Contents available at the publisher website: GAFTIM.COM

International Journal of Theory of Organization and Practice (IJTOP)

Journal homepage: https://journals.gaftim.com/index.php/ijtop/index

The Estimated Age Limit of Storing Data and its Impact on Data Sustainability

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A R T I C L E I N F O

Keywords:
Data sustainability, Data life cycle, Age of Data, Age Limit of Data, TAM model, UAE, Accessibility, Technology

Received: Dec, 25, 2023
Accepted: Jan, 13, 2024
Published: Feb, 12, 2024

A B S T R A C T

In the context of information technology and data management, the term "age limit of data" is not commonly used. You might, however, be referring to the idea of data lifecycle management or data retention. Policies and procedures for maintaining and handling data for a predetermined amount of time are referred to as data retention. Companies frequently create data retention policies to make sure they are in compliance with legal and regulatory obligations and to effectively manage their storage resources. particular types of data must be preserved for a particular amount of time according to regulatory or legal obligations in some situations. For instance, legislation or industry rules may specify the length of time that financial records or healthcare data must be kept on file. The management of data from the time it is created or acquired until it is used, shared, stored, and finally deleted or archived is known as data lifecycle management. The complex realm of data sustainability is explored in this study, along with the implications of calculating the age of data storage and the complex linkages between technology accessibility and adaptation. Data were collected using a multistage sampling technique that incorporated non-probability and probability methods, together with a research design that is cross sectional. The study reveals unexpected results, which verifies and enhance the Technology Acceptance Model (TAM). TAM framework has been used because there is not much proof that data accessibility and sustainability are related. Unexpectedly, there was a negative correlation found between the predicted age limit of data storage and technology adaption, highlighting the need for a careful integration strategy. The study also highlights the significance of predicted data storage age limits for data sustainability, bolstering the argument for a comprehensive TAM framework that accounts for legislative dynamics. The results emphasize various adoption characteristics beyond accessibility and have practical consequences for quality policymakers, stakeholders, and institutions. This research contributes to data sustainability in addition to creating theoretical frameworks for integrating technology in organizational contexts. The methodical approach design concerns the accuracy of the study and assures the authenticity of the conclusions drawn from the research results.

1. INTRODUCTION

The UAE's corporate and government sectors have a lot of potential when it comes to embracing technology that is used in all fields data management. According to [1]and [2], technology has the ability to support outcomes of learning, interest in new applications, and foster professionals and expert collaboration and communication [3]–[5]. As an additional, technology can provide access to a wide range of corporate resources and tools as well as

individualized learning. Private and public businesses in the U.A.E. are about to apply technology interactive such as block chain data sustainability with consideration of these concerns and opportunities with regards to digital transformation. In both the public and private sectors of the UAE, data sustainability has an interest as a potential tool for upgrading business procedures. A virtual environment called "data sustainability" allows people to interact with digital objects and with each other. Refining expert contribution and performance results is one of the key benefits of smart application orientation in both private and public sectors businesses. Businesses can engage in role-playing games and simulations, take part in dynamic, networked situations, and more within the data sustainably. Businesses can engage in role-playing games and simulations, link with partners from different industries and fields, and immersed, completely, themselves in interconnected, dynamic ecosystems within the sustainability of data [6]–[8]. Employees are well supported by equipment to full-fill the gaps of the workforce in the digital age as an effect of this every encompassing knowledge, which also nurtures closer access and critical analytical aptitudes. However, there are dilemmas with assuring data sustainability for both private and public sectors businesses, particularly with regard to adaption and accessibility [9]–[11].

Not all staff have access to new software and technology that is required to use the resourceful applications. Many professionals possess the abilities and knowledge needed to plan and administrate digital operations in this scenario. As an addition, the rapid changes in data sustainability may force organizations with limited resources to constantly upgrade and change their infrastructure [12].

In addition to the previously described challenges and the possibility of technology adoption in UAE governmental and private organizations, the anticipated age limit for data preservation studies becomes a major moderating factor in the creation of regulations and policies. Policies and guidelines that explicitly define the maximum age at which data should be stored can help address accessibility and adaptability concerns, given the rapid advancement of technology and the potential effects of data sustainability on the public and private sectors. By ensuring equal access to essential technologies and apps, policies regarding the anticipated age limit for data retention have the ability to close the digital divide between professionals, firms, and entrepreneurs [1]–[4]. Policies can also help businesses improve the knowledge and abilities of their staff members in planning and managing data sustainability-related experiential learning programs [5]–[8]. Therefore, the following are the study's objectives:

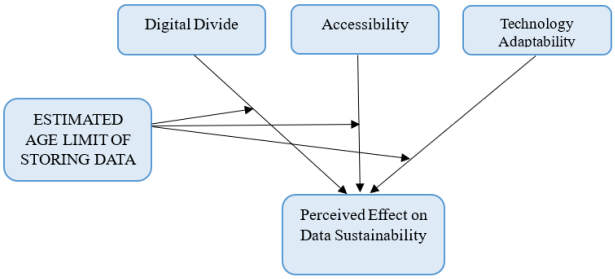
i. To investigate how public and private enterprises see the effects of the digital divide on data sustainability performance.

ii. To examine the extent to which public and private institutions' usage of data sustainability technologies is impacted by its accessibility [13].

iii. To learn how employees in government and private sectors see the relationship between technology adaptability and data sustainability performance efficiency [9]–[11], [14].

iv. To look into how rules and regulations regarding the interplay of technological accessibility, adaptability, and the digital divide impact the adoption of efficient data sustainability technologies in public and private institutions in the United Arab Emirates, as well as the moderating effect of the anticipated maximum age for data storage.

The following study framework is based on these goals [15].



