

# Status and practices of digitisation in Kuwaiti academic libraries

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## ABSTRACT

*Digitisation offers many advantages for academic libraries. This study explores the status and practices of digitisation in Kuwaiti academic libraries, and librarians' perceived importance of digitisation. The survey method was employed, and a questionnaire was used to collect data from four universities and two other higher education institutions; one academic institution did not participate due to administrative procedural requirements. All professional librarians from these institutions were invited to participate, 81 responses (65%) were received. The results demonstrated that current digitisation projects focus most on digitising magazines, books, periodicals, dissertations and theses, photographs, and university publications. The respondents reported a moderate level of satisfaction with digitisation projects and attached a high level of importance to starting digitisation projects. This might reflect a high level of awareness among librarians regarding the challenges encountered and their potential solutions. Copyright issues, staff training, and funding were among the top five challenges and suggestions for improving digitisation projects. Several recommendations were suggested based on the results obtained to enhance digitisation in Kuwaiti academic libraries, such as more effort on the part of academic libraries into planning digitisation projects.*

**Keywords:** Academic Libraries; Library digitization practices; Digitization readiness; Access and preservation; Perceived importance.

## INTRODUCTION

Rare and historical materials can be found in collections hosted by academic libraries. Such materials are considered priceless because of their unique and valuable content. However, degradation of these materials over time could make them unavailable or inaccessible. Digitisation has presented itself as an acceptable and practical solution to that problem, especially in the context of academic libraries worldwide, it "has played a large role in the preservation and promotion of cultural heritages" (Adane, Chekole and Gedamu 2019, p.1). In library digitisation practices in the US, materials that face the threat of being lost in the future, such as photo images, old manuscripts, non-commercial live musical recordings, and theses are digitized by many library organisations (Liu 2004). Creating digital copies of library materials helps ensure future access to their contents. In addition, digitising library collections makes information available to the public instead of to a small group of scholars

alone (Sivankalai et al. 2021). Thoughtful planning and standardised guidelines are essential to obtain the maximum benefits of digitisation.

Digitisation has proved its vital role in academic libraries due to its advantages. Research has been conducted around the globe with a focus on digitisation within this context. However, digitisation practices in Kuwaiti academic libraries has not been sufficiently studied. Finding related scholarly literature about digitisation at Kuwaiti academic libraries represented an obstacle during this study. A gap of knowledge about digitisation in Kuwaiti academic libraries can result in a lack of a deep awareness concerning digitisation status and practices, which may hinder digitisation progress and development. Owing to this significant gap in the literature, recognition of the status of digitisation in Kuwaiti academic libraries and librarians' perceptions about digitising materials is needed. To the best of our knowledge, this study is the first to focus on several inter-related themes regarding digitisation in Kuwaiti academic libraries.

This study determined awareness surrounding current and future projects related to digitisation. Six themes were defined as relevant to a better understanding of digitisation in Kuwaiti academic libraries: (a) types of materials, (b) satisfaction levels, (c) perceived importance, (d) challenges, (e) suggestions, and (f) readiness. The current study covers materials that have already been digitised and those that need to be digitised.

The following research questions were designed based on the themes. The first two questions were derived from the first theme to highlight the differences between the digitised materials.

- a) What types of materials are currently being digitised in Kuwaiti academic libraries?
- b) What types of materials need to be digitised in the future?
- c) What is the level of librarians' satisfaction with the digitisation of materials?
- d) How do academic librarians perceive digitisation in terms of its importance?
- e) What are the challenges in the digitisation of library materials?
- f) What suggestions do academic librarians have for improving digitisation in libraries?
- g) What are academic librarians' perceptions regarding the readiness of Kuwaiti academic libraries for digitisation?

