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## Article

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# Group Differences in Individual and Organizational Capabilities and Operational Performance in Implementing DX: Focusing on Nepalese SMEs

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## ABSTRACT

**Purpose:** The purpose of this study is to examine differences between excellent and following groups based on individual and organizational capabilities and operational performance, focusing on Nepalese SMEs.

**Design/methodology/approach:** The proposed research model and a set of hypotheses were developed and tested using T-test analysis based on data collected from 154 (70.32%) responses in Nepal.

**Findings:** From the T-test results showed a significant mean difference between excellent and following groups on change acceptance and technology acquisition on individual capabilities. In addition, the T-test results showed a significant mean difference between excellent and following groups on organizational infrastructure and organizational support, and operational performance showed the or a difference between the two groups.

**Research limitations/implications:** The limitations of this study are the sample size and target respondents. The results of this study suggested practical insights for DX implementation for SMEs.

**Originality/value:** The value of this study will be used as basic guidelines not only for companies that want to implement DX effectively but also for organizations that consider implementing DX.

*Keywords: DX implementation, Individual capabilities, Organizational capabilities, Operational performance*

## I. Introduction

Digital technologies (DTs) such as big data, artificial intelligence (AI), 3D printing, the Internet of Things (IoT), 5G, and blockchain are drastically changing the business environment and DTs have given rise to digital transformation (DX) (Lokuge et al., 2019; Marasini et al., 2022). Many firms are

starting novel DTs to respond and adapt to this changing environment to sustain their businesses (Kraus et al., 2021). These DT studies involve significant changes in company activities and affect organizational structure, management theory, goods, services, and procedures, driving firms to increase DX-related investments. Continued investment in DX-related projects has evolved DX to gain a competitive advantage in the recent digital economy, which has significantly impacted the company's performance and productivity and helped it gain greater market share, leading to breakthrough ideas and ongoing

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development (Zhang et al., 2022).

Because customers are familiar with DTs, so they prefer products and services that leverage digital devices, and companies that do not use digital technology are at risk of losing market share (Goldfarb and Tucker, 2019). Therefore, numerous firms have used DX. However, recently certain firms have been successfully operating DX but certain companies are not. Therefore, it is important to have knowledge about implementing DX depending on the industry type.

Previous studies have examined the effect of DX implementing in large companies, innovative firms, digital startups, and high-tech giants. However, studies addressing the effect of implementing DX in small and medium-sized businesses (SMEs) that operate in conventional sectors, particularly in developing countries are still limited (Matarazzo et al., 2021). As SMEs play a vital role in the economic growth of low- and middle-income countries, it is necessary to study the enablers, challenges, and opportunities of DX implementation in SMEs of such countries.

DX implementation in SMEs of Nepal is still in the early stage, and there is a significant lag behind in knowledge as well as policies for DX implementation. Also, research focusing on the effect of individual and organizational capabilities on DX and operational performance in SMEs of developing countries like Nepal is still limited. There are firms that are successfully implementing DX while some are still lagging behind. Thus, it is also important to understand the differentiating factors between excellent and following groups of firms in terms of DX implementation. Investigations are essential for developing nations since the findings could benefit business managers and policymakers (Reuber and Fischer, 1997).

This study identifies the individual and organizational capabilities required to implement DX and examines the differences between firms successfully implementing DX (e.g., excellent groups) and which are still in the lower stage (e.g., following groups). The rest of this paper is organized as follows. Section 2 presents the literature review and concepts underlying theories. Section 3 proposes a research model and hypotheses development. Section 4 provides the research method-

ology of this study, including the result of hypotheses tests using t-test approach. Section 5 provides the conclusion and limitations of the study.