2. LITERATURE REVIEW

2.1 The Role of Technology in Data sustainability Performance

Innovation in technology, especially in the corporate world, has sparked the revolution. It has changed commodities and services, according to [14]–[17], and others. From visiting customers to digital and online enterprises, e-business has provided private and public organizations new concepts to follow and adopt with new information in the current market. According to [18]–[20], technology knowledge has supported entrepreneurs to follow up and allowed business

men to enhance their learning at their own pace. Similarly, advancements in technology gave business owners the opportunity to try new chances in their career goals. This is possible to be implemented in many ways, including virtual worlds, podcasts, videos, and music [21]–[23].

Additionally, incorporating technology into the corporate structure creates opportunities for collaborative learning, easier business communication [16]–[18]. Similar to this, companies can use digital technologies like shared points and blockchain to work together on projects and databases regardless of where they are located.

Smart simulations are another way that technology is used into the business system to provide more immersive and interesting work environments in a global context. By interacting with customers using virtual reality platforms, suppliers can offer clever suggestions for supply chains and concepts in a fresh approach. This operational method has been seen to improve professionals' understanding and retention of applications, as well as their curiosity in the newest state-of-the-art facilities.

Smart simulations are another way that technology is used into the business system to provide more immersive and interesting work environments in a global context [24]. By interacting with customers using virtual reality platforms, suppliers can offer clever suggestions for supply chains and concepts in a fresh approach. This operational method has been seen to improve professionals' understanding and retention of applications, as well as their curiosity in the newest state-of-the-art facilities.

2.2. Overview of the Data sustainability Concept and its Adoption in Public and Private Companies

One of the most recent advancements in this subject is the use of technology for data sustainability. It is a shared virtual space that combines virtual and physical reality. Users can access this fully immersive and interactive world via a range of devices, such as PCs, smartphones, and virtual reality headsets. Because of the potential advantages, public and commercial companies have been paying more attention to the concept of data sustainability in recent years. According to [25], [26], these advantages include raising business motivation and engagement as well as offering immersive learning experiences that mimic real-world settings. According to the findings of [27], technology and data sustainability enable professionals and workers to watch each other cooperatively and share knowledge. The University of Texas at San Antonio (UTSA) offers a virtual work environment called Second Life, where employees can explore and interact with virtual representations of real-world surroundings [28]. This environment is a typical example of data sustainability performance. The project increased worker involvement and enhanced learning outcomes. Similarly, there are obstacles to overcome while implementing data sustainability in the public and private sectors, such as those pertaining to cost, accessibility, and adaptability [19]–[21].

2.3. Barriers and Challenges of Data sustainability in Public and Private Companies

Despite the potential benefits of intelligent application performance, a number of obstacles and problems are addressed. Pricing and accessibility issues are significant issues that affect both businesses and employees [22], [23], [25]. Data sustainability-based systems may require access to the required infrastructure and technology for a large number of experts. Similarly, businesses can require additional resources to offer the fundamental framework and assistance needed for intelligent application performance [29].

Additional problems that have been identified as impeding the adoption of data sustainability and their performance include a lack of user knowledge and limited institutional support [26], [27]. It's probable that a large number of professionals are either ignorant of the concept of data sustainability or do not possess the skills and knowledge necessary to successfully incorporate it into their work procedures. Accordingly, [30]–[33] argued that in order to support complex and costly data sustainability-based systems, companies must have the necessary technical infrastructure.

Previous study has demonstrated that technical obstacles and infrastructure needs severely impede data sustainability and their deployment among public and commercial institutions. This is consistent with research findings by [34]–[36], which emphasize how crucial technology is for supplying a stable and fast internet connection to enable continuous interaction between users and

their surroundings. Similar to this, the availability of robust hardware is necessary for the successful implementation of data sustainability in both public and private enterprises. For public and private institutions that could require more funding to purchase high-end gear, this could present a problem.

In order to ensure data sustainability in public and private enterprises, several infrastructure requirements need to be met. One of the primary requirements for infrastructure in a virtual environment is to support many users. Data sustainability is anticipated to benefit millions of users, thus public and commercial enterprises must ensure that their virtual environments can meet this need.

Infrastructure also requires robust security mechanisms. Since smart apps are a shared virtual space, public and private enterprises need to ensure that their virtual environment is secure against cyberattacks. Using firewalls, encryption, and other security measures is necessary to protect user data. Moreover, it is critical that public and private institutions recognize the potential for cyberbullying and harassment in the context of data sustainability and take appropriate preventative action.

Finally, care must be taken to ensure privacy and address ethical concerns related to the use of sustainable data in the public and private sectors. For instance, databases' privacy and security vulnerabilities may be impacted by the use of data sustainability-based systems platforms that hold sensitive data.

2.4. Relationship between Data Accessibility and Effective Performance of Data sustainability

In the past few years, there has been a notable surge in scholarly interest in evaluating the relationship between data accessibility and sustainability and successful performance in various businesses. When individuals engaged with the virtual world on social media, data sustainability initially became a social media avalanche. But as time went on, the discussions shifted to social media and sectors like construction, health care, and governmental and commercial organizations.

This has led to a number of discussions regarding the relationship between accessibility and usability in smart applications. Studies by [37]–[39]have discovered a strong association between smart apps' usability and their effectiveness. Their findings show that controlled access boosts the effectiveness of smart application technologies. In a similar vein, research has shown that there is a substantial association between the accessibility of data and their practical application of sustainability.

However, [27], [40], [41]points out that not all people have access to sophisticated application technologies. Furthermore, the results of the [1], [42], [43] study confirm the crucial part data sustainability accessibility plays in guaranteeing the successful adoption of these applications by public and private enterprises.

