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The influence of organisational ambidexterity on digital efficacy: The moderating role of digital skills

Siphephelo Mpofu [(a)] *Njabulo Ndlovu* [(b)] *Takawira Ndofirepi* [(c)] *Paul Nemashakwe* [(d) *]

[(a)] *Senior Assistant Registrar, Registrar's Department, Gwanda State University, Epoch Mine Campus, P.O Box 30, Filabusi, Zimbabwe.*
[(b)] *Associate Professor, Graduate School of Business, National University of Science and Technology, Cnr Cecil Avenue & Gwanda Road, Zimbabwe.*
[(c)] *Professor, University of South Africa (UNISA), Preller Street, Pretoria, South Africa.*
[(d)] *Senior Lecturer, Department of Business Management & Innovation, Catholic University of Zimbabwe, Bulawayo, Zimbabwe.*

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ABSTRACT

In the face of fast technological improvements, higher education institutions must strike a balance between leveraging existing strengths and pursuing new opportunities to succeed. This study examines how organisational ambidexterity affects digital efficacy in Zimbabwean state universities, with a focus on the moderating influence that digital skills play. A cross-sectional research design was employed to collect data from 110 academic and administrative staff at three Zimbabwean state universities through digital platforms. The findings show a positive relationship between organisational ambidexterity and digital efficacy, with digital skills significantly moderating the relationship. Universities with ambidextrous staff have higher levels of academic excellence, research productivity, and stakeholder satisfaction. This research provides valuable insights for Zimbabwean state universities to enhance their digital capabilities. By fostering a balance between exploitation and exploration of digital innovations and investing in digital skills development, universities can improve their digital competence and competitiveness. The study contributes to enhancing digital efficacy within the higher education sector, informing strategic decisions, and providing valuable insights for university leaders, policymakers, and scholars grappling with the challenges of digital transformation. This research contributes to the existing literature on digital transformation in higher education, particularly within resource-constrained environments.

Introduction

To thrive in the digital age, higher education institutions need to proactively embrace and leverage technology to improve their competitiveness and overall performance. Ndlovu, Ochara & Martin (2022) highlight the role of ambidextrous innovation in generating value for the public within the digital era. To thrive in this dynamic environment, organisations are increasingly adopting organisational ambidexterity to innovate and efficiently adapt to changing market conditions. Sustaining commercial success necessitates the cultivation of ambidextrous skills, that is, the capacity to simultaneously preserve core competencies and embrace new opportunities. This requires a delicate balance between innovation and efficiency, demanding organisational ambidexterity.

March's seminal work from 1991 provides a foundation for understanding the origins and significance of organisational ambidexterity, providing researchers with a useful historical perspective to trace its development and evolution. Despite the emergence of newer research, older sources like March (1991) remain invaluable for their insights and as a foundation for further exploration, particularly in areas where recent research may be limited. To ensure long-term sustainability, higher education institutions must cultivate ambidextrous capabilities, effectively balancing exploration of new opportunities with the exploitation of

* *Corresponding author. ORCID ID: 0009-0002-4331-247x*

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existing strengths. While Ndlovu et al. (2022) acknowledge that organisations, especially within the public sector, have made strides in embracing this balance, significant challenges remain in fully implementing organisational ambidexterity.

Employees require robust digital skills to fully leverage the opportunities and navigate the challenges presented by the digital world. These skills are fundamental for critical thinking, problem-solving, and cultivating digital efficacy in the digital age. As Khajeheian & Tadayoni (2016) emphasise, innovation drives the creation of new opportunities and necessitates the development of novel business models to maintain a competitive edge. To effectively cultivate ambidexterity within higher education institutions, individuals must acquire specific skills that facilitate this balance. Therefore, organisational ambidexterity is crucial for fostering the development of these skills and achieving digital efficacy and success. Furthermore, Maphosa (2023) underscores the importance of strong leadership in universities, emphasising the need for clear direction and the implementation of strategies that facilitate automated workflows, encourage collaborative teamwork through platforms like social media, and prioritise learner-centered approaches. Based on these insights, this research investigates the relationship between organisational ambidexterity and digital efficacy in Zimbabwean state universities, with a specific focus on the moderating role of digital skills.

Table 1: Definition of Key Terms

Term	Definition
Ambidexterity	It is the ability to perform two distinct tasks equally well (Smith & Umans, 2015).
Innovation	It is a multifaceted concept, encompassing the generation of new ideas, the transformation of ideas into new products or processes, and the systematic practice of developing breakthrough products and services for adoption by customers (Berraies et al, 2019).
Exploration	It involves actively seeking novel opportunities, concepts, and experiences (March, 1991).
Exploitation	It refers to selecting, refining, and implementing standard operating procedures to achieve operational efficiency (March 1991).
Digital transformation	It refers to the integration of digital technologies into various aspects of an organisation's operations, processes, and strategies (Kahraman & Haktanir, 2023).

Source: Authors

Existing literature on organisational ambidexterity primarily focuses on achieving an optimal balance between refining existing knowledge (exploitation) and venturing into new possibilities (exploration) (Ndlovu, 2021). This perspective often views these activities as either mutually supportive or opposing forces (Palm & Lilja, 2017). A primary reason for this perceived opposition lies in the presence of competing demands for limited organisational resources, knowledge, and funding (Lember, Kattel, & Tonurist, 2018). Moreover, the literature reveals a diversity of constructs employed to measure organisational ambidexterity (Ndlovu et al., 2022). However, as Boukamel & Emery (2017) emphasise, the core concern within the organisational ambidexterity literature revolves around effectively balancing and managing these seemingly opposing forces. The successful implementation of this balance depends heavily on how these concepts are defined and applied in practice. Notably, some scholars suggest that most local government organisations exhibit a stronger inclination toward exploitative innovation (Peng, 2019).

While organisational ambidexterity has received significant scholarly attention for its impact on digital efficacy, the role of a key moderating factor in this relationship remains largely unknown. Notably, scholars have used various conceptualisations and operationalisations of organisational ambidexterity (Ndlovu et al., 2022). However, no prior research has thoroughly examined the potential influence of digital skills on the relationship between digital efficacy and organisational ambidexterity. This study aims to address this gap by exploring the connection between organisational ambidexterity and digital efficacy, with particular focus on the moderating role of digital skills within Zimbabwean higher education institutions.

This paper is organised as follows: following the introduction section, the second part comprises of literature review and theoretical underpinnings that shed light on the linkage between theory and practice. The third part introduces the methodology that was utilised in conducting the study. After the methodology, the authors provide findings and a discussion on the findings. The paper concludes by providing practical implications, limitations, and suggestions for further research.