## II. Literature Review

### A. Digital Transformation

In recent years, DX has completely changed how businesses operate, interact with customers, suppliers, and other stakeholders, and supports the development of novel business models and new forms of customer value (Matarazzo et al., 2021). Fitzgerald et al. (2014, p. 4) stated DX as "the use of new digital technologies (social media, mobile, analytics or embedded devices) to enable major business improvements (such as enhancing customer experience, streamlining operations or creating new business models)." Rha and Lee (2022, p.78) described digitalization as "the use of DTs and data to affect how work is done, transform how customers and businesses engage with and interact with each other, and establish new digital revenue streams."

DX implementation leads to the creation of a new business model, revolutionizing business as usual, and outperforming the competition (Sebastian et al., 2017). The ongoing, complicated DX process may significantly alter a business and its operations (Matt et al., 2015). Many firms have explored and harnessed the benefits of modern digital technologies across most industries (Zanni and Kirchner, 2020). Coronavirus (COVID)-19 pandemic has hastened the development and deployment of DTs and infrastructure in many enterprises and sectors (Lee and Lee, 2021), its operational efficiency is better, and its innovations are more successful, which improves return on assets (ROA) and return on equity (ROE) (Ong and Tan, 2021). According to Llopis-Albert et al. (2021), a DX deployment boosts revenue, output, and competitiveness. Most big firms in developed countries have incorporated DX, which has triggered SMEs to follow in those footsteps to sustain their business.

## B. SMEs and DX trend in Nepal

In Nepal, SMEs are a major source of employment, a key contributor to the GDP (Gross domestic product), and a means of subsistence for millions of households (Kharel and Dahal, 2021). As of the fiscal year 2074/75, (2018/19), a total of 275,433 SMEs were registered in Nepal. SMEs are the hubs of growth, job creation, and competitiveness in home and foreign markets (AlBar and Hoque, 2019). However, COVID-19 hurt SMEs in Nepal, leading to the closure of some firms. DX may help firms to survive in a such harsh business environment. SMEs that incorporated DTs could survive in a harsh business environment, which triggered other firms to introduce DX swiftly. COVID-19 accelerated the use of DTs by firms operating in Nepal to sustain their business.

Nepal is driving initiatives to become "Digital" by 2025 (Chapagai, 2022). In order to achieve that goal, SMEs play a significant role. DX is likely to improve SMEs' efficiency, innovation, and competitive advantage, as well as their corporate entrepreneurial activities (Chatterjee et al., 2022). SMEs with a high degree of digitalization readiness have a better chance of successfully prioritizing their digital manufacturing investment, managing digitalization risks, and aligning their information and digital technologies (IDTs) resources strategically (Pirola et al., 2019).

As technological advances and digital transformations continue growing rapidly, SMEs need research to maintain their business and gain economic growth (Garzoni et al., 2020). Especially in emerging countries, individual and organizational capacity to keep up with limited resources and technology is more important. SMEs' DX journey in Nepal is still in its early stage, and awareness about DX benefits has triggered firm operators to think about DX adoption. SMEs in Nepal should proceed slowly with a clear strategy to successfully implement DX. In order to implement DX in Nepalese firms, first of all, organizations need to prepare themselves. The government has to support SMEs by aiding and training them. More than that, organizations should have individual and organizational capabilities, which are necessary for the DX imple-

mentation process. Thus, individual and organizational capabilities, which can affect DX implementation and operational performance in Nepalese SMEs are explained in the next part.

## C. Individual and organizational capabilities

capabilities may vary depending on the degree of organizational support and the individual's capabilities (Jang, 2021; Lee et al., 2010). Based on study of Lee et al. (2011), study categorized capabilities into two dimensions as the organizational and the individual dimension and specific reasons are as follows: First, capabilities of the organization can lead to differences in willingness, investment, and support for implementing DX. Second, there may be companies that recognize the importance of DX, while some companies prefer to be followers rather than actual leaders, creating a gap in DX implementation. Third, at the individual level, there may be employees who are interested in learning and adapting to digital devices, while others may be afraid of accessing advanced technologies. In this case, the former group of employees may have a fast understanding and learning of adapting to DX, but it may not be the case for the latter group. Thus, capabilities are divided into two dimensions.