## **LITERATURE REVIEW**

UNESCO (2015) takes a broad understanding of the digitisation process in relation to cultural heritage, encompassing all kinds of cultural objects gathered, inter alia, in museums, libraries and archives. The organisation has defined digitisation as "the creation of digital objects from physical, analogue originals by means of a scanner, camera or other electronic device" (p.1). The following definition by the glossary of the *Federal Agencies Digital Guidelines Initiative* (FADGI 2017) clarifies that digitisation is a "process" in its interpretation of digitisation as: "The process of recording an analog signal in a digital form... it describes the process of translating analog signal data emanating from an object (light or sound) into a digitally encoded format. Audio, still and moving images are commonly digitised for increased access or for preservation purposes." (para. 1).

Specialized agencies and organisations have developed guidelines for digitisation planning and have discussed associated activities (e.g., FADGI – Still Image Working Group 2009; International Federation of Library Associations and Institutions (IFLA) Rare Book and Special Collections Section 2014; National Archives and Records Administration (NARA),

2014). Digitisation is not only about scanning analog documents to create digital forms; it is a series of activities (NARA 2014) and a complicated process with many components.

The IFLA Rare Book and Special Collections Section (2014) described procedures associated with digitisation, such as material selection, metadata, presentation formats, and long-term preservation. The FADGI – Still Image Working Group (2009) divided the digitisation process into four phases, namely (a) project planning; (b) processes occurring prior to digitisation; (c) digital conversion; and (d) post-digitisation work. They (FADGI 2009) also discussed associated digitisation activities such as: (a) selection, assessment, and prioritization, (b) project planning, management, and tracking; (c) digital copy status and records management; (d) preparation of originals for digitisation; (e) metadata; (f) digitisation; and (g) assessment and evaluation. These two examples show that digitisation is a sequence of complicated activities requiring carefully designed.

According to Liu (2004) digitisation “promises to revolutionize the way libraries access, store, disseminate, and preserve information” (p. 344). It offers many advantages to both libraries and their users, and three main reasons behind digitisation endeavors highlighted by Nnenna and Ume (2015) are such as preserving endangered library resources, providing access to them, and improving information search mechanisms. Rieger (2008) who examined large-scale digital initiatives (LSDIs) to identify issues that will influence the availability and usability, over time, of the digital books wrote that “access and preservation goals are usually interrelated, since access to scholarly materials depends upon their being fit for use over time” (p. 1). Readers can retrieve content remotely in digital formats with extraordinary digital image quality, which makes it unnecessary to refer to the original materials (Conway 2000). Hirtle (2002) explained that the greatest benefit to be gained from digitising special collections is an enormous increase in the use of those materials. Here is a direct quote, “if you make special collections materials available via the Web with appropriate metadata and software, preferably for free, they will be used” (Hirtle 2002, p. 43).

Sivankalai et al. (2021) highlighted many reasons that encourage academic libraries to conduct digitisation, among others the provision of remote access to their materials; collaborations and partnerships; limited budget dedicated for acquisition of library stock; and high costs of the preservation of analogue materials. Libraries have huge collections consisting of audiovisual material, books, journals, manuscripts, and maps. Fortunately, digitisation can be performed successfully using different types of materials. Digitisation guidelines discuss the best practices adopted for various materials (e.g., Bogus et al. 2013; FADGI 2016; Puglia, Reed and Rhodes 2004). The NARA technical guidelines put forward by Puglia, Reed, and Rhodes (2004) covered many types of digitisable materials, such as textual documents, oversized records, photographs, graphic illustrations, objects and artifacts, microfilm, and maps. Bogus et al. (2013) defined the minimum recommended digitisation guidelines for time-based, i.e., audio, video, and moving image film, and static media, such as rare books, microforms, and three-dimensional objects. Further, FADGI (2016) discussed digitisation guidelines for many materials such as manuscripts, maps, posters, newspapers, x-ray films, photographic transparencies, photographs, and paintings.