2.5. Relationship between Digital Divide and Effective Data sustainability

Following a detailed analysis of the digital divide's several dimensions, scholars have pinpointed important elements that support the divide's persistence. Socioeconomic status, geography, age cohorts, level of education, and cultural diversity are the primary determinants of digital accessibility and proficiency. One of the biggest challenges facing impoverished areas is the absence of a robust digital infrastructure, which is typified by consistent internet access. Furthermore, the digital gap unabatedly perpetuates the social injustices that already exist, making it more difficult for marginalized people to access public services, gainful employment, and materials from businesses.

Concurrent with this conversation, the growing concept of data sustainability poses significant queries regarding the ways in which the digital divide is being widening. The successful integration of data sustainability requires a particular level of digital fluency as well as free access to the required technology instruments. If the digital divide isn't addressed in the context of data sustainability, it could result in situations where some individuals and groups aren't able to take advantage of the many benefits of virtual social contact, diversity, and new potential for entrepreneurship. Therefore, attaining the inclusive and equitable adoption of data sustainability requires addressing the digital divide as a primary priority.

However, it's critical to acknowledge that data sustainability could provide solutions for some of the problems associated with the digital divide [2], [5], [44], [45]. Data sustainability has the potential to be a potent tool for skill development, information sharing, and remote work operations by utilizing its virtual environment. This could help to lessen the disparities in employment that are made worse by the digital divide in the workplace [6], [7], [46]. Additionally, historically disadvantaged voices may find a favorable atmosphere in the virtual settings produced by data sustainability, which might generate a dynamic platform for advocacy and group empowerment [8], [9], [47], [48].

2.6 Relationship between Technology Adaptability and Effective Data sustainability

Based on a comprehensive review of numerous research studies, there is broad agreement regarding the critical role that technical adaptability plays in affecting the successful implementation of data sustainability. Empirical study suggests that users must quickly adapt, integrate, and utilize new technical features because data sustainability is a dynamic and complex notion. Scholarly discourse highlights the ways in which enhanced technical adaptation enables people and things to navigate the complex virtual landscapes of Data sustainability, hence facilitating seamless exchanges, cooperative interactions, and creative explorations. To maximize this adaptability, researchers advise developing user-centric interfaces and specialized training programs aimed at accelerating the adoption of technology among potential consumers of data sustainability. Despite these developments, it is important to acknowledge the digital divide, innate resistance to new technological paradigms, and unexpected, sometimes disastrous consequences.

2.7 Relationship of estimated age limit of storing data policies and Regulations for Promoting Equitable and Effective Performance Use of Data sustainability in Public and Private Companies

To help the public and private sectors adopt, execute, and promote fair and efficient use of smart applications, a number of legislation and guidelines regarding the expected age limit for data retention have been developed during the past few decades. Based on data sustainability, the EDUCAUSE Learning Initiative (ELI) has created a technique for assessing the efficacy of work activities. Six categories make up the framework: technology, learning, teaching, content, and assessment. The Online Learning Consortium (OLC) has produced recommendations for creating and executing smart application-based learning experiences, similar to the guidelines for the use of immersive virtual environments in smart organizations.

Several academic studies highlight the crucial impact policies and guidelines on the anticipated lifespan of data storage have in fostering an atmosphere that is favorable to the broad implementation of data sustainability. Researchers claim that when rules are well-defined and structured, both businesses and consumers who use sustainable data feel more secure. Therefore, policies that foresee an age limit for data retention can increase user trust and involvement by effectively allaying worries about data privacy, intellectual property rights, and the functioning of the virtual economy.

The anticipated age limit of maintaining data limitations and data sustainability is likewise positively correlated in the economic domain. Scholarly research indicates that advantageous tax and regulatory environments may draw investments and foster the expansion of emerging data sustainability firms. However, laws that run counter to the goals of data sustainability could discourage investment and obstruct the natural expansion of the ecosystem. Moreover, research by [14], [49], [50]suggests that policies and legislation with different projected age restrictions for data storage could exacerbate society's digital divide.

Ethical and sociological considerations are more closely related to the laws and policies controlling data sustainability, particularly the anticipated age limit for data retention. Scholars argue on how important it is that considerations of virtual identities, digital citizenship, and online behavior be factored into laws dictating the approximate age limit for data storage. The foundation for an inclusive and equitable data sustainability environment is established by ESTIMATED AGE LIMIT OF STORING DATA rules, which create normative norms for responsible virtual interactions [16], [17], [51], [52].

2.8 RESEARCH UNDERPINNING THEORY

It is demonstrated that the theory of acceptance model (TAM) is a good theory to go along with this study. The widely used theoretical framework known as the Technology Adoption Model (TAM) explains the factors impacting a person's adoption and usage of technology. It suggests that perceived utility and usability play a significant role in influencing people's decision to adopt technology. Conversely, perceived utility indicates the extent to which a technology is believed to aid in the accomplishment of specific goals, and perceived ease of use indicates the extent to which a technology is seen to be user-friendly [19], [53]–[55].

Researchers can examine how professionals and administrators view the value and usability of data sustainability technology and how this influences their decision to adopt it by applying the TAM to data sustainability performance in the public and private sectors. The TAM can also be used to investigate how administrators' and professionals' perceptions of how simple it is to utilize data sustainability technology and, in turn, their desire to use it are influenced by the training and assistance they receive [21], [23], [54], [56].

To sum up, the Technology Acceptance Model (TAM) provides a sound theoretical foundation for researching data sustainability in public and commercial organizations, as well as a framework that helps understand how new technologies are accepted [25], [26], [57].

3. METHODOLOGY

In order to determine the important influence of various factors on data sustainability performance in public and commercial companies in the United Arab Emirates, this study adopted a cross-sectional research approach. Strict multistage sampling approaches combining probability and non-probability sampling methods were used to gather the data samples. First, a sizable sample source was selected from businesses with a track record of success in data sustainability technologies. Following that, a link to the poll was sent to companies in both the public and private sectors. Expert technologists and professionals employed by these enterprises were brought in to assist their contacts who had already used data sustainability technology in their particular companies in disseminating information about the study.