Literature Review

Organisational ambidexterity is the ability to undertake both exploration and exploitation concurrently (Ndlovu, 2021). The notion of ambidexterity stems from the realisation that, to achieve long-term success, organisations must continually adapt to the rapidly changing technological and socioeconomic landscape (Burns & Stalker, 1994) while also maintaining efficiency and alignment in day-to-day operations to achieve organisational goals. Several disciplines, including organisational learning, strategic management, technological innovation, and organisational design, have studied the notion of organisational ambidexterity, most recently in universities (Kahraman & Haktanir, 2023). It demonstrates the ambidexterity concept's increasing significance and application across various academic disciplines. Each stream offers a unique perspective on ambidexterity, its causes, and its effects (Gibson & Birkinshaw, 2004). Different scholars have also used a variety of constructs to measure the concept of organisational ambidexterity. For instance, Kahraman & Haktanir (2023) submit that digital transformation is a fundamental transformation process designed to

significantly enhance an organisation, affecting all aspects of the institution, including strategy, talent management, technology, and organisational structure.

To pinpoint and draw attention to barriers to the adoption of digital transformation in higher education, Aditya et al. (2021) tested a theoretical framework. Lis (2021) highlighted the important elements of the dynamic between universities and the business sector within the framework of digital transformation initiatives. Nonetheless, there are still a lot of unanswered questions that could help future studies better understand how organisational ambidexterity affects digital performance. The above-mentioned studies demonstrate that companies can use current business procedures to maximise returns while conducting exploratory processes for sustainable growth (Stubner, Blarr, Brands, & Wulf, 2012).

Regardless of the strategy's support for flexibility and adaptation in light of competitiveness, innovation ambidexterity has been a main area of study in management research (Saleh et al., 2023). The socioeconomic and technological constraints of ambidexterity have been studied and explained by management studies; nevertheless, little is known about how organisational ambidexterity affects digital efficacy and the moderating effect of digital skills. Recent literature on strategy and innovation management indicates that, to maintain high levels of organisational performance, it is becoming increasingly necessary to combine both exploitative, that is, incremental, and explorative, that is, radical innovations (Saleh et al., 2023). It entails pursuing both incremental innovation, which is primarily focused on strengthening present market positions, and radical innovation, which is primarily intended to penetrate new market areas (Saleh et al., 2023). Exploratory and exploitative types of innovation should be combined and balanced (Berraies et al., 2019), which enables organisations to fully connect their experience and undeveloped ideas, break new ground logically, respond to environmental changes proactively, and dynamically stimulate their knowledge and capabilities. As a result, integrating activities is still essential to a company's ability to survive since it gives them the flexibility to adapt to changing circumstances, increase operational flexibility, and lessen the impact of external uncertainty (Alcalde-Heras et al., 2019). Given the relationship between innovation ambidexterity and organisational survival, studies of the determinants of innovation ambidexterity raise special management challenges. These connections result from the increasing significance of investment choices related to the growth of innovative capabilities (Saleh et al., 2023). Even though there is considerable research on innovation ambidexterity in the literature, it remains unknown what management factors influence that concept. Asif (2017) and other scholars have called for a systematic examination of innovation ambidexterity drivers in the future. The researchers want to close this research gap as a result.

Additionally, research on the significance of ambidexterity yields contradictory results, and there is not much knowledge known about the causes of innovation in ambidexterity (Abbas et al., 2020). The function that digital skills serve as a bridge between organisational ambidexterity and digital efficacy is not well understood. This research is driven by the need to close this gap. This knowledge gap has to do with comprehending the elements and aspects that influence Zimbabwe's higher education institutions' ability to grasp organisational ambidexterity. Furthermore, it has been proposed that the greatest approach for boosting corporate performance, growth, internationalisation, sustainability, and competitive advantage is innovative ambidexterity (Abbas et al., 2020). According to Berraies et al. (2019), to effectively address the paradox of innovation ambidexterity, organisations should invest in the advancement of innovative capabilities.

In light of the aforementioned perspectives, it is imperative to prioritise the factors that lead to the development of ambidexterity to address the conflict between exploitative and exploratory innovations. These two types of innovations compete for scarce resources and are based on distinct processing of information abilities. The most successful organisations, according to Berraies et al. (2019), are those that possess innovation ambidexterity, or the capacity to integrate exploratory and exploitative innovation. Finding a balance between the opposing actions and motivations that affect exploration and exploitation, however, is an obstacle faced by most organisations. As a result, growing conflicts push the groups and individuals in different directions, which increases displeasure (Andriopoulos & Lewis, 2009). However, the success of an organisation depends increasingly on both exploratory and exploitative innovations. March (1991) advises against being caught up in a "success trap" from over-exploitation or a "failure trap" from excessive exploration while concentrating on a single type of innovation. As a result, Bedford et al. (2019) reinforce the claim that ambidexterity is among the most difficult issues to overcome. Ambidextrous firms that endeavour to develop their capabilities during exploration and exploitation can transform products and services; however, this is not always an easy undertaking.

Additionally, Chen & Liu (2020) state that to achieve innovation ambidexterity, firms usually face noteworthy hindrances and tensions. Thus, organisations must effectively manage the factors that aid in adjusting to changing environments while remaining stable. As a result, more research is needed to understand how organisations execute innovative ambidexterity in terms of processes and determinants. Moreover, Gibson & Birkinshaw (2004) state that there has been minimal research on the various antecedents, causes, factors, and relationships associated with ambidexterity. Though related studies elaborated on precise circumstances for innovation ambidexterity in respect of organisational processes, behaviours, and structures, this research is unique in its concentration on the factors of organisational ambidexterity and digital skills on digital efficacy. In doing so, this review aims to advance management research on organisational ambidexterity.

In Zimbabwe, there are still issues with the ICT environment; limited ICT dispersion limits the potential for digital solutions to enhance sustainable development. For instance, it is difficult for people in the least developed nations, like Zimbabwe, to participate in online education (Maphosa & Maphosa, 2022; Chigora et al., 2022). Zimbabwe must therefore significantly upgrade its policies and regulatory framework in order to fully realise the potential of ICTs to promote sustainable development in the nation (Zhou &

Kusena, 2021). On the other hand, South Africa is one of the continent's leading economies and has also been proactive in the digital innovations space. Kahraman & Haktanir (2023) refute that digital innovation in institutions of learning has gradually gained momentum, but the implementation and effectiveness vary across universities. For instance, various state universities in Zimbabwe have implemented online registration systems to streamline the registration process and reduce paperwork. However, the progress and functionality of these systems vary between institutions (Kahraman & Haktanir, 2023). Hence, this study determined the relationship between exploration digital innovation, exploitative digital innovation, and digital efficacy in Zimbabwean state universities with the moderating role of digital skills. Even though many researchers have investigated the contributing aspects of organisational ambidexterity in many industries, there is a dearth of literature on driving variables of organisational ambidexterity, digital efficacy, and digital skills in institutions of higher learning.

The following main hypotheses guided the analysis of the data:

H1 Organisational ambidexterity positively influences integrated digital system.

H2 Organisational ambidexterity positively influences seamless workflow processes

H3 Digital literacy positively influences integrated digital systems

H4 Digital literacy positively influences seamless workflow processes

H5 Exploration digital innovation positively influences seamless workflow processes

H6 Intelligent Digital Software positively influences integrated digital system

H7 Intelligent Digital Software positively influences seamless workflow processes.