Although digitisation helps preserve and provide access to different types of materials, challenges such as those concerning copyright, funding, and hardware may arise at various stages of these processes. These challenges have been previously discussed in the literature. For instance, lack of funding was considered as a digitisation challenge highlighted by Tbaishat (2018) who examined some of the digitisation projects at the

University of Jordan Library. Rafiq, Ameen, and Jabeen (2018) ascertained the barriers to digitisation in Pakistani university libraries, including the lack of trained information technology professionals, funding, technological infrastructure, and vision. Oni, Abu, and Ekeniyere (2018) reported on the many digitisation challenges faced by library staff at seven universities in Edo State, Nigeria, such as inadequate funding, high cost of equipment, lack of planning, copyright issues, preservation of digital resources, and space constraints.

Digitisation challenges in developing countries have been discussed in more recent literature. De la Porte and Higgs (2019) investigated the challenges encountered by memory institutions in the Western Cape in South Africa during the digitisation of cultural heritage materials. They identified the following as challenges to digitisation: (a) expertise; (b) human and financial resources; (c) technology infrastructure; (d) standards, guidelines, and policies; and (e) management (De la Porte and Higgs 2019). Eromosele and Adesina (2020) explained that inadequate workforce, copyright infringement, and poor funding were among the factors that prevented certain materials from being digitized at the University of Ilorin Library in Nigeria. As digital resources are seen as a hope to developing countries in their struggle for accessing cultural heritage, especially in a context where the traditional distribution mechanisms failed, it would be beneficial in clarifying the current status of digitisation projects and academic librarians' perceived importance of digitisation.

## **METHODOLOGY**

This descriptive study highlighted digitisation status and practices in Kuwaiti academic libraries. As in the case of other empirical works on this topic in Library and Information Science (LIS) research (Adane, Chekole, and Gedamu 2019; Lampert and Vaughan 2009; Lopatin 2010; Nneji 2018; Rafiq, Ameen and Jabeen 2018), it employed a survey method and used questionnaire to collect data. The questionnaire was helpful as the target sample was scattered across different geographical locations.

Print and electronic versions of the questionnaire were prepared in Arabic and English (see Appendix A). The respondents were notified that they could skip questions and that their participation was informed consent. Open- and closed-ended questions were included to collect qualitative and quantitative data. The questionnaire contained nine questions, which focused on the following aspects: (a) types of materials currently being digitised; (b) satisfaction level with digitisation projects; (c) challenges faced; (d) suggestions to improve digitisation; and (e) demographic data. Different types of questions were used to collect different types of data. One item was divided into five sub-questions to collect demographic data (Table 1). Two closed-ended questions (Tables 2 and 3) requested that the respondents specify the materials that were currently being digitised and those that needed to be done in future. Two questions were designed based on a Likert scale (Table 4). The first item asked respondents to indicate their satisfaction level regarding digitisation projects in their libraries. The second item concerned the perceived importance of starting digitisation projects. One item (Table 5) instructed them to select multiple challenges; another (Table 6) asked them to select multiple suggestions to enhance digitisation. A multiple-choice grid question (Table 7) was used to indicate the librarians' agreement on when their libraries would be ready to start digitisation projects. Qualitative data were collected using two open-ended questions. One was about the importance of starting digitisation projects at the respondents' libraries and the other asked them for further suggestions.

Printed copies of the questionnaire were distributed in person to the selected academic libraries. The URL was included in the cover letter of the printed version for those who preferred to complete the electronic version. Google Forms was used to design the electronic version and collect responses. Data were collected from July to October of 2019 and were quantitatively analysed using Statistical Product and Service Solutions (SPSS), IBM, Armonk, NY, USA (version 25).

### **Population and Sample**

There are four universities and two other institutions of higher education in Kuwait. All six organisations were included in this study. Some of these institutions have more than one academic library. One academic institution did not participate because of administrative procedural requirements. The other five higher education institutions had 30 academic libraries, and all professional librarians were invited to participate. Purposive sampling was applied to include only professional librarians at these libraries. Paraprofessional and student workers were excluded. It was feasible to invite all the professional librarians at these 30 academic libraries, because the target population was relatively small. As this study explored academic librarians' perceptions of digitisation, having multiple participants from one library was acceptable. The questionnaires were distributed at the libraries through in-person visits, and the responses were collected after a few days. The assistance of relevant management offices in participating libraries was requested in identifying the professional staff to complete the questionnaire. A total of 125 questionnaires were distributed in person to the professional staff identified by management offices. A total of 81 responses were received, 79 through visits (respondent 1-79) and two through Google Forms (respondent 80 and 81). Thus, a response rate of approximately 65 percent was achieved. Table 1 represents the demographics of the 81 respondents.

