FACTORS AND OBSTACLES OF PRIVATE AND PUBLIC SECTOR EMPLOYEES' DECISION TO RESKILLING AND UP SKILLING ON DIGITAL SKILLS IN BANGKOK AND METROPOLITAN AREA

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Abstract

This research studies the factors encouraging employees and obstacles to acquire digital skills in responding to digital transformation in public and private organizations in Bangkok and Metropolitan area. A survey questionnaire was distributed using non-probability and purposive sampling methods. About 425 valid data samples were collected back from June 2020 to March 2021. The binary logistics regression was employed to analyze the factors affecting the development of digital skills.

The findings show that megatrend, the rapid change of digital disruption, career advancement, job promotion, and job security are the factors significantly affect the digital skills development. The main obstacles are a lack of financial support and no clear supporting policy from the companies. Apart from common digital skills for routine work, they mainly focus on developing big data analysis, programming, web and app development, and automation skills. Most of the respondents develop their skills by self-study through online channel, on the job training, and attending training organized by private sector with financial support from their companies.

Keywords: Reskilling, Up Skilling, Human Resource Development, Digital Skill, Digital Literacy

Introduction

The rapid growth of industrialization and digital disruption, upgrading human resource skills competencies by using effective human resource development (HRD) practices is challenging. Many companies still have been struggling with how to choose an efficient way to effectively develop their employees under limited constraints such as investment and time. Reskilling and upskilling play important roles in skill development in the digital transformation era.

COVID-19 pandemic accelerates the needs of digital capabilities. Advanced technologies have been utilized to make an organization survive the crisis. Employees

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need to upskill to enhance knowledge and skill sets they possessed. They also need to reskill because some skill sets might be obsolete in the near future. Costs of upskilling or reskilling might be lower than hiring a new workforce.

Different generations may have different behaviors of digital skill development. According to the consensus by the Pew Research Center and the U.S. Census Bureau, Baby Boomer II Generation was born between 1955 and 1964 (currently age 57-66 years old); Generation X was born between 1965 and 1980 (currently age 41-56 years old); Millennial Generation or Generation was born between 1981 and 1996 (currently age 25-40 years old); and the Generation Z was born between 1997 and 2012 (currently age 9-24 years old) (Rudolph et al., 2020).

Thailand is facing the challenges of the aging population and the declining birth-rate in the era of the industrial revolution and technological disruption. The number of college-aged students has been significantly decreasing recently, which certainly affects the workforce shortly. This phenomenon significantly affects the development process of human resources. Fresh graduates, who are in Millennial Generation, use and adapt with technologies in daily lives. However, most of them do not possess the right knowledge and skills that match the demand of the job market, especially digital skills. Many experienced and skilled workers in the market also need to acquire new knowledge and skills which align with demands in the technological disruption

era. Many companies provide HRD programs to build a knowledge-based society by enhancing knowledge, skills, and competencies of their employees through educational scholarships, training, and other development programs.

Although there are several development programs for employees, not all of the employees benefit from them. Many available programs do not attract their interests or match with their demands.

According to Hora et al. (2021), there is only a few organizations in Thailand succeed with the digital transformation because there are several challenges that they encounter, especially people and organizational culture. From the survey of 91 executives from several industries, about 88% of the respondents admitted that their industries will be disrupted to a major or transformative extent. The industries that adapt quickly to this change are technology, media and telecommunication, and financial services. Surprisingly, people issue is the top challenge for achieving digital transformation implementation instead of technology. Organizations need to develop digital capabilities for their employees as well. An organization's activities, people, culture, and structure should be aligned toward a goal of digital transformation. Thai organizations are encountering 3 key challenges, namely, talent gap, digital culture, and organization silo (Hora et al., 2021). Inadequate training programs and insufficient budget and resources are also the barriers to digital transformation.