Theoretical Underpinnings

This study is based on three key concepts, namely organisational ambidexterity, digital efficacy, and digital skills. The Resource-Based View (RBV) Theory is central to the theoretical framework, explaining how organisations use their resources and capabilities to gain a competitive advantage (Khin & Ho, 2019; Trieu et al., 2023). According to RBV, unique physical and intangible assets improve an organisation's performance when used effectively (Barney, 1991). Thus, those who engage with rare resources are better positioned to respond to market opportunities and challenges, resulting in higher performance.

The dynamic capabilities framework also informs the study. The dynamic capability theory, an extension of RBV developed in the 1980s, emphasises the importance of organisations adapting to change by matching resources to evolving strategies (Teece et al., 1997). It emphasises the need for organisations to constantly innovate and reorganise their resources in order to remain competitive (Teece, 2023). This theory emphasises that an organisation's digital capabilities, e.g. its ability to innovate and adapt, are critical for achieving digital efficacy.

The study also incorporates organisational learning theory, which emphasises the importance of knowledge acquisition and integration in dynamic settings (Fiol & Lyles, 1985). This perspective is critical for understanding how businesses can balance exploration and exploitation to improve digital efficacy. The framework supports the study's exploration of how organisational ambidexterity and digital skills influence digital efficacy in higher education institutions.

Research and Methodology

The study employed a quantitative approach to investigate the relationship between organisational ambidexterity and digital efficacy in Zimbabwean state universities, with a specific focus on the moderating role of digital skills. Data was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM), an approach widely recognised for its suitability in exploratory research with complex models and relatively small to medium sample sizes (Hair et al., 2017).

An online questionnaire was used to collect data from 110 academic staff members at three Zimbabwean public universities. The final sample comprised 110 respondents out of 134 distributed, representing an 82% response rate. While Glenn's sample size tables were initially used as a benchmark to determine the sample size, additional considerations support the adequacy of this sample for PLS-SEM. Following Hair et al. (2014), the "10-times rule" suggests that the minimum sample size should be ten times the maximum number of structural paths directed at a single construct. In the present model, the highest number of predictors is fewer than 10, which means the sample size comfortably exceeds the requirement. Furthermore, a post-hoc power analysis using G*Power (Cohen, 1992) indicates that the achieved sample provides sufficient statistical power (>0.80) to detect medium effect sizes at a significance level of 0.05. These considerations confirm the adequacy of the sample for structural equation modelling. The profile of the respondents is presented in Table 1 below.

Table 1: Respondents' Profile

University Position	Number	Percentage %
Admissions & Students Records Officer	17	15.5
Departmental Chairperson	15	13.6
Examination Officer	12	10.9
Faculty Administrator	41	37.3
Faculty Dean	9	8.2
IT Administrator	16	14.5
Total	110	100

Source: Authors

Instrumentation and data collection procedure

A five-point Likert scale questionnaire was developed and used for data collection. The construction of the questions was such that they covered all the concepts linked to the research aim (Greenfield & Greener, 2016). Experts were used to assist in the refinement of the questionnaire. After the experts had validated the instrument, it was pilot tested to check face validity (Saunders et al., 2016), instrument comprehensibility and legibility (Jain et al., 2016), and to increase its content validity (Creswell & Creswell, 2018).

Ethical consideration

The study was carried in a way that observed the best interests of research participants as enunciated by Magwa & Magwa (2015). Sufficient information was provided to participants for them to reach an informed decision on whether to participate or not. Categorical assurances about the anonymity of participants and the confidentiality of data were given and also religiously followed. Only data collected from participants was used for analysis, and findings were reported objectively without being altered in any way.

Data analysis

The study utilised SmartPLS (Partial Least Squares), a software application designed for data analysis in research, especially in social sciences, business, and economics. SmartPLS serves as a tool for analysing complex relationships (Hair, Hult, Ringle, & Sarstedt, 2014). It is employed for path modelling, which involves visualising and analysing relationships between variables (Hair et al., 2014), and for partial least squares regression, which models intricate relationships among variables (Hair et al., 2014). Before analysis, the questionnaire was assessed for both internal and external consistency using Cronbach's alpha, composite reliability, average variance explained, factor loading, and standardized root mean square residual (SRMR).

Findings and Discussions

Findings

A five-point Likert scale questionnaire was created, following the sample size guidelines provided by Pallant (2010). When determining a sample size from a large population, researchers suggest maintaining a ratio of questionnaire items to respondents, ideally ranging from a minimum of 5:1 to a maximum of 10:1. The main domains of the questionnaire included exploration digital innovation (EDI) and exploitation digital innovation (EXD), which assessed organisational ambidexterity, as well as seamless workflow processes (SWP) and integrated digital systems (IDS), which together evaluated digital efficacy. Digital skills were assessed through digital literacy (DL) and intelligent digital software (IDSO) (Reddy, et al, 2023). The initial version of the questionnaire included a total of 37 items, consisting of 7 demographic questions and 30 items intended for factor analysis. The constructs for organisational ambidexterity, digital efficacy, and digital skills were developed accordingly. The dimensions for organisational ambidexterity and digital skills were adapted from the work of Ndlovu et al. (2021).

The questionnaire was evaluated for both internal and external consistency. This assessment was conducted using Cronbach’s alpha, composite reliability, average variance extracted, factor loadings, and the standardised root mean square residual (SRMR).

Demographic Analysis

The study sample of 110 participants had a gender distribution that represented the population's composition, with 49.1% male and 50.9% female, as presented in Table 2. This gender balance ensured equal representation and allowed for the collection of diverse perspectives from both male and female employees, enhancing the reliability and appropriateness of the findings.

Table 2: Demographic Characteristics

Variable	Description	Percentage %
Gender	Male	49.1
	Female	50.9
Age (Years)	18 – 24	4.5
	25 – 34	15.5
	35 – 44	62.7
	Above 45	17.3
Qualifications	Doctorate	45.4
	Master's	38.2
	Undergraduate	16.4
Position	Faculty Dean	8.2
	Departmental Chairperson	13.6
	Faculty Administrator	37.3
	IT Administrator	14.5
	Examinations Officer	10.9
	Admissions and Student Record Officer	15.5
Length of Service	0 – 5 years	44.5
	6 – 10 years	38.2
	+10 years	17.3
Digital Technology Used	Enterprise Resource Planning	89.1
	Student Management System	10.9
Areas Digital Technology Used	Enrolment Management	68.2
	Attendance Tracking	2.7
	Grade Management	10
	Communication Tools	8.2
	Financial Aid and Tuition Management	10.9

The study found that a total of 4.5% of the respondents were between the ages of 18 to 24 years, 15.5% were between the ages of 25 to 34 years, 62.7% were between the ages of 35 to 44 years, and 17.3% were above 45 years. From the analysis, the highest number of respondents were between the ages of 35 to 44 years. Therefore, the research revealed that the majority of respondents were middle-aged people who read a lot and are exposed to new explorations. Regarding the educational levels, a large number, 45.4%, had First Degrees, while 38.2% had Master's degrees and 16.4% had Doctorates. These findings align with previous research by Kahraman & Haktanir (2023), which suggested that digital literacy skills are crucial in higher education institutions as they enable personnel to compete in the global market. These skills provide the ability to access information, use internet-enabled devices, understand online etiquette, and utilise collaborative tools for effective communication.