Table 1: Demographic Data of the Participants (n=81)

Measurement		Count	Percentage
Gender	Women	54	66.67%
	Men	27	33.33%
Age	21-25	2	2.47%
	26-30	11	13.58%
	31-35	12	14.81%
	36-40	11	13.58%
	41-45	19	23.46%
	46-50	15	18.52%
	Over 50	7	8.64%
Years of Professional Experience	Five or less	21	25.93%
	6-10	12	14.81%
	11-15	18	22.22%
	16-20	7	8.64%
	Over 20	17	20.99%
Most Recent Academic Degree	Bachelors	55	67.90%
	Masters	17	20.99%
	Doctoral	1	1.23%
	Other	4	4.94%
Governorate	Ahmadi	2	2.47%
	Capital	31	38.27%
	Farwaniya	9	11.11%
	Hawalli	29	35.80%
	Jahra	2	2.47%
	Mubarak Al Kabeer	1	1.23%

Demographic data consisted of five measurements: gender, age, years of professional experience, most recent academic degree, and governorate. Fifty-four (66.67%) women and 27 (33.33%) men participated in the study. Nineteen (23.46%) were of the age 41-45 and two (2.47%) aged 21-25. Twenty-one (25.93%) respondents had worked for five years or less in their academic libraries, and seven (8.64%) had worked for 16-20 years. Fifty-five (67.90%) respondents held a bachelor's degree, and only one (1.23%) had a doctoral degree. Thirty-one (38.27%) academic libraries were located in the capital governorate, and only one (1.23%) was located in the Mubarak Al Kabeer governorate.

## RESULTS

The participants were asked to indicate the materials that were being digitised in their libraries and those that would need to be digitised in the future. Table 2 shows that different types of materials were being digitised at the time of the study. The top five materials selected for digitisation were magazines, books, periodicals, dissertations and theses, and photographs, and university publications. Three-dimensional objects, maps, oversized materials, and films were least selected for digitisation.

Table 2: Materials Currently Being Digitised (n=81)

Materials	Count	Percentage
Magazines	32	39.51%
Books	31	38.27%
Periodicals	30	37.04%
Dissertations and Theses	28	34.57%
Photographs	28	34.57%
University Publications	28	34.57%
Videos	24	29.63%
Posters	23	28.40%
Microforms	22	27.16%
Newspapers	22	27.16%
Audio Materials	17	20.99%
Government Publications	17	20.99%
Manuscripts	17	20.99%
Films	16	19.75%
Oversized Materials	12	14.81%
Maps	11	13.58%
Three-Dimensional Objects	11	13.58%
Others	11	13.58%

The participants were also asked to identify materials that needed digitisation in the future. Table 3 presents the selection counts for each material and the percentages of participants who made these selections. As shown in Table 3, the top five materials identified by the respondents were books, dissertations and theses, audio materials, government publications, and university publications. Other types of materials were less frequently selected for digitisation. For example, photographs, newspapers, magazines, posters, and microforms were not considered a priority.

Table 3: Materials that Need Digitisation in the Future (n=81)

Materials	Count	Percentage
Books	43	53.09%
Dissertations and Theses	42	51.85%
Audio Materials	38	46.91%
Government Publications	31	38.27%
University Publications	31	38.27%
Oversized Materials	30	37.04%
Manuscripts	29	35.80%
Maps	29	35.80%
Periodicals	29	35.80%
Films	28	34.57%
Three-Dimensional Objects	27	33.33%
Videos	27	33.33%
Microforms	21	25.93%
Posters	21	25.93%
Magazines	20	24.69%
Newspapers	20	24.69%
Photographs	19	23.46%
Other	11	13.58%

That digitisation projects may have already been underway at the participants’ academic libraries is important to note when considering their satisfaction levels regarding these projects. A closed-ended question was designed based on a 5-point Likert scale to measure their satisfaction levels, with 1 indicating a lower level of satisfaction, and 5 indicating a higher level. A total of 76 participants (93.83%) reported their satisfaction levels, as shown in Table 4.

