouraging the growth of an autonomous innovation ecosystem, policymakers could support the successful innovation of tech firms. Additionally, active government backing might assist them in sharing their R&D costs, making technology accessible to small enterprises.

7. Research study Limitations and future recommendations

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4 One of the study's limitations is the small sample size, which was set
5 at 40 because libraries are only recently adopted prototype technology to
6 support start-up businesses in the health sector. To ascertain the effect of
7 small sample size on the result, two evaluations are carried out: one to test
8 common method bias (to see if the dataset collected contains bias resulting
9 from the measurement model), and another to test effect size (to ascertain
10 the significance of the association between the variables). The findings
11 show that the research is not affected by the small sample size.
12
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17 The results have a significant impact on advances in rural health for a
18 variety of reasons.
19

- 20 • They will first emphasize the potential for partnerships between
21 libraries and startups to collaboratively develop and commercialize
22 successful innovations.
23
- 24 • Additionally, it will advance our understanding of the elements that
25 facilitate libraries' adoption of prototype technologies, resulting in
26 technological advancements that libraries can quickly embrace to help
27 entrepreneurs.
28
29

30 Future research in this area has several potential directions.
31

- 32 • In the future, it is anticipated to carry out a similar study once many
33 libraries have engaged in prototyping to turn rural health innovations
34 into a collaborative process.
35
- 36 • More research on the unique requirements and difficulties faced by
37 rural populations, health libraries (as prototype users), and
38 Entrepreneurship and Innovation libraries would be helpful (as
39 prototyping technology users). This will facilitate improved
40 technological innovation. These stakeholders may be the subject of in-
41 depth interviews, surveys, and case studies of innovative rural health
42 practices.
43
- 44 • Future research might examine how living labs might be used to assist
45 breakthroughs in rural health. Living labs might offer a useful setting
46 for testing and assessing support services and technology prototypes in
47 practical applications.
48
- 49 • It would be beneficial to look at the possibility of working with
50 prototyping technology providers, Entrepreneurship and Innovation
51 libraries, and health libraries to assist innovations in rural health. This
52 could entail creating fresh support services that make use of the abilities
53 and assets of many partners, such as training courses and mentoring
54 possibilities.
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4 Overall, more research in this field can increase our understanding of
5 how prototype technologies can effectively support innovations in rural
6 healthcare and meet the particular demands and problems of the rural
7 healthcare sector.
8
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10 11 **8. Conclusions**

12
13 To help health businesses market innovative solutions for rural health,
14 this research looks into the elements that encourage Entrepreneurship and
15 Innovation libraries to adopt Figma technology for designing prototype
16 solutions. The lack of innovations in rural health was the driving force
17 behind the research, which might be addressed by promising
18 entrepreneurial developments in the health sector as observed in a
19 pandemic, health libraries, Entrepreneurship and Innovation libraries,
20 startups, and entrepreneurship. The study's findings indicate that
21 Entrepreneurship and Innovation Libraries' Perceived Usefulness (PU) of
22 prototyping technology is significantly positively influenced by Previous
23 Experience, Social Impact, Brand Image, and System Quality. Usability,
24 training materials, documentation, experience, and self-efficacy all have a
25 beneficial impact on how intuitive prototype technology is seen to be
26 (perceived ease of use). Perceived Usefulness and Perceived Ease of Use
27 have a considerable impact on behavioural intention when considered
28 together. A low learning curve and minimal investment have a good effect
29 on behavioural intention. Behavioural intention promotes technology
30 uptake.
31
32

33
34 The collaboration of the business and health libraries may help to
35 accomplish two goals. First, there is an interdisciplinary knowledge
36 transfer, where Entrepreneurship and Innovation libraries gain from
37 health libraries' competence in medicine and health libraries gain from
38 Entrepreneurship and Innovation libraries' entrepreneurial skills. Second,
39 it enables libraries to impart knowledge and lessons to their colleagues,
40 which improves the elements that influence technology adoption, such as
41 training, experience, prior experience, social impact, etc. This helps
42 libraries get past their reluctance to use prototype technology, together
43 with the greater PEU and PU of Figma technology. Thirdly, it helps health
44 libraries build their entrepreneurship competencies for assisting health
45 startups as well as Entrepreneurship and Innovation libraries acquire
46 competence in providing support to health entrepreneurs.
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4 However, the collaboration must be strategic to benefit all library
5 partners (Gupta et al., 2022b). To boost technology use and help enterprises
6 in rural health innovations, the roles of technology suppliers, legislators,
7 and libraries are crucial. The libraries can accurately and speedily collect
8 input from the rural population due to the enhanced ability to employ this
9 technology and, consequently, efficiently construct and evolve prototypes.
10 The rural populace does not need to possess any technological expertise
11 due to the simplicity of prototype designs. These Entrepreneurship and
12 Innovation libraries will be able to access rural populations to nurture the
13 customer development process thanks to the active cooperation of health
14 libraries. This section is mandatory.
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22 **Author Contributions:**
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35 **Funding:**
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45 **Institutional Review Board Statement:** The conducted study was
46 approved by the Institutional Review Board of
47 (IRB Approval number: XXXX
48 dated: XXXX).
49
50