Furthermore, the data provided indicates that out of 110 respondents, the institutional roles were distributed as follows: 8.2% were Faculty Deans, 13.6% were Departmental Chairpersons, 37.3% were Faculty Administrators, 14.5% were IT Administrators, 10.9% were Examinations Officers, and 15.5% were Admissions and Student Record Officers. The findings point to adequate personnel within the institutions to support digital efficacy, as much of the work in the digital realm is now automated and handled by machines. Additionally, the findings presented suggest that 44.5% of the respondents had served in the institutions for less than 5 years, while 38.3% had served for up to 10 years, and 17.3% had served for more than 10 years. This indicates that the workforce was relatively new, with a significant proportion of employees having limited tenure within the organisation. The researchers noted that this trend may present challenges for those with fewer years of experience, particularly in terms of acquiring and effectively utilising digital skills. Employees with less time in the organisation may face greater difficulties in adapting to the digital transformation taking place, potentially due to a lack of exposure or familiarity with the necessary technological competencies. Hence, Li (2022) emphasised the continuous reskilling and upskilling of all employees, regardless of their tenure, to meet the evolving demands of the workplace.

Regarding the technology used at the respective institutions, the research findings revealed that the majority of the respondents, 89.1% were using Enterprise Resource Planning, and 10.9% were using Student Management System as digital technologies. This is in line with Sharma et al. (2021) and Borase et al. (2021), who stated that universities have increasingly adopted ERP systems to manage their processes and technologies, leading to increased performance, cost control, and improved resource management. In areas in which the institutions used digital technology, the research findings revealed that the majority of the respondents, 68.25% used digital technology in Enrolment Management, 10% in Grade Management, 8.3% in Communication, 10.9% in Financial Aid and Tuition Management, and 2.7% in Attendance Tracking. This is consistent with Sharma et al. and Borase et al. that the student management system within the ERP offers various features that allow for the tracking of student details daily and uploading attendance records, progress reports, semester exam details, and results.

Measurement Model: Reliability and Validity

The hypotheses were tested using Partial Least Squares Structural Equation Modelling (PLS-SEM), which has been identified as the preferred approach over Covariance-Based SEM (CB-SEM) (Heirati, 2012; Hair, Sarstedt, Hopkins & Kuppelwieser, 2014; Ringle et al., 2012; Taufique & Vaithianathan, 2018). Before analysing the structural model, reflective measurement was performed to assess the reliability and validity of the constructs. The study included six (6) constructs measuring three (3) concepts: organisational ambidexterity, digital efficacy, and digital skills. The composite reliability of the constructs exceeded the recommended threshold of 0.7, and the values for construct convergent validity and Average Variance Extracted (AVE) also surpassed the minimum recommended value of 0.5 (Hair et al., 2016). Additionally, all constructs had Cronbach's alpha values above 0,7, indicating good internal consistency as shown by Table 3.

Table 3: Reliability & Validity tests

	Constructs	Cronbach's Test	Composite reliability (rho_a)	Composite reliability (rho_c)	Average Variance Extracted (AVE)	Factor Loadings
	Exploration	0.906	0.917	0.931	0.729	
	(EDI)					0.761
	EDI1					0.965
	EDI2					0.694
	EDI3					0.805
	EDI4					0.804
	EDI5					
		0.826	0.857	0.885	0.660	
	Exploitative					
	(EXDI)					0.385
	EXDI1					0.812
	EXDI2					0.868
	EXDI3					0.577
	EXDI4					0.709
	EXDI5					
		0.874	0.877	0.909	0.666	
	Seamless					0.777
	(SWP)					0.834
	SWP1					0.716
	SWP2					0.703
	SWP3					0.786
	SWP4					
	SWP5	0.873	0.879	0.908	0.630	
						0.750
	Integrated					0.830
	(IDS)					0.702
	IDS1					0.723
	IDS2					0.780
	IDS3					
	IDS4	0.854	0.861	0.896	0.634	
	IDS5					0.612
						0.805
	Digital (DL)					0.711
	DL1					0.826
	DL2					0.724
	DL3					
	DL4	0.873	0.879	0.908	0.664	
	DL5					0.780
						0.658
Table 3	Intelligent					0.826
	(IDSO)					0.795

Measurement Model Results	IDSO1 IDSO2 IDSO3 IDSO4 IDSO5	0.751

Notes : EXD = Exploitation Digital Innovation, EDI = Exploration Digital Innovation, SWP = Seamless Workflow Processes, IDS=Integrated Digital System, DL=Digital Literacy, IDSO = Intelligent Digital Software,

The Cronbach's alpha coefficients of all constructs have values above 0.7, which was considered acceptable (Ramayah et al., 2023). Hair et al. (2017) highlight that these methods ensure thorough analysis and comprehension of the data.

Discriminant Validity

The Heterotrait-Monotrait Ratio (HTMT) is a measure used in structural equation modeling to evaluate discriminant validity between constructs (Hensler, Ringle & Sarstedt, 2015). It compares the correlations of indicators across different constructs (heterotrait) with the correlations of indicators within the same construct (monotrait). A high HTMT value (typically above 1.0) indicates a lack of discriminant validity, suggesting that the constructs may not be sufficiently distinct. The results in Table 4 below show strong direct effects. The relationship among constructs suggests that discriminant validity was met, as values were below the minimum threshold of 1.0.

Table 4: Heterotrait-Monotrait

ITEMS	EXD	DL	EDI	IDS	IDSO	SWP
EXD						
DL	0.829					
EDI	0.938	0.771				
IDS	0.888	0.971	0.758			
IDSO	0.898	0.907	0.844	0.992		
SWP	0.763	0.960	0.682	0.998	0.948	

Notes : EXD = Exploitation Digital Innovation DL=Digital Literacy, EDI = Exploration Digital Innovation, IDS=Integrated Digital System, IDSO = Intelligent Digital Software, SWP = Seamless Workflow Processes

Structural Model

The SRMR is a method used to evaluate the approximate fit of a model. According to Ringle et al. (2014) SRMR compares the variance between the observed correlation matrix and the model-implied correlation matrix. A model is considered to have a good fit when the SRMR is less than 0.10 (Ndlovu et al., 2022). In this research, the SRMR value of 0.084 in the saturated model, where all relationships are estimated, indicates a relatively good fit to the data. Similarly, in the estimated model with some relationships constrained or estimated, the SRMR value of 0.091 was achieved, as shown in Table 5 below. Therefore, further statistical analysis can be performed.