A pre-made questionnaire was used to conduct a thorough pretesting process with three specialists and two quality technologists prior to this phase. The objective of this pretesting was to guarantee objectivity in the item development, minimize the likelihood of errors in the phrasing and structuring of the questions, and adhere to recognized best practices.

Employees in the technical department received random URLs to the survey, while other employees received barcodes that directed them to the survey website. The G*power 3.1.4 tool was utilized by the researchers to conduct a power analysis test because this method was unable to assist them in estimating the required sample size. This power analysis recommended a sample size of 130 for the important F-test analysis, which included a multiple linear regression fixed model with an r-squared deviation from zero. 250 responses were received during the approximately one-month data collection phase. As a result, the reply link was eventually removed, and every piece of data was carefully reviewed.

3.1 Definitions and Measurements of Variables

This study carefully described the constructs under examination before evaluating the variables. This led to the clarity of the construct measurements. Moreover, as per XXX, the Likert scale was utilized to measure the constituents of the inquiry. One (1) indicates strongly disagree, while five (5) indicates highly agree.

3.2 *Digital Divide*

This study characterized the "digital divide" as the difference between groups or persons who have access to and effectively use digital technologies—like the internet and personal computers—and those who do not. In light of this, the questions used to test the construct of the digital divide were adapted from studies conducted by XXX. The notion of the "digital divide" is complex, involving variables like location, usage patterns, affordability, digital literacy, skills, internet speeds, and quality. It also includes variables like internet penetration and device ownership. This conclusion is based on data from previous studies. However, this study assesses the digital divide as a unidimensional construct by altering six (6) elements from research. According to this study,

the "digital divide" is the distinction between people or groups who have access to and successfully use digital technologies—such as personal computers and the internet—and those who do not. Given this, the questions employed to assess the digital divide construct were modified from research projects undertaken by Company. The term "digital divide" refers to a complicated concept that takes into account a number of factors, including geography, usage habits, affordability, skills, digital literacy, internet speeds, and quality. It also takes into account factors like device ownership and internet penetration. This result is supported by evidence from earlier research. Nevertheless, this study modifies six (6) components from research to evaluate the digital divide as a unidimensional construct. The six altered items consist of:

i. I frequently use the smart application internet.
ii. From my location, I can quickly establish an internet connection to the smart application.
iii. I use a smartphone to access the network.
iv. I have enough technology at my job to access smart applications that improve operations and data sharing.
v. I'm comfortable utilizing digital technology tools at my workplace.
vi. I am knowledgeable about the various smart platforms that my organization offers.

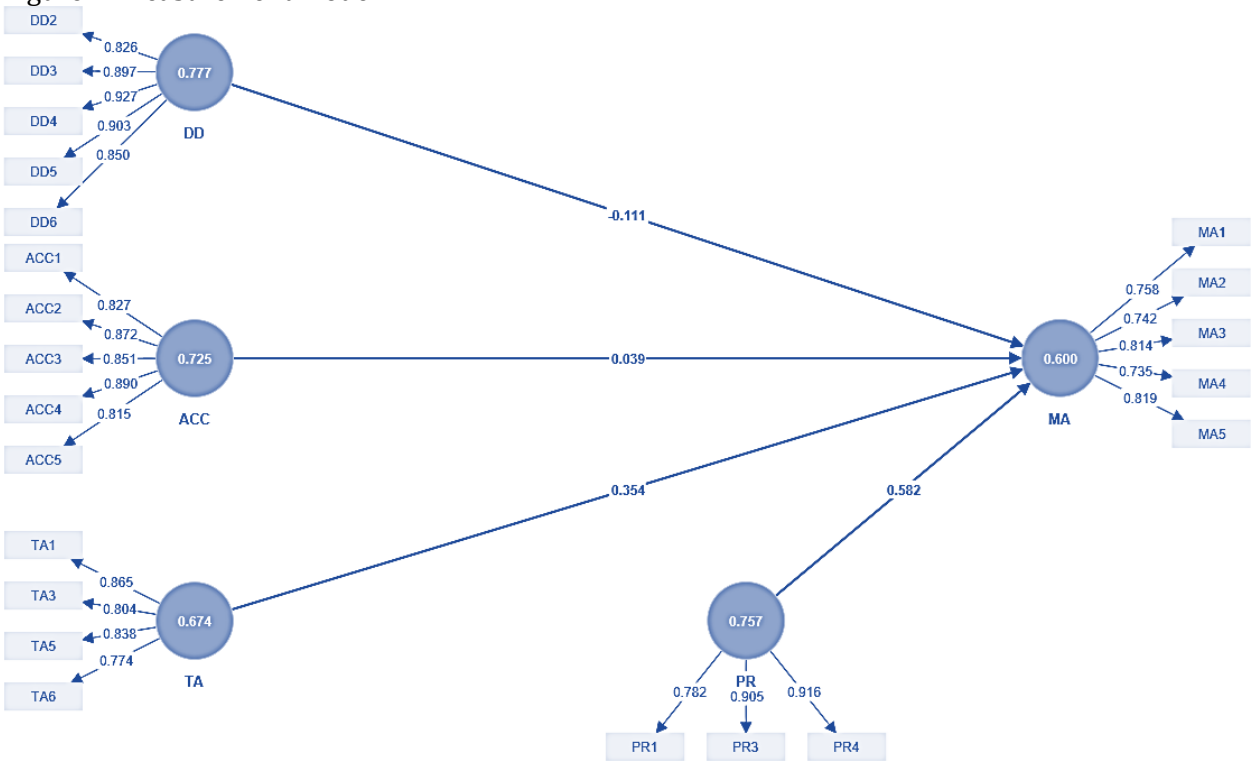
According to XXX, construct accessibility is the condition in which users have unrestricted access to digital devices that enhance seamless experiences and make it easier for users to obtain online content sourced from data sustainability. In line with the multifaceted notion of the "digital divide," "digital accessibility" is utilized as a unidimensional construct in this research.
i. There are numerous public Wi-Fi connection sites in my workplace.
ii. My company's data sustainability resources are easily accessible to professionals with any kind of business expertise.
iii. The infrastructure required to make it easier to access data sustainability resources is provided by my company.
iv. In my opinion, having access to E-Systems that offer a variety of cutting-edge educational resources (guidelines, instructions) makes it simpler to obtain intelligent resources.
v. The smart application guidelines that promote easy access are directly accessible to everyone in my community.
The process by which businesses—public and private—are able to effectively and efficiently interact with technological improvements is known as technological adaptation, according to this study XXX. As a result, the measurements of technological adaptation were developed using data from numerous studies, such as XXX. Six objects in all were created in this way. These are the following:
i. Your organization frequently uses smart technology tools, like virtual reality resources, blockchain applications, and online interactive meetings.
ii. Experts show a high level of technological proficiency while using digital tools and resources.
iii. Seamless technological interactions are successfully supported by the bandwidth, internet connectivity, digital infrastructure, and technology resources.
iv. The firm is open to investigating new technologies for possible adoption and actively participates in research and innovation pertaining to technology in business.
v. To stay up to date on technical breakthroughs and opportunities, the corporation works with technology agencies, organizations, or other intelligent institutions.
vi. Professionals and staff are given enough training and opportunity for professional development to advance their technological skills and expertise.
The active integration and usage of immersive and interactive virtual environments, also referred to as "data sustainability," within commercial firms is the subject of data sustainability performance in both public and private sectors. Virtual reality (VR), augmented reality (AR), and other cutting-edge technologies that promote in-the-moment interactions and experiences are all included in the data sustainability XXX.
i. To support interdisciplinary research projects, the organization uses collaborative research spaces built around data sustainability.
ii. Experts are urged and assisted to incorporate data sustainability technology into their commercial endeavors.
iii. The business gives professionals lots of chances to participate in simulations of practical learning