The use of artificial intelligence (AI), cognitive technologies, robotic process

automation, and robotics will be increased over the next few years. Some jobs can and will be replaced with technologies and robots. However, the jobs that require creativity, problem-solving, or challenging job will be for humans. Therefore, organizations need to focus on increasing workforce performance and efficiency. So that they can use technologies and create more meaningful works.

The most critical issue of digital transformation is not technology, but people. However, it is not easy to encourage employees to upskill and/or reskill. Organizations need to focus on how to design a training program and continuously transform their workforce mindset and capabilities. It should introduce diversity in the workforce and create a learning environment that encourages employees to accelerate their learning curve and retrain continuously.

The challenges of an organization are how to design and develop HRD practices that encourage its employees to enthusiastically acquire new knowledge and skills which potentially increase the competitive advantage of the organization and how to retain these highly skilled employees. This research aims to explore the factors encouraging individuals, and obstacles to reskill and upskill in responding to digital transformation in an organization. The results can be a guideline for an organization to design digital skill development plan and supporting plan.

Objectives

This study aims to explore what factors affect the decision of employees, working in private and public organization in Bangkok and Metropolitan area, to reskill and upskill on digital skills and what obstacles that hindered employees' ability to develop their technology related skills.

Literature Review

In the digital transformation era, employees thrive to develop themselves and continuously learn and relearn. Therefore, they now look for an organization that values human resource development and can provide training and development opportunities. Since the technical proficiency is no longer limited to the IT field, employees should have relevant knowledge and skills to effectively use digital technologies. Normally, the millennials and Generation Z are already equipped and familiar with basic digital literacy to facilitate routine work such as EDI, email, video conference, etc. So, they are comfortable in a technology-led workplace. Therefore, upskilling is needed for older generations to bridge the digital skill gap. Upskilling existing employees might cost less than hiring a new employee or temporary contract workers because the experienced employees already possessed knowledge and expertise from working with the organizations. So, they can apply technology capability with their internal skills and knowledge to add value to the business.

Digital skill development

Digital transformation affects many aspects of changes in an organization, HRD is included. An organization must change operational processes and organizational strategies as a result of new technologies (Fenech et al., 2019). Upgrading human resource skills and competencies in a digital age is more varied and challenging because it is people-oriented (Graetz & Smith, 2010). Each employee has different motivations and requires different incentives for new skills acquisition. Employees need to upgrade their skills and knowledge which align with the strategic needs of a digital era. Organizations need to find a match between their human resources and capabilities with the demands of their digital transformation by forecasting the needs of a company in terms of resources and capabilities and setting the right goals to meet those needs to enhance their competitive advantage (Miles & Snow, 1994). There has been little research about HRD at an individual level in response to digital transformation. Many studies have developed models of human resource transformation in an organization. Others have studied factors affecting HRD in an organization from a perspective from an organizational level (Osei et al., 2019).

Reskilling and upskilling

In the digital age, individuals need to adapt and enhance their skills and competencies and learn new digital skills to remain in the job market. The digital era requires individuals to be lifelong learners. They are expected to continually acquire and develop new skills and knowledge. Reskilling and upskilling are the educational opportunities offered by an organization to its employees. For upskilling, employees relearn and retrain to enhance the existing skill set for career advancement or adding value to an organization. In contrast, reskilling is when an employee would like to learn and/or train a new skill set or new things completely different from his existing expertise.

Reskilling and retraining can be a more efficient and faster way to enhance human resource capacity and potential. The concept linking between digital skills and career development has been labeled digital career literacy (Hooley, 2012). It is the ability to use the online environment to promote career development (Kettunen et al., 2015). Since digital skills reflect in career development, employees have to develop digital career literacy to remain on the relevant job market. Nowadays, they can learn new skills and knowledge from online courses or social media channels. Some organizations introduce in-house training to their employees. They also support their employees to attend seminars or training courses with experts in each field. Organizations have launched several development programs to build a knowledge-based society by enhancing knowledge, skills, and competencies of their employees through educational scholarships, training, and other development programs.