While some participants’ academic libraries might not have had the opportunity to start digitisation projects, it is still necessary to investigate the importance of doing so in those libraries. Therefore, a closed-ended question was designed based on a 5-point Likert scale, with 1 being the “least important” and 5 being the “most important.” A total of 76 (93.83%) participants responded to this item, as shown in Table 4.

Table 4: Levels of Satisfaction and Perceived Importance of Digitisation Projects (n=76)

	Minimum	Maximum	Mean	Standard Deviation	Variance	Count
Satisfaction	1	5	3.20	1.317	1.734	76
Importance	1	5	4.28	0.888	0.789	76

The mean satisfaction level score (M=3.20, SD=1.317) shown in Table 4 does not indicate a high level of satisfaction when compared with participants’ ratings of the importance level (M=4.28, SD=0.888) of starting digitisation projects. However, the standard deviation (1.317) indicates that participants’ satisfaction levels concerning digitisation projects in their libraries may vary. The mean importance level score is relatively high, possibly signifying that participants are aware of the importance of starting digitisation projects in

their libraries. The standard deviation (0.888) seems to imply a high level of agreement among participants regarding the importance of such projects.

A total of 59 participants (72.84%) responded to the question asking them to clarify why it is important to start digitisation projects in their libraries. The different reasons and themes discussed in the responses collected were: (a) cost of printing materials; (b) enhancement of library services; (c) access to information; (d) keeping up with technological advances worldwide; (e) preservation of materials; (f) saving library space; (g) saving time and effort; (h) supporting research; and (i) addressing user needs. For instance, respondent 3 said: “[It becomes] easier to find the information. Save[s] space and time” when referring to the usefulness of digitisation in terms of information access, space, and time spent. Regarding user needs, respondent 35 clarified that “as user needs grow in [the] future, we may then have to explore othe[r] digitisation initiative[s]” to indicate that future projects and developments are shaped by users’ needs and demands. Regarding enhancing library services and preserving materials, respondent 78 emphasised that digitisation served “to upgrade the quality of service and ensure protection of materials for proper preservation.”

Implementing digitisation projects in academic libraries may be accompanied by various challenges such as copyright, digital preservation, finance, and staff. Table 5 lists the various challenges faced in digitisation of library materials.

Table 5: Challenges Faced in Digitising Materials (n=81)

Challenges	Count	Percentage
Copyright of protected materials	44	54.32%
Staff training on digitisation tasks	39	48.15%
Funding digitisation projects	36	44.44%
Hiring more staff dedicated to digitisation	36	44.44%
Providing needed hardware/equipment	34	41.98%
Planning digitisation projects	31	38.27%
Staff current skills in dealing with computers	30	37.04%
Needed computer software/programs	29	35.80%
Staff time dedicated to digitisation tasks	29	35.80%
Preparing materials prior digitizing them	27	33.33%
Quality control of created digital files	27	33.33%
Digital preservation of digital files	23	28.40%
Project management	22	27.16%
Workspace dedicated to digitisation projects	20	24.69%
Optical Character Recognition (OCR)	17	20.99%
Metadata ingested into the digital files	16	19.75%
Selecting materials for digitisation	14	17.28%
Transcription of audiovisual materials	14	17.28%
File naming of created digital files	11	13.58%
Others	4	4.94%



The top five topical issues selected by the participants are: copyright, staff training, funding, hiring more staff, and hardware/equipment. On the contrary, the five least selected challenges are: file naming of created digital files, transcription of audiovisual materials, selecting materials for digitisation, metadata ingestion and using Optical Character Recognition (OCR) to create digital copies of materials.