### 1. Individual capabilities

The "capabilities" refers to the dynamic, non-finite, firm-specific, and path-dependent business processes that are unique, hard to duplicate, and amassed via long-term, continual learning (Spanos and Prastacos, 2004). Innovation and competitiveness depend on the individual capabilities and skills. A firm's ability to maintain its competitiveness in uncertain times is greatly dependent on its employees' ability to upgrade their current abilities and pick up new ones (Araújo and Pestana, 2017). Its employees most effectively execute a firm's digital strategy and top management concepts, and the level of execution and impact of DT on the results of that strategy is determined by their capabilities (Zhang et al., 2022). Scuotto et al.

(2021) suggested that individual capabilities are the ability to use and apply one's digital technology to benefit the organization. From the literature review, measurement variables for individual capabilities employed are ICT skills, change acceptance, and technology acquisition for DX implementation in Nepalese SMEs.

ICT skills are defined as an individual's capability of "using digital technology, Micéicé communications tools, and/or networks to access, manage, integrate, evaluate and create information in order to function in a knowledge society and at its highest level enable innovation, individual transformation, and societal change" (Muehlburger et al., 2019, p 4). Mićić (2017) explained that ICT technology and the ICT industry are critical to economic development and job development, and Panel (2002) stated that ICT technology plays an important role in the success of individuals and organizations. If the necessary ICT technology is insufficient, it is difficult to enjoy benefits through ICT devices. In this study, ICT skills are defined as the abilities of individuals (employees) to use digital devices and software and to communicate smoothly. In the context of Nepal, ICT skills are an important factor that influences DX.

Change acceptance is an important factor to implement DX, and it is very important to provide training to the employees about advanced digital technologies (Kitsios et al., 2021). Technological changes affect the way employees work in the organization and the working environment (Schwarz Müller et al., 2018). In Nepal where digital literacy is still lacking, it is a crucial factor for applying innovative business strategies. In this study, change acceptance is defined as the ability of an individual to accept the change caused by digital disruption and prepare themselves to adjust to the new environment by learning and developing new skills.

Technology acquisition are driven by motivations such as developing new capabilities, enhancement of strategic options, improvement of efficiency, and riding a wave of competition. (Mortara and Ford, 2012). Solberg et al. (2020) suggested that employees' perceptions of their own and other people's capacity

to adapt to technological change, or their "digital mindsets" (change acceptance), are likely to affect whether they choose to participate in or refrain from DX implementation. In this study, technology acquisition is defined as the capability of an individual to get accustomed to unfamiliar technology and make good use of the technologies. In Nepal, where technological development is progressing slowly, it is really important to have technology acquisition capability for implementing new ideas and strategies related to DX.

## 2. Organizational capabilities

Organizational capacities are primary driver of long-term competitive advantage (Grant, 1996). To ensure a smooth transition to DX, firms must have the organizations capabilities. Previous studies have also highlighted that organizational agility, investment, infrastructure, willingness, leadership, and organizational support (Jang, 2021) are some of the capabilities an organization should have to DX implement. In this study, organizational capability is defined as the degree of support that the organization can provide (e.g., organizational infrastructure, organizational support) and the willingness of top management for DX implementing.

Infrastructure can be defined as a combination of organizational structures and physical assets necessary to meet a community's needs (Manggat et al., 2018). Organizational infrastructure helps the firm's daily operations smoothly. Muehlburger et al. (2019) stated that organizational infrastructure is important for DX implementation, and studies by Galeazzo et al., (2017) show that a strong organizational infrastructure is needed to maintain continuous improvement capabilities. A strong organizational infrastructure helps improve customer and employee satisfaction and better serve customers (Dixon and Loukus, 2013). In this study, organizational infrastructure is defined as the prerequisite necessary for the implementation of a new DX strategy such as digital infrastructure, and physical aspects (buildings, machines, etc.).