Individual factor

Learning in a workplace is influenced by individual factors. Individuals' attitudes and

identities influence their workplace learning (Schwartz, 2019). Employees will proactively learn what they want to know and when they are available. Once they gain new knowledge and skills, they may be willing to share their knowledge and experiences with others. However, contextual factors such as the organizational climate, interpersonal relationships, and the characteristics of the work itself may influence the individual's willingness and opportunity to share their learning (Billett, 1995).

Workplace environment

The workplace environment also impacts knowledge acquisition and learning motivation. Workplaces with limited career growth and development opportunities may not be perceived as an enabling learning environment (Schwartz, 2019). While employees in workplaces that offer new challenges or job rotation for them to have opportunities for autonomous decision-making will be able to learn more. Moreover, workplaces that have experts to provide support, advice, or mentor co-workers can influence an individual's learning motivation (Billett, 1995).

Support and Incentive

The incentive is another factor that motivates individuals to acquire new knowledge and skills. Motivation to voluntarily join a training program may depend on perceived rewards or incentives for individuals. Lissitsa et al. (2017) found that digital skills were positively correlated with income and exclusive benefits from the workplace. However, standard benefits from the workplace, such as study funds, had no significant correlation with digital skills.

Career advancement

Motivation for career advancement can also encourage employees to acquire new knowledge and skills to improve their potential and for a better career path. Motivation at work, motivation for learning, perspectives, and interests of individuals change with age throughout their careers (Kanfer & Ackerman, 2004; Kanfer et al., 2017). Social-cognitive career theory suggests that interests in work-related activities and skill acquisition develop through repeated activity engagement and external reinforcements (Lent et al., 1994). This means individual efforts relate to the achievement of outcomes. Opportunities and challenges they experience at work and in other life circumstances change their self-regulatory and motivational processes (Heckhausen et al., 2010). Therefore, the motivation of different age range may affect the level of new skills and knowledge acquisition regarding career advancement as well.

Based on a review of literature, we developed a list of the questionnaire to explore what influences an individual's upskilling and reskilling, how they do it, what obstacles they encounter, and how the organizations support digital skill development.

Methodology

Population and sample size

The population in this study was employees who are working in public and

private sector in Bangkok and Metropolitan area, which were Nakhon Pathom, Pathum Thani, Nonthaburi, Samut Prakan, and Samut Sakhon. According to the labor statistics from the National Statistical Office, in 2020, the total number of formal and informal employment in Bangkok and Metropolitan area was 9,935,187 people. The number of sample size was calculated by using the formula of Yamane as elaborated below.

$$n = \frac{N}{(1 + N e^2)}$$

where n = Number of sample size,

N = Population size (in this study was 9,935,187 people),

e = Margin of error (in this study used 5%),

With a confidence level of 95% and the margin of error of 5%, the sample size was 399.98 or 400 sample.

The researchers used non-probability sampling methods including snowball sampling, convenience sampling, and a voluntary response sampling technique for ease and convenience of data collection. The purposive sampling was also used to choose respondents who were accessible and could provide accurate information relevant to the study. Since reskilling and upskilling on digital skills were new to many employees, the researchers needed to find respondents who developed digital skills, could and were willing to provide the information by virtue of knowledge or experience (Tongco, 2007; Palinkas et al., 2015; Bernard, 2017). Therefore, we also distributed survey to people attended digital skill development course by coordinating with companies and institutions provided related programs.

Data collection

The researchers developed a closed-end questionnaire survey and collect data from a targeted group. The target respondents are employees in public and private sector working in Bangkok and Metropolitan area. The survey questionnaire was developed to collect information about respondents' demographics, characteristics of job and company they currently work with, digital skill development methods, factors, and obstacles.

A survey is distributed via an online channel. There were the respondents who voluntarily participated in an online survey, respondents who were selected based on convenience, and respondents who were shared by an acquaintance.

The questionnaires were distributed from June 2020 to March 2021 via online channels. The number of collected survey is 430 people. However, there were 5 responses contained invalid data. Therefore, the total of 425 dataset was used to analyze.