Table 5: Standardised Root Mean Square Residual (SRMR)

Saturated model	Estimated model
0.084	0.091

Path Coefficients

Table 7 below presents path coefficients between organisational ambidexterity, digital efficacy, and digital skills. Path coefficients represent the hypothesised relationships between constructs (Hair et al., 2014). These coefficients are standardised on a scale from -1 to +1, where values closer to +1 indicate strong positive relationships, and values closer to -1 suggest strong negative relationships (Hair et al., 2014).

Table 6: Path Coefficient

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Supported (Y/N)
EXD -> IDS	-0.113	-0.060	0.079	1.423	0.155	No
EXD-> SWP	-0.125	-0.097	0.080	1.566	0.117	No
DL -> IDS	0.058	0.070	0.116	0.501	0.616	No
DL -> SWP	1.684	1.684	0.136	12.395	0.000	Yes
EDI -> IDS	0.079	0.030	0.070	1.134	0.257	No
EDI -> SWP	0.296	0.254	0.075	3.971	0.000	Yes
IDSO -> IDS	0.932	0.927	0.130	7.166	0.000	Yes
IDSO -> SWP	-0.899	-0.875	0.155	5.817	0.000	Yes
IDSO x EDI -> IDS	0.258	0.240	0.159	1.620	0.105	Yes
IDSO x EDI -> SWP	-0.176	-0.140	0.185	0.951	0.342	No
IDSO x EXD -> IDS	-0.315	-0.176	0.291	1.083	0.279	No
IDSO x EXD -> SWP	0.026	0.089	0.269	0.097	0.922	No
DL x EXD -> IDS	-0.015	-0.024	0.270	0.057	0.954	No
DL x EXD -> SWP	-0.437	-0.368	0.279	1.568	0.117	No
DL x EDI -> IDS	0.037	-0.042	0.242	0.155	0.877	No
DL x EDI -> SWP	0.542	0.403	0.311	1.741	0.082	Yes

Notes : DL=Digital Literacy, EXD = Exploitation Digital Innovation, EDI = Exploration Digital Innovation, IDS=Integrated Digital Systems, IDSO = Intelligent Digital Software, SWP = Seamless Workflow Processes

The path coefficients were further presented in the form of a structural equation model. See Figure 1 below.

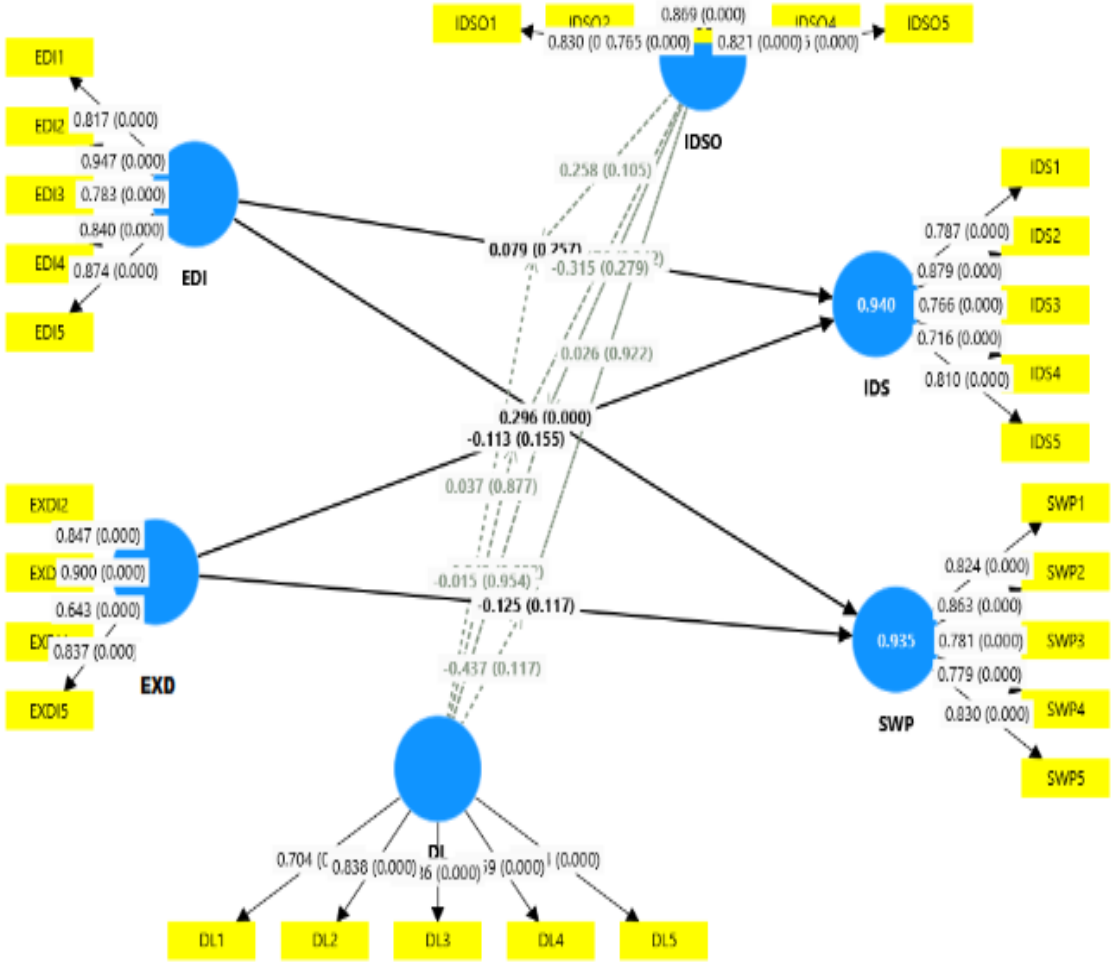

Figure 1: Initial Screen with SEM calculation used in the Smart-PLS software; *Source:* SMART-PLS

Discussion

The following sub-hypotheses were discussed:

H1 Organisational ambidexterity positively influences integrated digital system.

The finding that organisational ambidexterity has a weak negative effect on integrated digital systems, as shown in Table 6 (EXD -> IDS, O = -0.113, p = 0.155), indicates that the relationship is not statistically significant. This suggests that there is no evidence to support the hypothesised beneficial impact of organisational ambidexterity on integrated digital systems. The weak negative coefficient suggests that although higher education institutions might try to strike a balance between exploitation and exploration, this equilibrium might unintentionally reduce the efficacy of their integrated digital systems. This is consistent with the findings of Ndlovu et al. (2022) who observed that although organisations especially those operating within state institutions have accepted the concept of balancing exploration and exploitation to some extent, there are still impediments in the way of its accomplishment.