using data sustainability technologies.
iv. The company's use of sustainable data improves the breadth and caliber of its business content.
v. The organization encourages experimentation and creativity in the application of data sustainability technologies for commercial gain.
vi. The business provides aspiring professionals with online lessons and orientations via data sustainability platforms.
The set of guidelines, norms, and procedures that institutions and regulatory bodies impose to oversee immersive technologies such as augmented reality (AR), virtual reality (VR), and others utilized in virtual worlds is known as policies and regulations, or projected age limit of preserving data. To measure policies, items from studies by XXX were altered. Below is the list of items:
i. When utilizing data sustainability technology, the organization has explicit policies in place regarding data security and privacy.
ii. The business offers enough details regarding rules for the creation and distribution of appropriate content in virtual environments.
iii. By implementing the necessary rules, the business guarantees a secure and safe virtual access environment.
iv. In my opinion, the age limit at which data sustainability estimates data policies should be stored helps ensure that all users have a favorable and supportive academic experience.
v. I am aware of the approximate age at which data policies and procedures pertaining to attribution and intellectual property rights are to be stored within the context of data sustainability.

4. DATA ANALYSIS AND FINDINGS

By putting the suggested hypothesis to the test and using structural equation modeling (SEM), the research objectives were met. Because the SEM analysis tool maximizes the endogenous variable variance explained, it is justified in using causal predictive relations. Furthermore, the researcher used the reflective-reflective measurement model because they thought the measures that were chosen were constructed proxies, meaning that the disappearance of one item might not significantly affect the remaining items XXX. In light of this, the measurement model and structural model were evaluated to guarantee process resilience and well-informed choices for the model under investigation.

Figure 1: Measurement model



Convergent and discriminant validity are used in this study as metrics to ensure that the measuring

model fulfills its purpose. As a result, the convergent validity was assessed using the Average Variance Extracted (AVE). According to XXX, the AVE value ought to be higher than 0.5. As suggested by the author, items with lower or negative loadings ought to be removed from the model if any build AVE happens to not match this criteria by accident. In SEM, confirmatory factor analysis is handled by this procedure. In order to attain an AVE of greater than 0.5, items with low item loading, such as (DD1), (PR2 and 5), and (TA2 and 4), were eliminated from the model.

For the observed items, construct validity is frequently referred to as composite reliability (CR). The threshold for CR needs to be higher than 0.7 but lower than 0.95, since a CR value above 0.95 is thought to measure additional structures related to CR. Those with a score of less than 0.7, however, are thought to have failed the dependability test. The construct validity test in this study is created in accordance with the CR assumptions.

As a result, the model's items loadings, discriminant, and composite reliability are shown in the table below.

Table II: Item Loadings

Construct	Item	Item Loadings	CR	AVE	Convergent Validity Decision
ACC	ACC1	0.817	0.916	0.715	Yes
	ACC2	0.862			
	ACC3	0.841			
	ACC4	0.880			
	ACC5	0.805			
DD	DD2	0.816	0.825	0.767	Yes
	DD3	0.887			
	DD4	0.917			
	DD5	0.913			
	DD6	0.750			
MA	MA1	0.748	0.842	0.601	Yes
	MA2	0.732			
	MA3	0.804			
	MA4	0.725			
	MA5	0.809			
PR	PR1	0.762	0.832	0.756	Yes
	PR3	0.915			
	PR4	0.906			
TA	TA1	0.765	0.824	0.673	Yes
	TA3	0.854			
	TA5	0.738			
	TA6	0.764			

The HTMT correlation threshold should, at most, be less than 0.85 or 0.90. The researcher similarly looks at the HTMT correlations as suggested by these authors. The maximum HTMT correlation found in this investigation was less than 0.748. This makes it clear that discriminant validity is attained.