Data analysis and statistical technique

We applied descriptive statistics by showing frequency and percentage for the respondents' demographic, characteristics of company, personal opinion toward digital skill development, Individual's skill development, individual's method of digital skill development, and method that companies used to support digital skills development.

The binary logistic regression was conducted to analyze the predictors of digital skills development and obstacles.

Results

Table 1 shows a descriptive summary of the demographic characteristics of the respondents by gender, generation, educational background, monthly income, current position in their companies, working experience in current position at the current organization, and marital status. About 59.29% of them were female, 40.24% were male and 0.47% were other. The average age of the respondents were 33.06 years old. Most of them were in the Millennial Generation (44.00%) and Generation X (29.65%), and Generation Z (24.94%), and only 1.41% of them were in the Boomer II generation. About 6.35% of the respondents had education below bachelor's degree, 65.89% of the respondents held

a bachelor's degree, 21.88% of them held a master's degree, and 5.88% of them held higher than a master's degree. For the respondents' current position, about 58.59% of them were full-time employees, 13.18% of them were contracted employees, 12.47% of them were executive, 11.06% were manager, and 4.71% of them were supervisor. About 25.65% of the respondents had a monthly income between 25,001 to 35,000 THB, 22.82% of them had a monthly income greater than 55,000 THB, and 19.76% of them had between 15,001 and 25,000 THB. About 76.71% of the respondents were single, 21.18% of them were married, 1.88% of them were separated, and 0.24% of them were divorced.

Table 1 Demographic characteristics of respondents (n = 425)

Characteristics	n (%)	Characteristics	n (%)
Gender		Education	
Female	252 (59.29)	Below bachelor degree	27 (6.35)
Male	171 (40.24)	Bachelor degree	280 (65.89)
Other	2 (0.47)	Master degree	93 (21.88)
		Higher than master degree	25 (5.88)
Generation (Age)		Current Position	
Gen Z (9-24 years old)	106 (24.94)	Full-time employee	249 (58.59)
Millennials (25-40 years old)	187 (44.00)	Contracted employee	56 (13.18)
Gen X (41-56 years old)	126 (29.65)	Executive	53 (12.47)
Boomer II (57-66 years old)	6 (1.41)	Manager	47 (11.06)
Average age = 33.06 years old		Supervisor	20 (4.71)
Monthly income		Marital status	
≤15,000 THB	77 (18.12)	Single	326 (76.71)
15,001-25,000 THB	84 (19.76)	Married	90 (21.18)
25,001-35,000 THB	109 (25.65)	Separated	8 (1.88)
35,001-45,000 THB	43 (10.12)	Divorced	1 (0.24)
45,001-55,000 THB	15 (3.53)		
>55,000 THB	97 (22.82)		

Table 1 Demographic characteristics of respondents (n = 425) (Con.)

Working experiences in current position and organization			
Less than 1 year	50 (11.76)	16-20 years	25 (5.88)
1-5 years	195 (45.88)	21-25 years	37 (8.71)
6-10 years	63 (14.82)	26-30 years	18 (4.24)
11-15 years	29 (6.82)	More than 31 years	8 (1.88)

About 45.88% of them had working experience in their current position at the current organization 1-5 years, 14.82% of them had 6-10 years, 11.76% of them had less than 1 year, 8.71% of them had 21-25 years, 6.82% of them had 11-15 years, 5.88% of them had 16-20 years, 4.24% of them had 26-30 years, and 1.88% of them had more than 31 years. Details of the demographic characteristics of respondents shown in Table 1.

Most of the organizations were 100% Thai-owned (74.84%). About 16.38% of their companies were MNC, and 9.04% were joint venture. For the business size, about 49.41% of the respondents worked in the large-sized companies, 33.41% of them worked in small-sized companies, and 14.59% of them worked in medium-sized companies.

For the respondents' opinion toward digital skill development of the respondents, most of them significantly agreed that digital skills were strongly important for their career (75.92%) and about 18.00% agreed that digital skills were very important for their career. About 79.06% of the respondents realized that their companies had initiated the digital transformation.