Only three respondents provided textual input for the option “Others” in Table 5. Different aspects were observed among their responses. Respondent 28 stated “The necessary budget,” referring to the importance of financial funding. However, respondent 1 clarified their status: “There is no digitisation at the library,” and respondent 40 stated: “[Have] not yet started [...] digitising materials.”

The questionnaire provided an opportunity for the academic librarians to propose suggestions that may help overcome the challenges encountered and lead to further improvements. The respondents were asked to select suggestions that they found relevant to improve digitisation in their academic libraries. Table 6 presents a descriptive analysis of the different types of suggestions for improving digitisation. The top five are: staff training, provision of more funding, awareness of copyright issues, hiring more staff, and improving library hardware/equipment. “Others” option has seven responses, among others “Good preparation for the program and good training for employees” was suggested by respondent 6. Respondent 53 suggested holding a quarterly panel discussion to improve decision-making.

Table 6: Suggestions to Improve Digitisation (n=81)

<b>Solutions</b>	<b>Count</b>	<b>Percentage</b>
Staff training on digitisation tasks	52	64.20%
Providing more funding for digitisation projects	51	62.96%
Increasing staff awareness of copyright issues	50	61.73%
Hiring more staff for digitisation projects	49	60.49%
Improving current library hardware/equipment	48	59.26%
Better planning for digitisation projects	44	54.32%
Improving current library computer software/programs	40	49.38%
Enhancing material preparation prior digitizing them	37	45.68%
Enhancing material selection for digitisation	32	39.51%
Others	7	8.64%

Among those academic libraries that have not embarked on digitisation, the respondents were asked to express their opinions regarding when their libraries would be ready to start digitisation projects. It is worth mentioning that this study covers academic libraries with and without digitisation initiatives. However, this question targeted libraries that have not implemented digitisation projects, and the librarians were asked about the expected time to launch such projects. As Table 7 indicates, the preferred period appears to be “after more than five years” as more than five years to start digitisation projects received the highest mean score (M=3.50), while being ready to start such projects after one year received the lowest mean score (M=3.15). The findings reflected that at least 34 respondents indicated that their libraries have not implemented digitisation projects, and the most being 48 respondents.

Table 7: Readiness to Start Digitisation Projects

Period	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	Mean
After 1 year	8	9	12	6	13	48	3.15
After 3 years	2	4	12	14	4	36	3.39
After 5 years	4	1	14	10	5	34	3.32
After more than 5 years	4	2	12	5	11	34	3.50

A t-test was conducted to explore significant differences between males and females in regards to: (a) satisfaction towards digitisation projects; (b) importance to start such projects; and (c) readiness to start such projects. Females obtained higher mean scores in comparison to males in the three questions. Females reflected higher satisfaction (M=3.26) and importance (M=4.29) levels than males (M=3.08 and M=4.26 respectively). Similarly, females achieved higher mean scores in comparison to males in regard of readiness to start digitisation projects after one year (M=3.24 vs M=3.00), after three years (M=3.57 vs M=3.13), after five years (M=3.47 vs M=3.13) and and after more than five years (M=3.68 vs M=3.27).

## DISCUSSION

This study has shown that current digitisation projects in Kuwaiti academic libraries focus more on digitising magazines, books, periodicals, dissertations and theses, photographs, and university publications. This finding is similar to that of De la Porte and Higgs (2019) who found that manuscripts and photographs were among mostly selected materials for digitisation by memory institutions in the Western Cape in South Africa. Dissertations and theses were among the top five digitised materials in this study. It is consistent with Nneji (2018), who reported that thesis, dissertation, and project reports represented the main items that were digitised by the Donald E. U. Ekong Library in the University of Port Harcourt in Nigeria. Analysing results concerning materials that were being digitised at the time of the study and those that needed to be done in the future revealed an interesting observation. Books, dissertations and theses, and university publications occurred in both scenarios (i.e., currently being digitised and requiring digitisation), which may reflect a clear need for additional digitisation efforts and planning.