According to Chen & Liu (2020) organisations typically encounter significant obstacles and conflicts when attempting to attain innovative ambidexterity. The assertion made by Trieu et al. (2023) that the Resource-Based View (RBV), a foundational theory in strategic management, holds that a company's success is determined by the resources and capabilities it possesses, raises concerns about whether the resources and attention devoted to ambidextrous strategies detract from the focus needed for effective integration of digital systems. Moreover, ambidexterity's beneficial effects on digital integration may be hampered by elements like organisational culture, reluctance to change, or a lack of resources. These obstacles might keep higher education institutions from reaping the complete rewards of both strategies. This is in line with Basu (2020), who found that re-evaluating present practices, utilising cutting-edge technology, and fostering an inventive culture are all common elements of transition. The findings also point to a mismatch between the objectives of creating integrated digital systems and organisational ambidexterity. It may be necessary for

higher education institutions to make sure that their goals for digital integration are in line with their exploratory and exploitative efforts, as indicated by Chanias & Hess (2016), who stated that a company's digital transformation objectives should be balanced with its larger strategic vision and digital business plan.

Moreover, Duncan (1976) asserts that companies must progressively modify their structures to better match their plans with the required creative and efficient capacities. In accordance with research, this can be accomplished by establishing discrete, independent units for exploration and exploitation, each specifically designed with a unique alignment of personnel, organisational structure, procedures, and cultural practices, all the while guaranteeing an integrated use of resources and capacities (Ndlovu, 2021). As a result, higher education institutions ought to re-evaluate their ambidextrous procedures to make sure that they do not impede the advancement of integrated digital systems. This can entail promoting a culture that highlights the significance of integrated digital systems and giving digital integration initiatives priority in addition to ambidextrous endeavours. This might require specialised teams or resources for digital integration, making sure ambidextrous approaches do not undermine these efforts. In order to better understand how to achieve integration, businesses may also find it helpful to adopt a more holistic approach that takes into account other elements influencing integrated digital systems, such as leadership support, employee training, and technological infrastructure. This is in line with the findings of a study by Maphosa (2023) which noted several implementation difficulties, such as legacy systems, high costs, insufficient skills, and resistance to change. Tsvuura (2022) agreed that a lack of knowledge and skills prevents employees from taking full advantage of digital technologies.

H2 Organisational ambidexterity positively influences seamless workflow processes

The finding that organisational ambidexterity has a weak negative effect on seamless workflow processes, as shown in Table 6 (EXD -> SWP, O = -0.125, p = 0.117), suggests that the relationship is not statistically significant, meaning that there is insufficient evidence to support the hypothesis that organisational ambidexterity positively influences seamless workflow processes. The negative coefficient suggests that, rather than enhancing seamless workflows, efforts toward organisational ambidexterity may be associated with challenges or disruptions in workflow processes. This is in line with a study by Chen & Liu (2020), which found that organisations typically encounter notable obstacles and conflicts when attempting to attain innovative ambidexterity. Scholars further argued that even though digital transformation is strongly impacting institutions of higher learning, in actuality, greater research is necessary to fully understand the digitalisation process, particularly as different educational institutions differ in their level of preparedness for the shift and in their degree of digital maturity (Kane, Palmer & Phillips, 2015; Kahraman & Haktanir, 2023). This may suggest that balancing exploration and exploitation could lead to inefficiencies or confusion in operational processes. This is also in agreement with Abbas et al. (2020), who drew attention to inconsistencies in the performance of information technology companies and made the case that these paradoxes can be resolved by fostering ambidexterity. As mentioned above, various factors such as organisational culture, communication barriers, or misalignment of goals may interfere with the positive effects of ambidexterity on workflow processes. These issues could prevent institutions of higher learning from achieving the intended benefits of their ambidextrous strategies. This is in line with Kahraman & Haktanir (2023), who mentioned that a cohesive corporate vision combined with an integrated change culture can facilitate a sustainable digital transformation process by lowering resistance and boosting connectedness, dexterity, and transparency, which would lead to smooth workflow procedures.

As a result, institutions of higher learning need to consider improving their ambidexterity strategies to make sure they do not inadvertently interfere with workflow procedures. This is in line with the study by March (1991), who asserted that exploitation is the process of selecting, refining, and putting into practice standard operating procedures to achieve operational efficiency, whereas exploration is the active pursuit of unique opportunities, concepts, and experiences. Therefore, improving communication and objective alignment may be part of the strategy refinement process. In agreement, Kahraman, & Haktanir (2023) concurred that although digital transformation has become a need, businesses must not just want but also need to undergo a digital transformation. However, the effectiveness of the digital transformation process is influenced by several elements, including issues with funding, the organisation's current digital capabilities, issues with its human resources, and technological issues. The additional issues were identified as reluctance to change and difficulties with coordination and teamwork in the research conducted by Kahraman & Haktanir (2023). In his study, Basu (2020) argued that there were challenges of intelligent digital software, such as data privacy security, skills gap, ethical considerations, integration with existing systems, regulatory compliance, costs, and return on investment concerns, explainability, transparency, and resistance to change.

In contrast to the idea that exploration and exploitation are static opposites, the aforementioned approaches view the processes as dynamic tensions (Papachroni & Heracleous, 2020). Furthermore, according to Papachroni & Heracleous, when combined, these conflicting behaviours offer a flexible and dynamic approach to resolving nested conflicts, which individuals manage based on their circumstances and perspectives of time, resources, and skills. Hence, to develop a culture that values both creativity and operational performance, organisations need to invest in systems of training and support that assist staff in balancing the competing demands of ambidexterity while maintaining effective workflow procedures.

H3 Digital literacy positively influences integrated digital systems

The finding that digital literacy has a very weak positive effect on integrated digital systems, as shown in Table 5 (DL -> IDS, O = 0.058, p = 0.616) indicates that digital literacy, when viewed as a construct of digital skills, may not play a substantial role in influencing integrated digital systems. The findings raise questions about the effectiveness of current digital literacy initiatives at

higher institutions of learning in Zimbabwe. The weak relationship may imply that mere literacy is insufficient; practical, applied skills in digital tools and systems may be necessary for meaningful impacts. The relationship between organisational ambidexterity and digital efficacy could be influenced by how digital skills mediate or moderate these dynamics. Organisations that possess ambidexterity but lack strong digital competencies may find it difficult to fully utilise their ambidextrous capabilities effectively. This corresponds with the study by Kahraman & Haktanir (2023), who stated that digital literacy abilities were essential and were now mandated in higher education institutions to compete favourably in the global market. Furthermore, factors such as inadequate training, lack of engagement, or insufficient infrastructure might impede the positive influence of digital skills on integrated systems, suggesting a need for a more supportive environment (Maphosa, 2023). Training programs should be tailored to ensure employees develop the skills necessary to effectively use integrated digital systems. This aligns with the research by Basu (2020); Nyagadza (2022), and Ndlovu et al. (2022), who posited that businesses must develop a sustainable digital transformation strategy tailored to their industry. On the other hand, Kahraman, & Haktanir (2023) contended that, even in the absence of a clear digital transformation plan, the conflicts arising from the digitalisation process were compelling universities to develop their business models in an increasingly emerging manner.