Top management possesses core competencies that are involved in value-creating activities. According

to previous studies, top management is essential to promoting a digital transformation environment. The most important decision a firm can make when considering a DX is to assemble the best team of technology, data, and process professionals who can work together, as well as a leadership team that can drive change (Walters, 2021). In this study, top management willingness is defined as the quality or state of being prepared to do something by a top management member and having vision and readiness for changes. In the context of Nepal where skilled manpower is still lacking, top management will play a prominent role to exercise and implement new business ideas.

Organizational support refers to the degree to which an organization is prepared to provide or direct employees to meet its goals (Al Nasrallah and Saleem, 2022), and organizations that want to improve their performance or introduce new systems must be supported by the organization (Lee et al., 2010). It is more likely that an organization will be able to implement a new system that improves employees' performance if the organization provides sufficient support for their tasks (Lee et al., 2010). In this study, organizational support refers to the necessary things the organization should provide in order to enhance employees' skills, satisfaction (such as training and benefits), and the organization's overall progress. Nepalese SMEs are small in size and there is no proper organizational support for the employees. Therefore, it is an important factor that can affect DX implementation.

#### D. Operational performance (OP)

A firm's operational performance is improved by DX implementation as DX raises the quality of products and services, lowers overall costs, draws in more consumers, and allows for simple product modification to meet a particular client requirement (Yu et al., 2022). Operational performance in this study is defined as financial and non-financial outcomes achieved through DX implementation. In terms of finances, operating costs can be reduced,

and operational efficiency will be improved through DX implementation. The non-financial performance can be improved by enhancing customer satisfaction.

### III. Research Model and Hypothesis Development

This research examines differences between excellent and following groups based on individual and organizational capabilities and operational performance focusing on Nepalese SMEs. The ability and skills of individual employees to update their previous skills and acquire new skills are why firms can be competitive and innovative in a competitive business environment (Kozanoglu and Abedin, 2020). As a result, employers are looking for highly qualified people to handle more dynamic and complex activities and adapt quickly to changing environments (Karimi and Walter, 2015).

Employees must possess digital competencies, a commitment to self-improvement, rapid innovation adaptation, critical thinking, the capacity to complete tasks outside their normal scope, and communication and teamwork skills if businesses are to transition successfully to digital rails (Morozov et al., 2020). Firms having employees who have good ICT skills can quickly adopt innovative technologies (Cunningham, 2022). ICT skills of employees can be a factor in differentiating excellent and following groups of firms in terms of DX implementation.

According to Drosos et al. (2021), individuals (employees and managers) need to have the ability to cope with changes caused by new technologies and globalization. Employees must be able to actively participate in and deliver all activities related to DX. According to Winasis et al. (2020), having a professional employee is an asset to DX implementation, and organizations with skilled staff who can adapt to change are likely to successfully implement DX. Therefore, change acceptance can be a factor to differentiate excellent and following groups of firms

in terms of DX implementation.

Today, innovation is fast, technology is complex, and requires highly specialized technologies, so companies need advanced technologies or skills and capabilities to gain a competitive advantage (Ranft and Lord, 2000). In particular, in an industry driven by knowledge and innovation, the need for human resources with good technology acquisition increases. Technology acquisition plays a key role in industrial management and in gaining competitive advantages (Durrani et al., 1998). Technology acquisition ability differs according to individuals and research shows that gender also affects technology acquisition ability. Firms having a workforce with technology acquisition capability helps them to progress fast in the DX process. Therefore, technology acquisition can be a factor in differentiating excellent and following groups of firms in terms of DX implementation. Based on the above, in this research has the following hypothesis is proposed:

- H1:** There is a difference between excellent and following groups on ICT skills
- H2:** There is a difference between excellent and following groups on change acceptance.
- H3:** There is a difference between excellent and following groups on technology acquisition.

For firms to apply DX, infrastructure (IT, buildings, amenities, etc.) must be well established (Mirković et al., 2019), and firms with excellent organizational infrastructure are more likely to succeed (Bärenfänger and Otto, 2015). Therefore, organizational infrastructure can be a factor in differentiating excellent and following groups of firms in terms of DX implementation.