51 **Informed Consent Statement:** Before beginning to acquire data from
52 research participants, researchers obtained their informed consent. They
53 were fully informed of the study's goals, the research techniques to be used,
54 the result's non-disclosure, the privacy of personal data, and how their
55 responses will be used in the research study.
56
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60 **Data Availability Statement:** Data will be provided upon reasonable
request to the correspondence author. As stated in the informed consent

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4 statement, the individual responses are confidential. It may take several
5 months to negotiate data usage agreements and obtain access to the data.

6
7
8 **Acknowledgments:** The research's authors would like to acknowledge all
9 the library staff members who took part in the study.

10
11 **Conflicts of Interest:** The authors declare no conflict of interest.

12
13 **Additional Information:**

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 **Appendix A (Questionnaire)**

29 30 **Informed Consent**

31 This study aims to identify the driving forces behind Entrepreneurship and
32 Innovation libraries' adoption of Figma prototype technology. This survey
33 is intended to get your opinions on the use of Figma technology in your
34 library to create prototype business solutions to meet the study's objectives.
35 Your libraries support programs to promote public health as well as SMEs'
36 efforts to grow their businesses in local and international markets. Figma
37 was one of the prototyping tools your library has been employing. Even
38 though participation is completely optional, your insights will be
39 invaluable in advancing successful entrepreneurship-based rural health
40 innovation. Your information will only be used to compile replies to the
41 survey in an aggregate form; no specific responses will ever be made public.
42
43 **Rating Scale:** 5-point Likert scale; 1 represents strong disagreement and 5
44 represents strong agreement.

45 46 47 48 **Section I**

49 50 **Previous Experience (PE)**

51
52 PE1. I had worked previously using the Figma prototyping technology
53 for other designing tasks except for health-focused businesses.

54
55 PE2. I had been using Figma drawing tools for basic drawings for my
56 professional works.

57
58
59
60 PE3. I used Figma to create UX designs for my website.

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4 **Open Question (optional):** Would you like to share your experiences that
5 drove your reasoning behind your answers?
6

7 **Section II**

8 **Social Impact (SI)**

- 9
10 E1. A colleague in my professional network encouraged me to use Figma
11 prototyping technology.
12
13 E2. We were inspired to embrace this Figma prototyping technology by
14 our partners.
15
16 E3. Our expert working group recommended the Figma prototyping
17 technology.
18
19

20 **Open Question (optional):** Would you like to share your experiences that
21 drove your reasoning behind your answers?
22

23 **Section III**

24 **Brand Image (B)**

- 25
26 U1. The library selects the prototyping technology which is used by
27 renowned entrepreneurs.
28
29 U2. The library selects the prototyping technology which is owned by
30 companies with high brand values.
31
32 U3. The library selects the prototyping technology which has high-brand
33 companies as its clients.
34
35 U4. The library selects the prototyping technology that is well-known in
36 the market.
37
38

39 **Open Question (optional):** Would you like to share your experiences that
40 drove your reasoning behind your answers?
41

42 **Section IV**

43 **System Quality (SQ)**

- 44
45 SQ1. Figma prototyping technology is fast to access and trigger to fetch
46 meaningful information.
47
48 SQ2. Figma prototyping technology provides rich functionality to meet
49 market research objectives.
50
51 SQ3. Figma prototyping technology provides a rich Graphical User
52 Interface (GUI) to work with.
53
54 SQ4. It is highly secure to be used especially from a user privacy point of
55 view.
56
57 SQ5. It is possible to design prototypes and integrate them with other
58 applications using the Figma prototyping technology.
59
60

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4 SQ6. It is great not to be responsible for the maintainability of the Figma
5 prototyping technology.

6
7 SQ7. It is possible to continuously evolve the prototype solutions
8 designed using Figma prototyping technology.

9
10
11 **Open Question (optional):** Would you like to share your experiences that
12 drove your reasoning behind your answers?

13 **Section V**

14 **Usability (U)**

15
16 U1. The Figma prototype software allows me to easily comprehends the
17 layout and navigation of technology web pages.

18
19 U2. I can work much more quickly because of the excellent interface of
20 the Figma prototyping technology.

21
22 U3. I enjoy using Figma prototyping technology a lot.