Higher education institutions should also make sure that their initiatives to develop digital skills and organisational ambidexterity are complementary. An increased synergistic effect on digital efficacy may result from this alignment. A culture that prioritises flexibility and continuous learning can aid in bridging the knowledge gap between digital literacy and efficient use of integrated digital systems. This is in line with recommendations by Crossan et al. (1999), who suggested that a 4i framework of intuiting, interpreting, integrating, and institutionalising through organisational learning be developed to establish a clear relationship between strategy and learning and to address the tension between applying previously learned knowledge, known as exploitation, and integrating new knowledge known as exploration. Hence, leadership should promote an environment where employees feel empowered to develop their digital skills. This is consistent with Maphosa (2023), who avowed the necessity for leadership in universities to have a clear direction and implement strategies that enable automated workflows, encourage teamwork, including social media applications, and implement learner-centred approaches.

H4 Digital literacy positively influences seamless workflow processes

The strong positive effect of digital literacy on seamless workflow processes, as shown in Table 6 (DL -> SWP, O = 1.684, p = 0.000) indicates a significant positive relationship. This finding highlight that possessing strong digital skills is crucial for facilitating efficient workflow processes. Improved digital competencies facilitate employees' ability to utilise tools and technology efficiently, resulting in more efficient operations. This is consistent with Li (2022), who argued that digital skills and digital innovation work together harmoniously to drive product innovation, as innovation is known to be prompted by a focus on technology and facilitated by technological aptitude. The positive impact of digital literacy on workflow processes implies that organisations with high levels of digital skills may be better equipped to balance exploration and exploitation. This is in line with the research conducted by Kahraman & Haktanir (2023), who opined that digital literacy gives individuals the ability to accomplish other worthwhile goals in life, particularly in the contemporary digital economy (Kahraman, & Haktanir, 2023). In agreement, POTRAZ (2022) stated that to promote investments in ICTs and digital skills, it is necessary to adopt critical emerging technologies that are vital to the digital economy and to implement smart policies, e-governance, and efficient procedures. This capability supports the notion that digital literacy can enhance the effectiveness of organisational ambidexterity. The significant relationship indicates that organisations investing in digital skills development may experience improved productivity and efficiency in their processes. This is consistent with the research conducted by Maphosa (2023), who affirmed that businesses that do not adopt new technology would lag behind their rivals and lose out on the productivity, innovation, and new income prospects that come with digitisation.

Furthermore, this significant positive relationship may lead to better resource utilisation and faster decision-making. Therefore, organisations should prioritise training programs that enhance specific digital skills, ensuring that employees are equipped to utilise digital tools effectively. This is in line with the research by scholars who highlighted the significance of digital skills in improving organisational performance through the efficient use of digital technologies (Teece et al., 1997; Kahraman & Haktanir, 2023). This training should be ongoing to keep pace with technological advancements. Organisations should integrate digital skills development into their broader strategies for promoting ambidexterity. This is consistent with the research by Svahn et al. (2017), who suggested that to create new avenues for value creation, organisational strategic structural adjustments, system and process modifications, as well as dynamic transformations in corporate culture, are required. Organisations should foster a culture that values digital literacy and continuous learning as previously discussed. Leadership should encourage employees to embrace digital tools and provide a supportive environment where they can develop their skills.

H5 Exploration digital innovation positively influences seamless workflow processes

The significant positive effect of exploration digital innovations on seamless workflow processes, as shown in Table 6 (EDI -> SWP, O = 0.296, p = 0.000) indicates that exploring digital innovations can enhance seamless workflow processes, which is a vital component of digital efficacy. This suggests that organisations that prioritise innovation are likely to experience improved operational efficiency. This is in line with the research conducted by Reis & Mealo (2023), who emphasised that in digital transformation, organisations are pressured to explore their core business while simultaneously exploring opportunities for digital innovation. This finding highlights that organisations that effectively balance exploration and exploitation can create workflows that are not only

efficient but also adaptable to new opportunities and challenges. The relationship between the two variables is positive, indicating that institutions of higher learning using digital technologies for exploration can adjust their processes more effectively to changing conditions, which will increase operational resilience and responsiveness. Furthermore, this is consistent with the study by Milukutu & Siachisa (2023) that revealed that the potential benefits of digital transformation for society as a whole include improved public administration that is more effective and efficient. This proposes that exploration innovation plays a crucial role in driving digital transformation inventiveness as it involves the enactment of new processes, products, competencies, and digital technologies that are significantly different from those currently in use (Reis & Melão, 2023). Universities can get a competitive advantage through streamlined processes by promoting creative practices, which enable them to react swiftly to customer needs and market demands. In agreement, Jurksiene & Pundziene (2016) reiterated that exploration enables organisations to acquire and create knowledge and information from any perspective on the organisation's settings, including underdeveloped abilities and the quest for fresh information.

Nonetheless, exploration efforts not only aid in detecting failure and disparities in current corporate practices but also enable the firm to lay new groundwork for competitive advantage (Chatterjee & Mariani, 2022). Consequently, organisations should invest in initiatives that promote the exploration of digital innovations. This could involve dedicating resources to research and development, encouraging a culture of experimentation, and supporting teams in piloting new technologies. This is in line with the findings of a study by Castillo, Benitez, Llorens, & Braojos (2021), which emphasised that organisations acquire new knowledge through collaboration and interactions with others, which fosters creativity and eventually produces novel ideas.

H6 Intelligent Digital Software positively influences integrated digital system

The strong positive effect of intelligent digital software on integrated digital systems, as shown in Table 6 (IDSO -> IDS, O = 0.932, p = 0.000), indicates that intelligent digital software is a key factor in enhancing integrated digital systems. This suggests that institutions of higher learning might greatly increase their operational efficacy and efficiency by using cutting-edge digital tools. This is in line with researchers in digital technology who highlighted the expanding significance of intelligent digital software as a further strategy and a fresh approach to decision-making (Magistretti et al., 2019). Since intelligent digital software is viewed as a construct of digital skills, this finding emphasises the importance of having skilled personnel who can effectively utilise these tools. The relationship underscores that the software's potential can only be realised when users possess the requisite skills. This is consistent with the research conducted by Chigora et al. (2022), who stated that employees need digital skills to fully take advantage of the benefits and challenges that the digital world presents. Thus, the positive effect of intelligent digital software aligns with the principles of organisational ambidexterity. The amount of information that is readily available in online sources and the quick access to databases can boost productivity and speed, which in turn leads to a significant increase in the decision-making process. This aligns with the study conducted by Sakhnyuk & Sakhnyuk (2020), who confirmed that machine learning and artificial intelligence may assist in transforming business practices and enhancing the quality of customer care. To stay competitive, companies should think about integrating these technologies into their plans for digital transformation. This corresponds with the study by Sakhnyuk & Sakhnyuk, who stressed that the goal of digital transformation is to help businesses operate in a constantly changing environment by identifying their core objectives and creating the necessary trajectories to reach them. Hence, the improved business processes can be achieved through the integration of digital technologies across all business domains through digital transformation.