Managing and balancing uncertainty within an organization is the role of a leader (Top Management) (Lane and Klenke, 2004). In situations where changes are needed, such as the DX process, the top management willingness can affect a firm's success (Trenerry et al., 2021). Adapting existing approaches to DX is a must for organizational leaders in today's dynamic environments (Hansen et al., 2011). Firms such as Starbucks, Apple, Dominos, Microsoft, Tesla, Nike, etc., have enjoyed successful DX because of their

top management's willingness. Therefore, organizational infrastructure can be a factor in differentiating excellent and following groups of firms in terms of DX implementation.

Organizational support is one of the key factors for implementing new business strategies, improving employee satisfaction, and improving work efficiency (Côté et al., 2021). Organizational support affects DX and is one of the success factors for the DX process (Osmundsen et al., 2018). Lack of organizational support can lead to the failure of DX (Gupta, 2018), requiring companies to provide training, training, manuals, rewards and rewards for employees to adopt DX (Mahmood et al., 2019). Depending on the level of organizational support provided, the success level of DX varies. Therefore, organizational support can be a factor in differentiating excellent and following groups of firms in terms of DX implementation. Based on the above, in this research has the following hypothesis is proposed:

- H4:** There is a difference between excellent and following groups on organizational infrastructure.
- H5:** There is a difference between excellent and following groups on top management's willingness.
- H6:** There is a difference between excellent and following groups on organizational support.

DX positively affects individual work performance (Guzmán-Ortiz et al., 2020). DX results in lower costs, higher operating efficiency, and more successful innovation, improving operational performance (Zhai et al., 2022). The study by Yu et al. (2022) mentioned that DX plays a positive role in improving operational performance. Therefore, there will be differences between firms in terms of DX implementation and operational performance achieved. therefore, in this research have a following hypothesis is proposed:

- H7:** There is a difference between excellent and following groups on operational performance.

## IV. Research Methodology

### A. Data collection

A survey questionnaire was developed to test the proposed research model. All variable measurement was evaluated through Likert 5- scales in Table 1.

The questionnaires were developed on an online google form and distributed to the targeted respondent (individuals working in SMEs in Nepal). The data were collected from October 15 to November 5, 2022. About 310 questionnaires were distributed, and 219 (70.64%) were received. Finally, 154 (70.32%) data used for this study.

The firms were further categorized into two groups based on the DX implementation success level. DX practice can cause deviations depending on the company or industry type, and the respondents' answers may also cause variations. To address this, in this study, we categorized the groups into a leading group (I.G., excellent group) and a following group based on whether they responded as highly successful or not. Thus, Group 1 is the excellent group where respondents said the DX implementation level is very successful (score-5). Group 2 is the following group where respondents said the DX implementation level is very poor (score-1), poor (score-2), satisfactory (score-3), and successful (score-4). Out of the 154

**Table 1.** Measurement items

Variables		Measurement	Reference
Individual capabilities (IC)	Information and communication technology skills (ICT skills)	ICT1: Have basic ICT skills	Maldague et al. (2016); Hwang et al. (2022)
		ICT2: Can use DTs	
		ICT3: Improve Work Efficiency	
		ICT4: Have good communication skills.	
	Technology Acquisition (TA)	TA1: Confidence in DTs use.	Lewis (2019); Chao (2019)
		TA2: Content with DTs	
		TA3: Learning DTs easily.	
		TA4: Increases productivity.	
	Change Acceptance (CA)	CA1: Accept changes easily.	Westerman et al. (2014); Hwang et al. (2022)
		CA2: Easy adaptation to the digital environment.	
		CA3: Make any situation work	
		CA4: Easily handle the digital content of our organization.	
Organizational capabilities (OC)	Organizational Infrastructure (OI)	OI1: Good physical infrastructure	Asian Banker Association (2019)
		OI2: Infrastructure for convenience and comfort.	
		OI3: Good IT infrastructure	
	Organizational Support (OS)	OS1: necessary training of digital technology	
		OS2: Proper reward system for employees.	
		OS3: values employees' contribution to its well-being.	
		OS4: Have a good working environment.	
	Top management's willingness (TMW)	TMW1: Has a transformative vision	
		TMW2: Promotes the necessary cultural changes	
		TMW3: clearance on what needs to be coordinated	
		TMW4: Our top management act as role models	
Operational Performance (OP)	Operational Performance (OP)	OP1: The rejection rate of the final inspection	Duong (2022); Heikkilä (2002); Lee et al. (2011)
		OP2: The return rate of products/services by customers	
		OP3: Operational efficiency	