23 **Section VI**

24 **Training Materials and Documentation (TMD)**

25
26 TMD1. I can accomplish my tasks using Figma prototyping technology
27 with prior training sessions.

28
29 TMD2. I can use Figma prototyping technology as the training
30 opportunities exist in my organization as well as online (through
31 online material).

32
33 TMD3. I have good access to training on Figma prototyping technology.

34 **Section VII**

35 **Experience (E)**

36
37 E1. I had worked previously using the Figma prototyping technology
38 for prototyping tasks.

39
40 E2. I have actively used Figma prototyping technology in providing
41 support to the business community.

42
43 E3. The Figma prototyping technology had been used by me in
44 evolving prototypes as per the business, customer, and other health
45 agencies' feedback.

46
47
48 **Open Question (optional):** Would you like to share your experiences that
49 drove your reasoning behind your answers?

50
51
52 **Open Question (optional):** Would you like to share your experiences that
53 drove your reasoning behind your answers?

54 **Section VIII**

55 **Self-efficacy (SE)**

1
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3
4 SE1. I can always use Figma prototyping technology to accomplish my
5 task without the additional help of another person.

6 SE2. I understand the words/terms related to Figma prototyping
7 technology.
8

9 SE3. I know how to use the Figma prototyping technology to accomplish
10 my task even if I had never used similar technology before.
11

12 **Open Question (optional):** Would you like to share your experiences that
13 drove your reasoning behind your answers?
14

15 **Section IX**

16 **Perceived Ease of Use (PEU)**

17 PEU1: Learning to operate Figma prototyping technology will be easier
18 for me.
19

20 PEU2: I will find it easier to operate Figma prototyping technology to do
21 what I wish to do.
22

23 PEU3: My interaction with Figma prototyping technology will be clear
24 and understandable.
25

26 PEU4: I would find Figma prototyping technology flexible to interact
27 with.
28

29 PEU5: It would be easier for me to become skillful in using Figma
30 prototyping technology.
31

32 PEU6: I would find Figma prototyping technology easier to use.
33

34 **Open Question (optional):** Would you like to share your experiences that
35 drove your reasoning behind your answers?
36

37 **Section X**

38 **Perceived Usefulness (PU)**

39 PU1: Using Figma prototyping technology will help me to accomplish
40 market research tasks more quickly.
41

42 PU2: Using Figma prototyping technology will help me to improve my
43 Job performance (related to providing support to entrepreneurs).
44

45 PU3: Using Figma prototyping technology will help me to improve my
46 productivity at my Job.
47

48 PU4: Using Figma prototyping technology will help me to improve my
49 effectiveness on the job.
50

51 PU5: Using Figma prototyping technology will help me to make it easier
52 to do my job.
53

54 PU6: I would find Figma prototyping technology useful in my job.
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4 **Open Question (optional):** Would you like to share your experiences that
5 drove your reasoning behind your answers?
6

7 **Section XI**

8 **Involved Investment (II)**

- 9
10 II1. Library uses Figma prototyping technology because it's almost free.
11 II2. Library uses Figma prototyping technology because of the low
12 involved maintenance costs.
13 II3. Library uses Figma prototyping technology because we do need not
14 to buy any specialized software or hardware for this, which does not
15 add to our costs.
16
17

18 **Open Question (optional):** Would you like to share your experiences that
19 drove your reasoning behind your answers?
20

21 **Section XII**

22 **Learning Curve (LC)**

- 23
24 LC1. Library uses Figma prototyping technology because it's easy to learn
25 for beginners as well.
26 LC2. Library uses Figma prototyping technology because one can greatly
27 increase their competencies with it with little effort.
28 LC3. Library uses Figma prototyping technology because involved efforts
29 to learn are minimal throughout the technology usage.
30
31

32 **Open Question (optional):** Would you like to share your experiences that
33 drove your reasoning behind your answers?
34

35 **Section XIII**

36 **Behavioral Intention (BI)**

- 37
38 BI1: I want to use Figma prototyping technology and its future
39 advancements for providing support to businesses.
40 BI2: I feel comfortable using Figma prototyping technology in providing
41 support to entrepreneurs.
42 BI3: I rely on the market information provided by Figma prototyping
43 technology.
44 BI4: I will recommend the use of Figma prototyping technology to all
45 entrepreneurial libraries.
46
47

48 **Open Question (optional):** Would you like to share your experiences that
49 drove your reasoning behind your answers?
50

51 **Section IV**

52 **Technology Adoption (A)**
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A1: I will use Figma prototyping technology to provide support to entrepreneurs.

A2: I will use Figma prototyping technology over other traditional co-located interactions with customers and other knowledge sources.

A3: I will expand the digital skills of library staff on Figma prototyping technology.

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

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