For the individual's digital skill development, about 90.12% of the respondents developed a new digital skill (Table 3). Most of them did both upskill and reskill (65.88%). About 18.82% of them preferred to reskill over upskill and most of them were full-time employees with 1-5 years working experiences. The digital skills that this group of respondents developed were big data analytics, IoT, automation, app development, and digital marketing. They are the most in demand digital skill sets in today and future market.

The digital skill sets that they mostly focused on are common digital skills (25.50%) that facilitated them in routine work, big data analytics (12.75%), programming, web, app development (11.71%), automation (11.34%), digital marketing (9.04%), and Internet of Things (IoT) (8.82%).

Table 2 Individual's skill development (n = 425)

Have you developed or learned any new digital skills?	n (%)
Yes	383 (90.12)
No	42 (9.88)
Type of the digital skill development	**n (%)**
Both	280 (65.88)
Reskill	80 (18.82)
Upskill	65 (15.29)

Table 2 Individual's skill development (n = 425) (Con.)

Which digital skills have you developed?	n (%)
Common digital skills for routine work	344 (25.50)
Big Data analytics	172 (12.75)
Programming, Web, App Development	158 (11.71)
Automation	153 (11.34)
Digital Marketing	122 (9.04)
Internet of Things (IoT)	119 (8.82)
Digital Graphic Design	88 (6.52)
Cloud Computing	73 (5.41)
Digital Entrepreneurship	47 (3.48)
AR/VR Technology	38 (2.82)
Cybersecurity	35 (2.59)

Table 3 shows the methods that the respondents used to learn and develop digital skills. Most of them chose self-study through online channel (34.82%) and on-the-job training (31.26%). About 8.87% of the respondents attended the training organized by public sector and 11.20% attended the training organized by private sector. If they had to responsible for the training fee, they tended to attend training organized by the public sector because of the lower fee.

Table 3 Methods of digital skill development (n = 425)

Skill development	n (%)
Self-study through online channel	314 (34.82)
On the job training	282 (31.26)
Attend training organized by private sector but my company responsible for the training fee	101 (11.20)

Skill development	n (%)
Attend training organized by public sector but my company responsible for the training fee	80 (8.87)
Attend training organized by public sector and responsible for the training fee	63 (6.98)
Attend training organized by private sector and responsible for the training fee	62 (6.87)

Table 4 shows the factor influencing decision for digital skill development of the respondents. They were asked to rank the rating scale of 5 "strongly agree" to 1 "strongly disagree".

Table 4 Factor influencing decision for digital skill development (n = 425)

Skill development	$\bar{x}$	S.D.
Love learning new things and to challenge myself	4.08	0.88
Rapid change of digital disruption	4.06	0.88
Career advancement	3.99	0.95
Megatrends	3.99	0.98
Job security	3.69	1.10
To increase salary	3.65	1.17
To promote to a higher position	3.54	1.09
Knowledge and skills gained from university/college was not adequate for the company needs	3.52	1.05
Change to a new position in the same company	3.28	1.23
Support from the company	3.28	1.23
Change to a new position in a new company	3.15	1.35
The field that I graduated is not match with my field of work	3.04	1.26
Encouragement from colleagues	2.77	1.15

The results show that the respondents developed their digital skills because of their interests. They loved to learn new things and would like to challenge themselves. Moreover, they would like to develop their skills to keep up with the rapid change of the digital disruption ($\overline{x}$ = 4.06, S.D. = 0.88). Factors that had the same rate were for career advancement ($\overline{x}$ = 3.99, S.D. = 0.95) and megatrend ($\overline{x}$ = 3.99, S.D. = 0.98). The megatrend accelerated an individual to develop those skills to serve the market needs. They also agreed that the development of digital skills could lead to more job security ($\overline{x}$ = 3.69, S.D. = 1.10) and higher salary ($\overline{x}$ = 3.65, S.D. = 1.17).