The researchers have differentiated between materials that were being digitised at the time of the study and those that needed to be digitised in the future. The top five materials thus being digitised in the libraries were all static media. In contrast, audio materials were among the top five materials that needed to be digitised in the future. This result might indicate that the dynamic media (audio and video materials) receive less attention in the selection and are not prioritised for digitisation in the academic libraries.

Overall, the respondents rated a high importance level of starting digitisation projects in their libraries, but they were moderately satisfied with the digitisation projects. Female librarians were found to have higher levels of satisfaction and perceived importance for starting such projects. Thus, this study found a moderate satisfaction level with digitisation projects and a high importance level for starting such projects. This result might imply that the participants had a high level of awareness about the importance of enhancing or initiating digitisation projects in their libraries. As respondent 4 stated: “We’ve entered the digital age and everything is electronic these days; and it would make it easier for the users

to have access to the materials they need.” It indicated the importance of keeping up with technological advances worldwide to support information access.

According to the respondents, the biggest challenges to digitisation were copyright, staff training, funding, hiring more staff, and providing needed hardware/software. These digitisation challenges were similar to those reported in previous studies (Adane, Chekole, and Gedamu 2019; De la Porte and Higgs 2019; Eromosele and Adesina 2020; Nneji 2018; Oni, Abu, and Ekeniyere 2018; Rafiq, Ameen, and Jabeen 2018; Tbaishat 2018). In particular, these findings corroborate those of Adane, Chekole and Gedamu (2019), De la Porte and Higgs (2019), and Eromosele and Adesina (2020), as these authors mentioned challenges related to copyright, funding, planning, policy, professional staff, management, and technological infrastructure.

This study found that the longest period (“after more than five years”) required to start digitisation projects received the highest mean score. It could be related to the reported challenges and satisfaction levels of digitisation projects. Selecting the longest time period before readiness for starting these projects may be due to the reported challenges in digitisation. These challenges covered many essential aspects (e.g., financial support and manpower) in the establishment of digitisation projects, which might necessitate more time in starting such projects.

The participants offered suggestions to speed up digitisation projects in their libraries. Increasing funding, enhancing staff skills, and improving software and hardware were among the recommendations for digitisation in Kuwaiti academic libraries. They are similar to the solutions discussed by Nneji (2018). It is worth mentioning that the suggestions to improve digitisation found in this study confirm the challenges faced by the respondents in digitising the library materials. A remarkable level of consistency was observed between the challenges encountered and the suggestions provided. This consistency might reflect a high level of awareness among librarians regarding the challenges encountered and their potential solutions.

A limitation of this study is that data collection was completed in the fourth quarter of 2019, but there is a high level of confidence that the results are still useful and relevant. The results of this study reveal the needs and challenges that academic libraries face in establishing and running digitisation projects, which may assist and guide other libraries locally and globally.

## **CONCLUSIONS**

This study explored digitisation in Kuwaiti academic libraries. It was found that different types of materials were being digitised, while other types of materials represent future goals for digitisation. Librarians reported moderate satisfaction with library digitisation, however, the importance of starting such projects was shown to be high. This study also examined different types of challenges affecting digitisation projects in Kuwaiti academic libraries. Despite the challenges, many suggestions have been made to improve such projects.

Several recommendations can be made based on the results obtained. Kuwaiti academic libraries need to pay more attention to the importance and benefits of digitisation for their collections and users. Academic libraries must make more effort into planning digitisation projects. The planning phase should consider current resources along with existing and

expected challenges. Additionally, it is recommended that librarians' awareness of the concept and applications of digitisation and their associated skills be strengthened.

This study contributes to the research in the field of LIS and provides better understanding of the challenges in digitising library materials. Academic librarians in Kuwait may benefit from these findings by establishing new digitisation projects in their libraries or improving current ones. This study can also help future researchers pay closer attention to digitisation practices within this context.