According to research, artificial intelligence and big data are examples of cutting-edge technology that help digital transformation accomplish its objectives. The goal of these technologies is to handle information flows so that judgements can be made, offers can be tailored to particular clients, and behaviour can be predicted (Basu, 2020; Sakhnyuk & Sakhnyuk, 2020). Thus, fast and accurate data analysis is possible with AI and machine learning processes. This is consistent with the study conducted by Sakhnyuk & Sakhnyuk (2020), who extolled that these technologies play a critical role in highlighting the value of business and customer data, enabling quicker and more informed decision-making. State universities can improve overall digital efficacy by better balancing exploration and exploitation through the integration of these advanced tools into their operations. The strong relationship suggests that intelligent digital software can streamline operations, reduce friction in workflows, and facilitate better integration of digital systems, contributing to a more agile and responsive organisation. In contrast, Kahraman & Haktanir (2023) argued that various institutions of higher learning have implemented online registration systems to streamline the registration process and reduce paperwork; however, the progress and functionality of these systems vary between institutions. Therefore, higher education institutions should prioritise investments in intelligent digital software that aligns with their strategic goals. This includes evaluating and adopting tools that enhance integration and operational efficiency. Additionally, to maximise the benefits of intelligent digital software, organisations must invest in training programs that enhance employees' digital skills. This is in line with the study by Berraies et al. (2019), who submitted that to effectively address the paradox of innovation ambidexterity, organisations should invest in the advancement of innovative capabilities. As a result, businesses ought to promote a mindset that values ongoing development and digital transformation.

H7 Intelligent Digital Software positively influences seamless workflow processes

The finding that intelligent digital software has a strong negative effect on seamless workflow processes, as shown in Table 6 (IDSO -> SWP, O = -0.899, p = 0.000) suggests that the implementation of intelligent digital software may be associated with disruptions or inefficiencies in seamless workflows. This could indicate that the software is not being utilised effectively or that it complicates

existing processes. This is consistent with the study conducted by Chen & Liu (2020), who stated that to achieve innovation ambidexterity, firms usually face noteworthy hindrances and tensions. On the other hand, intelligent digital software in modern businesses encourages creativity and efficiency, opening the door for digital transformation. This is according to a study by Kahraman & Haktanir (2023). According to Basu (2020), organisations can adapt, expand, and prosper in the digital age with the help of intelligent digital software (Basu, 2020) despite the challenges faced.

The findings further suggest that higher institutions of learning might be over-relying on intelligent digital software without considering the necessary human factors, such as employee adaptability and training. This is in line with the study conducted by Kahraman & Haktanir (2023), who stated that Industry 4.0 defines "smart towns" or "factories" as manufacturing environments where human interaction is minimised and all systems and machinery can communicate with one another. This over-reliance could lead to workflow disruptions if employees are not fully equipped to manage the changes. This is also consistent with the study by Khin & Ho (2019), who stated that organisations require the ability to effectively manage and optimise the digital technology innovation process, as these capabilities increase innovation by combining and deploying human and technological strengths and resources. In agreement, Chatterjee & Mariani (2022) agreed that exploitative digital innovation enables firms to stay competitive and continuously meet demands through updates of existing products and services, applying existing knowledge while increasing productivity, minimising failure, and continuously developing present knowledge.

Additionally, the results highlight the importance of effective change management practices when implementing new technologies. This is in agreement with the NDS1 Document (2020), which stated that the government will prioritise the implementation of an efficient change management program, foster the development and training of appropriate ICT skills within the public sector, and accelerate the establishment of the National ICT Device Factory and the modernisation of the Government Internet Services Provider (GISP) infrastructure. Without proper support and integration strategies, intelligent digital software may negatively impact workflows. Higher education institutions should critically evaluate the deployment of intelligent digital software to ensure it aligns with workflow requirements. This corresponds to the study by Mittal, Romero, & Wuest (2018), who stressed that in a world of digitisation, where technological innovation occurs at a rapid speed, organisations are under increasing pressure to innovate, adapt, and change to stay competitive. Undoubtedly, the advancement of technology demands the acquisition of new skills; hence, the notion of digital intelligence has surfaced. Before implementation, a comprehensive needs assessment and user input can aid in identifying possible problems. Therefore, fostering a culture of flexibility and ongoing development can aid staff members in adjusting to new technologies while maintaining flexibility.

Conclusion

The study found that organisational ambidexterity and digital efficacy are positively related in Zimbabwean state universities. Digital skills to some extent mitigate the relationship, implying that the impact of organisational ambidexterity on digital efficacy is determined by the level of digital skills present. The findings suggested that institutions with greater levels of digital abilities can better capitalise on organisational ambidexterity to improve digital efficacy. The study also emphasised the significance of building digital skills in universities to maximise the benefits of organisational ambidexterity on digital efficacy. The degree of digital capabilities found in Zimbabwean state universities fully compensated for the impact of organisational ambidexterity on digital efficacy. This indicates that efforts to improve digital efficacy in these institutions should prioritise the development of digital skills, and that organisational ambidexterity is only advantageous if it promotes the growth of digital skills. Institutions may employ organisational ambidexterity to improve overall performance and digital efficacy by investing in digital skills.

According to the research findings, some of the respondents acknowledged the critical role of digital skills for future organisation's success. The study also revealed that organisational ambidexterity had a positive impact on the adoption and effective use of intelligent digital software, which was the key component of digital skills. Hence, the study revealed that digital skills play a significant moderating role in the relationship between organisational ambidexterity and digital efficacy. Specifically, universities with higher levels of digital skills among employees tend to benefit more from organisational ambidexterity in terms of digital efficacy.

However, further research revealed the challenges of limited access and infrastructure, digital divide and economic development, security, and governance challenges. Findings of the research revealed that in addressing these challenges, it was essential for Zimbabwe to focus on infrastructure development, governance framework, and initiatives to bridge the digital gap between developed and developing states. Findings revealed that Zimbabwean state universities can harness the potential of digital technologies to drive economic growth, social development, and innovation.

Practical Implications

The practical implications encompass the need to promote a culture that supports both exploratory and exploitative innovation, encouraging experimentation and learning from failures. The findings offer actionable recommendations for university leaders and policy makers, emphasising the need to prioritise digital skills development and organisational ambidexterity to enhance digital efficacy and improve overall performance. Universities should invest in digital skills training to enhance digital efficacy and increase the benefits of organisational ambidexterity.

Limitations and Suggestions for Further Research

Given the nature of the study's aims, a quantitative research design was used, but the quantitative technique has its limitations. For example, using closed-ended questionnaires, such as the Likert Scale, may have limited the amount of information employees were willing to offer. Furthermore, the study concentrated on three universities, despite Zimbabwe's large number of universities. As a result, the current study's findings may only reflect a small portion of the larger higher education industry overall. This may limit the generalisability of the results to the full population. The researchers suggest that future studies can focus on investigating the role of resources in managing paradoxical tensions in Zimbabwean state universities.

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