4. CASE EFFECTIVENESS

This evaluation is revolving around how the aforementioned super apps have been utilized.

HTMT Correlations

	ACC	DD	MA	PR
DD	0.738			
MA	0.463	0.677		
PR	0.131	0.337	0.664	
TA	0.324	0.054	0.314	0.528

TA~0.054~0.324~0.528 0.324

Note: PR stands for projected age limit of storing data policies and regulations; MA stands for performance of data sustainability; TA stands for accessibility; DD stands for digital divide.

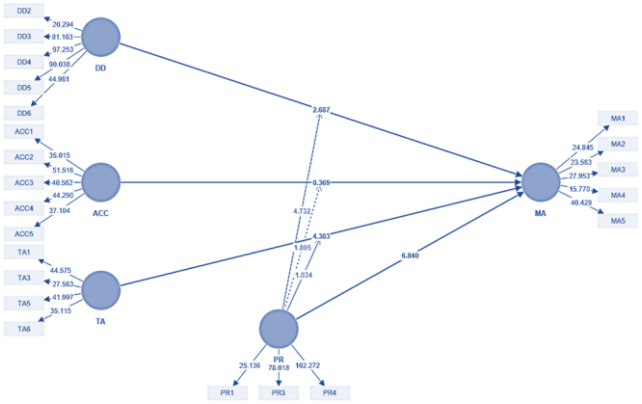
Additionally, the cross-loadings of the item were investigated. In this sense, the outcome is shown in Table (**). The purpose of examining the item's cross-loadings is to make sure that, in comparison to other constructs in the model, the items have high loadings under their respective constructions.

Table II

	ACC	DD	MA	PR	TA
ACC1	**0.817**	0.078	0.068	0.011	0.063
ACC2	**0.862**	0.482	0.539	0.592	0.534
ACC3	**0.841**	0.59	0.552	0.425	0.099
ACC4	**0.87**	0.526	0.079	0.592	0.453
ACC5	**0.805**	0.351	0.22	0.384	0.305
DD2	0.4	**0.816**	0.439	0.536	0.247
DD3	0.055	**0.887**	0.533	0.457	0.184
DD4	0.326	**0.917**	0.597	0.031	0.343
DD5	0.24	**0.901**	0.587	0.317	0.424
DD6	0.069	**0.840**	0.557	0.347	0.003
MA1	0.163	0.552	**0.746**	0.22	0.229

MA2	0.238	0.425	**0.731**	0.58	0.152
MA3	0.41	0.487	**0.803**	0.194	0.076
MA4	0.02	0.34	**0.724**	0.483	0.486
MA5	0.366	0.554	**0.819**	0.367	0.203
PR1	0.138	0.395	0.272	**0.771**	0.352
PR3	0.163	0.087	0.41	**0.914**	0.414
PR4	0.44	0.207	0.046	**0.905**	0.358
TA1	0.146	0.058	0.327	0.061	**0.854**
TA3	0.258	0.425	0.53	0.365	**0.813**
TA5	0.344	0.005	0.296	0.44	**0.827**
TA6	0.111	0.506	0.126	0.223	**0.763**

The PLS-SEM structural equation modeling was seen once all requirements were met. The developed hypotheses were statistically tested in this phase.



Observing the collinearity between the investigated construct was the first stage in the examination process. The VIF values are used by the study to meet this requirement. Data analysis can be done if the VIF value is less than five (5), which indicates that the data set is free of multicollinearity problems. This requirement is met in this study. The suggested five (5) VIF values between constructions and objects are not met. The VIF values between the construct and the items are presented in Tables II and Figure II. In light of this, it is determined that there are no collinearity or multicollinearity problems in the research data that could result in Type I and Type II mistakes. Therefore, we go on and present the noteworthy correlation among the examined constructs.

Construct	r-sq	r-sq Adjusted	f^2	Implication	Q^2predict	RMSE	MAE
MA	0.768	0.762			0.718	0.533	0.410
DD			0.022	Small			
ACC			0.001	Small			
TA			0.110	Medium			
PR			0.298*	high			
PR x TA			0.003	Small			
PR x DD			0.110	Medium			
PR x ACC			0.014	Small			

* Is high if approcimated to the nearest 2 decimal place (dp)

The model's R-squared value, which is 0.768 in Table xx, suggests that the exogenous construct under investigation in this work explains roughly 70.69% of the variance in data sustainability's effective performance. Significantly, with an effect value of 0.298 (rounded to.30 in two decimal places), the construct of expected age limit of storing data rules and regulations has the most significant influence on effective performance of data sustainability among Public and Private entities in the UAE. According to Cohen's impact size determination, technological adaptability and the moderating influence of predicted age limits for data storage rules and regulations show an average effect size on the efficient performance of data sustainability.

Moreover, the model's predictive relevance is confirmed by the predictive Q2 value exceeding zero. To determine the predictive significance of the model, recent proposals by XXX support the addition of two more parameters: mean absolute error (MAE) and root mean square error (RMSE). In this case, Table xx shows positive RMSE and MAE values, supporting the predictive usefulness of the model.

Hypotheses testing and Discussion reveal many outcomes.

	β	STDEV	T-stat	P values
ACC -> MA	-0.026	0.073	0.368	0.711
DD -> MA	-0.144	0.053	2.686**	**0.006**
PR -> MA	0.541	0.078	6.83***	**0**
TA -> MA	0.388	0.088	4.382***	**0**
PR x TA -> MA	-0.067	0.065	1.033	0.301
PR x ACC -> MA	0.130	0.072	1.804	0.071
PR x DD -> MA	-0.298	0.062	4.731***	**0**

*** implies significant at0.0001 **implies significant at 0.001

The study's findings, as presented in Table xx, indicate that there is no significant correlation between accessibility and effective performance of data sustainability (β = -0.026, t-value = 0.368, p > 0.05). This observation goes against the researchers' expectations and previous research findings. It was anticipated that these two factors would have a strong relationship.