Additional studies must be conducted on digitisation within this context. Future research should focus on examining digitisation plans and guidelines adopted by existing projects, in addition to conducting a more detailed examination of digitisation requirements for starting new projects and enhancing current ones. Extensive investigation is crucial to arrive at a deep understanding of digitisation and employ efficient methods for improvement. Broadening knowledge about digitisation in Kuwaiti academic libraries may help enhance current projects and support libraries in their efforts to digitise their collections.

## **ACKNOWLEDGMENT**

No grant from any public, commercial, or non-profit funding agency was offered for the conduct of this research.

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### Questionnaire

This questionnaire is designed to collect data for a research study to examine academic librarians' awareness and perceptions regarding digitisation in academic libraries in Kuwait. Digitisation in this study refers to converting print materials such as books or photographs to a digital format that can be handled by computers. The study will cover the types of materials being or need to be digitised, challenges in digitisation in academic libraries, and ways to improve digitisation.

Your participation in the study will be greatly appreciated. Information requested is about your views and perceptions not necessarily representing the institutional policies. Collected data will be used for research purposes only and will be reported in aggregated form without identifying answers, individuals, or institutions.

If you prefer to complete the electronic version of this questionnaire, please visit <https://forms.gle/CTBzxrzbTgXEY7Xn8>

### Questionnaire

1. What types of materials are being digitized/need to be digitized at your academic library? Please, use ✓ to indicate your answer in the following table:

Materials	Currently being digitized	Need to be digitized in future
Audio		
Books		
Dissertations and Theses		
Films		
Government Publications		
Magazines		
Manuscripts		
Maps		
Microforms		
Newspapers		
Oversized Materials		
Periodicals		
Photographs		
Posters		
Three-Dimensional Objects		
Video		
University Publications		
Other		

2. Please indicate your satisfaction regarding the digitisation project(s) at your academic library (*1 indicates lower level of satisfaction and 5 indicates higher level of satisfaction*):

1	2	3	4	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. What challenges are being faced by your library in digitising materials? (*Please, select all that apply*)

Copyright	Project management
Digital preservation	Quality control
File naming	Selecting materials
Funding	Software
Hardware/equipment	Staff computer skills
Hiring more staff	Staff Time
Metadata	Training staff
Optical Character Recognition (OCR)	Transcription
Planning digitisation projects	Work space
Preparing materials	Other. Please, specify .....

4. What would you suggest to improve digitisation projects at your library? (*Please, select all that apply*)

Better planning for digitisation projects
Copyright awareness and training
Enhancing materials' preparation
Enhancing materials' selection
Hiring more staff

**Status and Practices of Digitisation in Kuwaiti Academic Libraries**

Improving library hardware/equipment
Improving library software
Providing more funding
Training staff
Other. Please, specify.....

5. In your opinion, how important is it to start digitisation projects at your library? Please indicate the importance at a scale of one to five (*1 indicates least important and 5 most important*):

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Why do you think it is important to start digitisation projects at your library?

.....  
 .....

7. When do you think your library will be ready to start digitisation projects? Please, use ✓ to indicate your answer in the following table:

<b>Time Period</b>	<b>Strongly Disagree 1</b>	<b>Disagree 2</b>	<b>Neutral 3</b>	<b>Agree 4</b>	<b>Strongly Agree 5</b>
After 1 year					
After 3 years					
After 5 years					
After more than 5 years					

8. Do you have any suggestions that were not mentioned earlier to help your library start digitisation projects?

.....  
 .....

9. A. What is your gender?

- Female
- Male

B. How old are you?

- 21-25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- Above 50

C. How long have you been working at the library?

- 5 years or less
- 6-10
- 11-15
- 16-20
- Above 20

D. What is your most recent academic degree?

- Bachelor
- Master
- Doctoral
- Other. Please, specify .....

E. In which governorate is your library located?

- Ahmadi
- Capital
- Farwaniya
- Hawalli
- Jahra
- Mubarak Al-Kabeer

**Thank you.**