The respondents also admitted that knowledge and skills gained from university/ college was not adequate for the company needs ($\overline{x}$ = 3.52, S.D. = 1.05) and they needed to learn almost everything from the beginning. They also developed digital skills to change to a new position in the same company ($\overline{x}$ = 3.28, S.D. = 1.23) and to change to a new position in the new company ($\overline{x}$ = 3.15, S.D. = 1.35). Support from a company also somewhat encouraged them to develop digital skills ($\overline{x}$ = 3.28, S.D. = 1.23). However, encouragement from colleges in the company did not strongly influence the respondents to develop digital skills. Most of the respondents agreed that their current workloads made them very busy and difficult for them to find extra time for digital skill development ($\overline{x}$ = 3.30, S.D. = 1.06). There was no time for them to learn a new skill or even enhanced the existing skill sets. Moreover, they must be responsible for the

training fees when they would like to reskill or upskill ($\overline{x}$ = 3.25, S.D. = 1.20).

Table 5 Obstacles to digital skill development (n = 425)

Skill development	$\overline{x}$	S.D.
The existing workload is already tough enough	3.30	1.06
I must pay the training fee by myself	3.25	1.20
The organization has no concrete funds to support the development of digital skills	3.13	1.15
The organization has no clear policy to support the development of digital skills	3.13	1.16
No incentive/motivation	3.11	1.14
The organization does not see the important of the online certificates	3.04	1.14
Course that I want to learn is taught in foreign languages	2.95	1.22
Skills I developed cannot be utilized in my current job	2.92	1.02

Some training costs a lot more than they expected. If the companies had no financial support, they would not attend those training. Another obstacle was a lack of support from the organizations. The companies had no concrete funds to support the development of digital skills ($\overline{x}$ = 3.13, S.D. = 1.15), as well as a lack of concrete policies and practices to support continuous learning ($\overline{x}$ = 3.13, S.D. = 1.16). Sometimes employees had not realized that the organizations have any training programs or support for upskilling and reskilling. Without tangible supports or incentives, they were not motivated to pursue further development ($\overline{x}$ = 3.11, S.D. = 1.14). They also agreed that their

organizations had low recognition regarding the qualifications they achieved from online or offline courses ($\bar{x}$ = 3.04, S.D. = 1.14). The certifications could not be used for personal assessment in the organizations. Many employees were discouraged because the organizations did not acknowledge their efforts.

Many companies supported the digital skill development of their employees, such as providing new technologies and tools to their employees to facilitate their work (63.3%) and social learning (62.4%).

Table 6 Methods to support digital skill development (n = 425)

Method	Yes (%)	No (%)	Not aware of (%)
Provided new technologies and tools	63.3	17.6	19.1
Social Learning	62.4	24.9	12.7
Consistent in-house training	61.6	25.9	12.5
External training	59.8	22.1	18.1
Training sessions by specialist	57.4	22.1	20.5
Internal workshop	53.4	27.9	19.3
Digital knowledge library	51.5	30.8	17.6
Internal learning center	51.3	29.6	19.1
Paid leave for training	45.6	29.2	25.2
Mentoring/reverse mentoring	45.4	32.5	22.1
Financially support	40.5	37.4	22.1
Scholarships for master and doctoral degree	27.5	50.6	21.9
Training KPI for assessment	22.1	51.1	26.8

The companies also consistently organized in-house training for their employees (61.6%) and dispatched them to attend external training organized by public and private sector (59.8%). The companies also invited a specialist to provide intensive training session at their workplace (57.4%) and offered internal workshop (53.4%). About 51.5% of the respondents knew that their companies had digital knowledge library. About 45.6% informed that their companies offered paid leave option if the employees attended any training.