The observed result does, however, have a reasonable explanation; it has to do with the high rate of technology accessibility among UAE

residents. As a result, the link may be viewed by study participants as impeding the efficient operation of data sustainability. Put differently, it seems that modifications to accessibility have little to no effect on the effective adoption of data sustainability. Furthermore, a complex interaction of elements other than accessibility is probably influencing the data sustainability process.

In a similar vein, the study's second hypothesis looks into the relationship between the digital divide (DD) and data sustainability's effective performance (MA), and the results indicate that respondents believed there was a significant relationship between the two constructs (β = -0.144, t-value = 2.686, p < 0.05). The results highlight the need for public and commercial enterprises in particular to integrate data sustainability technologies into their business operations. Nonetheless, the negative beta value of β = -0.144 indicates that the performance of data sustainability among employees of public and private enterprises in the UAE will be significantly harmed by a widening digital gap. This result validates the research of XXX, who found a negative correlation between the performance of data sustainability and the digital divide.

The third hypothesis looks into the important connection between technological adaptability (TA) and data sustainability (MA) performance. The SEM result demonstrates that, although having a negative beta value (β = -0.144, t-value = 4.382, p < 0.05), the association between technological adaption and successful performance of data sustainability across public and private organizations in the UAE is significant. The relationship's statistical significance was supported by the observed outcome. Therefore, the noteworthy correlation is consistent with the view held by previous studies, including but not limited to XXX, which held that the attainment of competitive advantage necessitates adaptation to fast evolving technology.

On the other hand, a lower efficacy of data sustainability performance is linked to higher levels of technological adaptability, as indicated by the negative coefficient (β = -0.144) for the association between TA and MA. This suggests that people should exercise caution when adjusting to new technologies too quickly (Hennessy et al., 2005; Jain & Ranjan, 2020). In the context of data sustainability across public and private organizations, this study calls into question the notion that rapid technical adaption could inevitably result in improved adoption outcomes (Bansode & Patil, 2011; organizations, 2001). However, rapid adaptation needs to be done carefully to prevent unfavorable outcomes.

The results of the fourth hypothesis show a significant correlation between the effective adoption of data sustainability (MA) and the estimated age limit of keeping data policies and regulations (PR), with PR -> MA = (β = 0.541, t-value = 6.83, p < 0.05). These results imply that the respondent thought that the study's set of robust, well-defined age limits for data storage policies and regulations had a positive impact on the efficacy of data sustainability performance across a range of public and private companies in the United Arab Emirates. This validates the results of XXX, where researchers contend that policies and regulations pertaining to the expected age limit of data storage have a major impact on how well data sustainability performs. Additionally, it shows that laws and regulations pertaining to data sustainability are becoming more thorough and well-executed XXX, which is improving and raising the efficacy of data sustainability performance. This is indicated by the expected age limit of storing data. The results also highlight how crucial a supportive legislative framework is to the effective adoption and integration of data sustainability platforms and technologies by both public and commercial enterprises in the United Arab Emirates.

Thus, we examined the potential moderating influence of the anticipated age limit for data storage policies and regulations on the association between technology accessibility and the efficient operation of data sustainability in UAE public and private enterprises. The results show that the estimated age limit for storing data policies and regulations has an insignificant moderating role, with PR*ACC -> MA = (β = 0.130, t-value = 1.804, p > 0.05). This non-significant coefficient indicates that the study did not find statistical support for the estimated age limit for storing data policies and regulations' moderating effect on the relationship between accessibility (ACC) and the effective performance of data sustainability (MA). It follows that the respondents believed that laws and regulations on the projected age limit for holding data had no discernible impact on the direction or

intensity of the relationship between accessibility and the efficient operation of data sustainability. This observation runs counter to the idea put forth by XXX, who contend that policies and regulations governing data sustainability performance that include estimated age limits for storing data have a higher potential to ensure practical adoption.

Additionally, we investigate the important moderating influence of the expected age limit for data storage policies and regulations on the interaction between public and private firms in the United Arab Emirates' effective performance of data sustainability and technology adaption. According to the SEM results, PR x TA -> MA = (β = -0.067, t-value = 1.033, p > 0.05) indicates a negligible moderating influence. The interaction effect may not have been powerful enough to significantly affect the relationship between accessibility and the efficient operation of data sustainability, as indicated by the non-significant p-value. This shows that, in this particular context, the expected age limit of preserving data legislation and regulations has a minimal impact on data sustainability technologies inside public and private enterprises. Accordingly, the results run counter to the researcher's hypothesis and predictions in this area (Dwivedi et al., 2023; Gupta et al., 2023; Koohang et al., 2023; Zhu et al., 2022).

Regarding the final hypothesis that was investigated in this study, which looked at the estimated age limit for data storage policies and regulations, it was found that these factors significantly moderated the relationship between the digital divide and the efficient use of data sustainability in public and private companies in the United Arab Emirates. The results indicate that policies and regulations have a statistically significant interaction with the digital divide in predicting data sustainability performance (β = -0.298, t-value = 4.731, p < 0.05). This interaction is expected to have a noteworthy consequence. In line with previous studies by XXX, the result suggests that study participants perceived the significant moderating role of effective and robust estimated age limit of storing data policies in limiting the digital divide and ensuring an effective adoption of data sustainability technology among public and private companies in the UAE.

However, the results show a noticeable degree of caution with a negative β = -0.298. This suggests that even though the estimated age limit for storing data policies and regulations plays a significant moderating role, a large increase in this age limit could likely result in a wider than expected reduction in the digital divide that protects public and private companies in the UAE from performing effectively in terms of data sustainability.