responses, 92 samples were in the excellent group, and 62 samples were in the following group.

As shown in Table 2, about 75.3% of respondents were male and about 24.7 % from female. The study participants all had a work experience as they had at least 3 years of experience with implemented DX before 2015. All the responses are working in manufacturing industry.

## B. Reliability and validity tests

Reliability, validity, and all of the hypotheses are tested using SPSS 24 program. Reliability and construct validity of the measures for research variables were evaluated using Cronbach a and Exploratory factor analysis. For exploratory factor analysis, principal component analysis of varimax rotation method was conducted. Factor loading must be greater than 0.5 (Fornell and Lacher, 1981). Factors loading shown in Table 3, where the value ranges from 0.613-0.885. Eigen values and percentage of variance and Cronbach's alpha explained for each construct are shown in Table 3. The value of

Cronbach's alpha for reliability verification was analyzed based on 0.7 (Nunnally, 1978). All alpha coefficients were found to be 0.7 or higher, ensuring the reliability of the survey. ICT skills as a part of individual capabilities are equally important for DX implementation. As the correlation between the variables used in this study is shown in Table 4, the variables were statistically correlated.

## C. Hypothesis testing

This study focused on two groups (the excellent group and the following group). Hypotheses H1, H2, and H3 were tested by t-test. A t-test was employed on the mean score to confirm the difference between the two groups (excellent and following groups) for individual capabilities. In Table 5 shows change acceptance (CA) and technology acquisition (TA) had significant mean differences between the two groups. However, ICT skills showed no significant mean difference between the two groups. This result means that, in the following group, individual employees consider technology acquisition (TA)

**Table 2.** Characteristics of respondents

Demographic Characteristics		Frequency	Percent (%)	Demographic Characteristics		Frequency	Percent (%)
Gender	Male	116	75.3	Type of industry	Manufacturing	40	26.0
	Female	38	24.7		Service	114	74.0
Work experience	less than 1 year	45	29.2	Start time for DX implementation	Before 2015	59	38.3
	more than 1 year - less than 5 years	77	50.0		2016-2019	63	40.9
	more than 5 years - less than 10 years	29	18.8		2020-2021	24	15.6
	more than 11 years	0	0.0		2022 onwards	8	5.2
	Missing	3	2.0	Profession	Engineer	67	43.5
					Technician	19	12.3
Age	15-20	12	7.8		Manager	27	17.5
	21-30	100	65.0		IT expert	5	3.3
	31-40	33	21.4		Service provider	36	23.4
	More than 41	0	0.0				
	Missing	9	5.8				
Total 154 (100.0%)							