Logistic Regression

We conducted the binary logistic regression with Enter method to analyze factors affecting the decision to develop digital skills (Model 1) and obstacles affecting the decision to develop digital skills (Model 2). The overall evaluation of the binary logistic regression model fit for Model 1 (x^2 = 156.220, p < 0.001) and Model 2 (x^2 = 172.638, p < 0.001) indicated the whole fits significantly better than an empty model without predictors (Hair et al., 2013). The Nagelkerke R-square function indicated that 64.70% of the variation in Model 1, and 70.20% of Model 2 occurred due to the variation between factors. Model 1 and 2 accurately classified 94.60% and 90.10% of predictions.

There were nine significant predictors that significantly affected the digital skills development (Table 7) and two significant obstacles (Table 8).

The decrease in possessed knowledge (β = -1.832, *p* 0.001) and job relatedness to graduate degree (β = -1.449, *p* 0.001)

significantly increased the likelihood of digital skills development. In contrast, the likelihood of digital skills development significantly increases when there was an increase in a rapid change of digital disruption (β = 2.815, p 0.001), megatrend (β = 2.382, p 0.005), career advancement (β = 1.694, p 0.05), job promotion (β = 1.994, p 0.005), promoting to a new position in the same company (β = 3.432, p 0.001), encouragement from colleagues (β = 0.977, p 0.005), and job security (β = 1.992, p 0.001). For the obstacles, the decrease in no clear policy (β = -1.512, p 0.05) and no funding support from the company (β = -1.320, p 0.05) significantly increased the likelihood of digital skill development.

Table 7 Binary logistic regression predicting factors affecting digital skills development

Driven Factors	B	S.E.	Wald	df	Sig.	Exp(B)
Possessed knowledge	-1.832	0.537	11.649	1	0.001	0.160
Job relatedness to graduate degree	-1.449	0.445	10.585	1	0.001	0.235
Rapid change of digital disruption	2.815	0.591	22.658	1	0.000	16.689
Self-motivated	-0.452	0.482	0.881	1	0.348	0.636
Job promotion	1.994	0.705	7.996	1	0.005	0.136
Increase salary	0.410	0.770	0.283	1	0.595	1.507
Career advancement	1.694	0.746	5.164	1	0.023	5.443
Promote to a new position in the same company	3.432	0.821	17.496	1	0.000	0.032
Promote to a new position in the new company	-0.422	0.302	1.944	1	0.163	0.656
Encouragement from colleagues	0.977	0.309	10.026	1	0.002	2.657
Job security	1.992	0.599	11.061	1	0.001	7.331
Megatrends	2.382	0.777	9.405	1	0.002	10.826
Company supports	0.465	0.376	1.527	1	0.217	1.591
Constant	-1.379	1.251	1.215	1	0.270	0.252

Table 8 Binary logistic regression predicting obstacles to digital skills development

Obstacles	B	S.E.	Wald	df	Sig.	Exp(B)
Current workload	-0.297	0.402	0.544	1	0.461	0.743
Language Barrier	-0.353	0.278	1.622	1	0.203	0.702
Self-support	0.166	0.429	0.150	1	0.699	1.181
No clear policy	-1.512	0.605	6.242	1	0.012	0.220
No funding support	-1.320	0.553	5.701	1	0.017	3.743
No incentive	0.244	0.442	0.306	1	0.580	1.277
Existing skill is adequate	0.431	0.405	1.128	1	0.288	1.538
Online certificate is not credible for company	-0.163	0.413	0.156	1	0.693	0.849
Constant	-5.312	1.865	8.109	1	0.004	0.005

Discussion

This study identified the factors and obstacles affecting the digital skill development. Moreover, attitude toward reskilling and upskilling, and activities that the organizations support their employees to reskill/upskill were presented.

With the rapid change of digital transformation, it is obvious that employees are more likely to develop digital skills when they have inadequate knowledge and skills because they need to utilize those skills in their current job. Career advancement and job security also significantly drive the decision on digital skills development because they can promote to a new position in the same company, which consistent with Zimmerman (2002) and Mandl and Curtarelli (2017). According to Zimmerman (2002), people with self-directed learning processes preferred to respond to new learning challenge. They could acquire new skills and maintain active and effective learning They also realized that digital skills had significant impact on their career advancement in this digital disruption era. Each industrial sector needs different types of digital skills (Mandl & Curtarelli, 2017). Employees developed their digital skills to keep up with the rapid change of the organization and for career advancement. Digital skills enhanced their capabilities and might be able to lead them to a new position or a new job with better future and more secure.