5. RECOMMENDATIONS

Super apps are becoming more and more well-liked in people's minds. Consequently, in order to maintain its significance and advantages, it is preferable to enhance its digital components so that its difficulties cannot limit its offerings. In addition, for the super applications to operate properly, the companies putting them into place must provide excellent back-end support. If this isn't done, it may limit the company's potential for success and hamper the application. Thus, it is preferable to periodically provide software developers with a variety of innovations so that they can become acquainted with the present circumstances. These kinds of upgrades may also benefit users in the long run, since customers may eventually be able to access the newly added amenities. If not, the application may become out-of-date and, as a result, lose some of its perceived value in the future. Because of this, developers must keep a close eye on market developments in order to incorporate them into their applications and preserve their place in the competitive landscape.

6. IMPLICATIONS AND FINDINGS

The study's conclusions have important ramifications for organizations involved in data sustainability performance, policymakers, and stakeholders in both public and private enterprises. The unexpectedly small correlation between accessibility and adoption defies expectations, but it also emphasizes the necessity of a comprehensive training program that covers technological competence, cognitive adjustment, and regulatory knowledge for stakeholders in public and private enterprises. Policymakers are urged to work together to collaboratively design adaptive regulatory frameworks that balance the rapid evolution of technology and the integration of business activities. This is because the study found a robust positive correlation between the estimated age limit of storing data policies and

regulations and effective adoption.

Notably, the study's finding that the performance of data sustainability and technology adaptability are negatively correlated highlights the significance of deliberate and controlled technological absorption. In order to achieve this goal of balancing technology innovation with pedagogical quality, professional development programs are promoted for both public and private enterprises in order to foster technical fluency. Stakeholders, institutions, and legislators must work together to guarantee the data sustainability is harmoniously and transformative integrated into the landscape of public and private businesses.

6.1 Philosophical Consequences

The study's conclusions have significant theoretical ramifications for the Technology Acceptance Model (TAM) framework, which alters how we perceive data sustainability performance in UAE governmental and private institutions. By demonstrating a non-significant correlation between accessibility and the efficient operation of data sustainability, the study refutes the traditional position of the TAM. This implies that factors other than the basic constructs of the TAM influence adoption, indicating the necessity for an extended TAM framework that takes these domain-specific influences into account.

Additionally, by demonstrating a paradoxical negative link between technological adaptability and the successful execution of data sustainability, the study adds a new dimension to the TAM. This research underscores how difficult it is to integrate new technologies and how crucial it is to take the rate of technological change into account while staying within the TAM's jurisdiction. It emphasizes how important it is to take a sophisticated, context-sensitive strategy that understands the relationship between adoption success and rapid adaptability.

The study found a strong positive correlation between the projected data storage age limit and External influences on technology adoption are fundamental to the Technology Acceptance Model (TAM), and a policy and regulatory (PR) and effective data sustainability performance align with this idea. But the size of this influence highlights how important policy-related issues are to data sustainability performance. The study emphasizes the need to expand the TAM's scope to include the complex regulatory dynamics and organizational support that have a considerable impact on technology adoption, even though the TAM recognizes external impacts. Overall, the study enhances the TAM's relevance in the context of data sustainability by highlighting the necessity of a sophisticated and all-encompassing framework that takes into account domain-specific variables, the subtleties of technological adaptability, and the crucial role that policies and regulations pertaining to the estimated age limit of data storage play.

6.2 Relevance in Practice

The study's conclusions have important real-world ramifications for public and business sectors looking to use data sustainability technologies. Adoption rates can be increased by putting more emphasis on user-friendly interfaces and seamless integration than just guaranteeing accessibility. To close the digital divide, cooperation is required, which means access subsidies and digital literacy programs. It is imperative to exercise caution while implementing new technologies quickly, as this necessitates a phased deployment strategy and extensive training requirements.

The need of carefully developing a supportive regulatory environment is highlighted by the predicted age limit of data storage rules and regulations. This approach ought to strike a balance between encouraging adoption and protecting user interests. Interdisciplinary teams working together on research projects can produce thorough insights, and ongoing monitoring and assessment systems guarantee that data sustainability performance is consistently in line with institutional goals.

Through the use of these suggestions, both public and private enterprises can skillfully negotiate the complex terrain of adopting data sustainability technology, thus promoting its smooth integration. Even though this study makes a substantial contribution, it is recognized that the results are context-specific and could change in the future.

6.3 Methodological Implication

The methodological contribution is noteworthy due to the integration of SEM within a quantitative research framework and the careful identification and operationalization of critical variables. This methodology enables a more profound

understanding of the complex processes impacting data sustainability performance and establishes a strong basis for further research projects on the innovative use of technology in corporate settings.

6. CONCLUSION

In conclusion, this study clarifies the complex interactions between policies and regulations pertaining to the estimated age limit for storing data, accessibility, and technology adaptability, all of which have an impact on how well data sustainability technology performs in both public and private organizations in the United Arab Emirates. The correlations that have been identified highlight the need for a more comprehensive and detailed conceptual framework that goes beyond the scope of the Technology Acceptance Model (TAM) to include the peculiarities of data sustainability performance. The unanticipated negative correlation between technology adaptation and adoption and the perplexing lack of a substantial relationship between accessibility and adoption highlight the need for an improved TAM that takes into account the particular contextual dynamics of data sustainability. The study advocates for an expanded TAM model that fully captures regulatory subtleties, emphasizing the critical role that estimated age limits play in data rules and regulations. Using rigorous quantitative techniques, particularly Structural Equation Modeling, this investigation makes a significant contribution to understanding data sustainability performance nuances and enhancing the relevance of the TAM in the changing landscape of technology paradigms. As a result, the study's conclusions have significant implications for smart business, directing future research projects and exploring the boundaries of technology innovation in corporate settings.

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