**Table 3.** Factor analysis and reliability assessment

	1	2	3	4	5	6	7
ICT1	-.006	<b>.795</b>	.139	.100	.097	.146	.243
ICT2	.130	<b>.774</b>	.225	.184	.030	.054	.189
ICT3	-.014	<b>.817</b>	.203	.171	.013	.015	.057
ICT4	.132	<b>.743</b>	.187	.179	.015	.118	.040
TA1	.101	.380	<b>.732</b>	.194	.152	.196	.193
TA2	.234	.256	<b>.772</b>	.150	.127	.110	.169
TA3	.093	.173	<b>.756</b>	.256	.106	.162	.177
TA4	.128	.250	<b>.736</b>	.289	.140	.153	.022
CA1	.144	.156	.348	<b>.697</b>	.116	.092	.196
CA2	.170	.258	.251	<b>.751</b>	.028	.160	.173
CA3	.254	.090	.116	<b>.711</b>	.146	.247	.123
CA4	.154	.300	.190	<b>.758</b>	.045	.077	.075
OI1	.139	.189	.158	.196	.162	.170	<b>.777</b>
OI2	.215	.211	.194	.127	.131	.062	<b>.787</b>
OI3	.280	.147	.120	.181	.279	.248	<b>.696</b>
OS1	.078	.076	.161	.059	<b>.851</b>	.161	.123
OS2	.293	-.015	.134	.026	<b>.795</b>	.193	.123
OS3	.213	.060	.088	.167	<b>.807</b>	.099	.199
OS4	.425	.114	.329	.154	<b>.613</b>	.345	.219
TMW1	<b>.709</b>	.170	.051	.295	.262	.049	.213
TMW2	<b>.762</b>	.006	.200	.170	.249	.147	.135
TMW3	<b>.849</b>	.093	.022	.089	.109	.228	.088
TMW4	<b>.789</b>	.005	.191	.146	.063	.114	.152
OP1	.188	.108	.217	.147	.213	<b>.759</b>	.025
OP2	.210	.157	.072	.086	.128	<b>.816</b>	.217
OP3	.154	.056	.255	.334	.163	<b>.659</b>	.187
Eigenvalue	13.155	3.376	1.560	1.527	1.344	1.168	1.058
Variance	41.110	10.549	4.876	4.771	4.201	3.650	3.308
Cronbach alpha	0.817	0.885	0.817	0.795	0.831	0.850	0.741

ICT: between Information and communication technology, TA: technology acquisition, CA: change acceptance, OI: organizational infrastructure, TMX: top management's willingness, OS: organizational support, OP: operational performance

**Table 4.** Result of the correlation test

	ICT	TA	CA	OI	OS	TMW	OP
ICT	1						
TA	0.573**	1					
CA	0.580**	0.602**	1				
OI	0.466**	0.474**	0.542**	1			
OS	0.321**	0.326**	0.306**	0.476**	1		
TMW	0.305**	0.436**	0.525**	0.515**	0.491**	1	
OP	0.480**	0.459**	0.484**	0.490**	0.464**	0.480**	1

\* P<0.05; \*\* p<0.01

**Table 5.** T-test of individual capabilities in excellent and following groups

Hypotheses	Variables	Group	N	Mean	F	sig
H1	Information and communication technology skills	1	92	4.000	0.975	0.325
		2	62	4.061		
H2	Change acceptance	1	92	3.905	<b>5.263</b>	<b>0.023*</b>
		2	62	3.859		
H3	Technology acquisition	1	92	3.812	<b>3.978</b>	<b>0.048*</b>
		2	62	3.858		
H4	Organizational infrastructure	1	92	3.739	<b>4.791</b>	<b>0.030*</b>
		2	62	3.349		
H5	Top Management's Willingness	1	92	3.845	<b>2.136</b>	0.146
		2	62	3.298		
H6	Organizational Support	1	92	3.768	<b>4.565</b>	<b>0.034*</b>
		2	62	2.979		
H7	Operational performance	1	92	3.739	<b>4.229</b>	<b>0.041*</b>
		2	62	3.344		

\* P&lt;0.05; \*\* p&lt;0.01

skills more important for DX implementation. The reason is that the following group will try to reduce the implementation time of DX because they lately started DX implementation than the excellent group. Therefore, to keep up with the excellent group, technology acquisition skills (e.g., learning, accepting, and using DTs) of individuals are considered an important factor for improving work efficiency and productivity in the following group. McKinsey Global Survey on Digital Transformations (2018) report highlights that less advanced firms need to focus on technology acquisition skills for DX implementation.

In the excellent group, individual employees considered change acceptance more important for DX implementation. Excellent group respondents might think that the effective approach for adapting to the ever-changing present is to move quickly and keep up with the pace. Thus, they focus on the change acceptance capability of individuals. Both groups think that ICT skills as a part of individual capabilities are equally important for DX implementation. Thus, hypotheses H2 ( $F=5.263$ ) and H3 ( $F=3.978$ ) were accepted, but hypothesis H1 ( $F=0.975$ ) was rejected.

This study focused on two groups (the excellent group and the following group). Hypotheses H4, H5,

and H6 were tested by t-test. A t-test was employed on the mean score to confirm the difference between the two groups (excellent and following groups) for organizational capabilities. As shown in Table 5, organizational infrastructure and organizational support had significant mean differences between the two groups. But top management's willingness had not statistically significant mean difference between the groups. Thus, hypotheses H4 ( $F=4.791$ ) and H6 ( $F=4.565$ ) were accepted, but hypothesis H5 ( $F=2.136$ ) was rejected.

A t-test was employed on the mean score to confirm the difference between the two groups (excellent and following groups) for operational performance. As shows Table 5 operational performance has significant mean value differences between the excellent group ( $M=3.739$ ) and the following group ( $M=3.344$ ). Thus, hypothesis H7 ( $F=4.229$ ) was supported.

## V. Conclusion and Implication

This study examines differences between excellent

and following groups based on individual and organizational capabilities and operational performance, focusing on Nepalese SMEs. The results showed a significant mean difference between excellent and following groups on change acceptance, thus supporting hypothesis H2( $F=0.526$ ,  $p=0.023$ ). Similarly, results showed a significant mean difference between excellent and following groups on technology acquisition, thus supporting hypothesis H3( $F=3.978$ ,  $p=0.048$ ). Meanwhile, no significant mean difference was found between the two groups on ICT skills, thus hypothesis H1( $F=0.975$ ,  $p=0.325$ ) was not supported.

The results showed a significant mean difference between excellent and following groups on organizational infrastructure, thus supporting hypothesis H4( $F=4.791$ ,  $p=0.030$ ). Similarly, results showed a significant mean difference between excellent and following groups on organizational support, thus supporting hypothesis H6( $F=4.565$ ,  $p=0.034$ ). Meanwhile, no significant mean difference was found between the two groups on top management's willingness, thus hypothesis H5( $F=2.136$ ,  $p=0.146$ ) was not supported. The operational performance showed a significant mean difference between the two groups. thus, hypothesis H7( $F=4.229$ ,  $p=0.041$ ) was supported.

This study contributes theoretical and practical implications in terms of possible approaches from the perspectives of DX implementation for SMEs. First, theoretically, this study provides a new direction for DX implementation through individual and organizational capabilities. Second, the result of this empirical research provides insight to the manager or top management about the importance of their capabilities for developing DX implementation. Third, the results of differences between the excellent and following groups can be applied in a comparative study, such as large and medium-sized industries, service and manufacturing industries, and/or developed and developing countries. Lastly, the findings of this study can be used as a basis for future studies on effective DX implementation and its effect on operational performance.

For practical contribution, first, based on the result of the difference between the two groups, firms can

consider DX implementation depending on their characteristics, like the adopted type of digital technologies. As DX implementation plays a positive role in operational performance, firms should develop key capability depending on their characteristics for DX implementation. Second, startup companies and entrepreneurs will get an insight view on how to prepare capabilities of themselves and their employees for the DX implementation. Lastly, the result of this study may be used as a benchmarking case and practical guideline for firms that are considering DX implementation.

This study has some limitations that need to be improved in future research. First, the sample size and target respondents were limited and biased due to the difficulty in accessibility to different organizations. Second, although the data were collected through an online survey, one-to-one interview methods can be adopted in future study. Third, firms were divided into excellent and following groups according to the participants' responses about DX implementation level in this study. There is a need to confirm the direct relationship between individual and organizational capabilities and DX implementation to enhance the specificity and validity of the results. Fourth, to have a better comparison of the differences between the two groups, the sample size of both groups should be similar.

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