For the digital skills that they mostly developed, many employees were developing their skills and knowledge that related to data analytics and automation process because the skills demand trend in machine-powered and data-driven are growing. Data analysts and scientists are digital skills that are very crucial and challenging for organizations in Thailand. Digital skills that most of respondents developed were big data analytics, programming, website and application development, automation, digital marketing, and the Internet of Things (IoT). According to Hora et al. (2021), the job positions that are the most difficult to recruit are data analysts and scientists, digital transformation specialists, and digital marketing and strategy specialists. The second most are software and application developers and analysts, process automation specialists, and user experience designers.

Methods that the respondents preferred to reskill and upskill were self-study and on the job training. However, they chose on the job training over online study if they had to reskill. This result was in line with the study of Van Laar et al. (2019). Their results suggested that training onsite reduced the amount of difficulties experienced online. Furthermore, on the job training allowed them to learn by doing and solving the real problems.

The significant obstacles to digital skills development were no clear policy and concrete funds to support them. The organizations can play significant role to support an employee's digital skill development. It can discourage employees to reskill or upskill. Many companies financially supported the training fee, which motivated employees to enhance their capabilities.

Previous research had shown that employees' knowledge acquisition and application capabilities significantly increased when they were formally and informally supported by an organization (Scott & Bruce, 1994). Hwang et al. (2015) found that training was important in adjusting skill changes to the rapid expansion of ICTs. The respondents tended to attend the training organized by private sector if their companies supported the training fee. However, if no financial support, they would prefer to attend the training organized by public sector. Digital skill training organized by private sector tended to increase the opportunities to practice with the real experts who had experience in the business. They could learn by using a practical case study. Moreover, they could continue to consult with the experts after the training. A company should collaborate with the private sector to design course and learning system that accelerate and upgrade digital literacy.

Many companies created a continuous learning environment by providing equipment, tools, knowledge source, and activities for employees. Many companies already had regular in-house training, external training, and knowledge library. They could increase the levels of formal and informal support and financial support to encourage employees to enhance digital skills. Moreover, the companies should urge the experienced employees to share and transfer knowledge and know-how to the younger generations, while the youngers share and teach digital skills to them. They all can benefit from the combined talents of their workforce.

Conclusion

From the research results, the significant factors that influence employees in Bangkok and Metropolitan area to make a decision on digital skill upskilling and reskilling were megatrend, rapid change of digital disruption, career advancement, job security, job relatedness, job promotion, knowledge learned from university/college was not adequate, and encouragement from colleagues.

The most important obstacles for digital re- and up-skills were no financial support from the organization and no clear policies or tangible activities to support the reskilling and upskilling.

When employees would like to reskill or upskill, they preferred self-study through online channels. Since it was the most convenient, flexible, and cost-effective method to reskill/upskill their digital skill competency. They could study at their own pace anywhere anytime. Another method was on-the-job training because they could implement knowledge and skills they learned to solve real problems. Moreover, they could expand their skill set that matches the needs of the organizations.

Digital skills they had developed were big data analytics, programming, website and application development, automation, digital marketing, the Internet of Things (IoT), and digital marketing to match with current and future demand.

Activities that the respondents realized that their organization offered were social learning, consistent in-house training, providing

new technologies and tools for employees to develop digital skills, supporting external training, and providing training sessions trained by the specialist in each field with an appropriate period of training. A large organization often organized educational sessions led by experts in the fields who can share ideas, valuable knowledge, and know-how with employees. However, most of their organizations also withhold individual financial support. They had not considered the achievement from an online course into the assessment processes. The organization should recognize and value the qualifications of employees who achieved training courses both online and offline to encourage them to bring their new knowledge back into the workplace to create more value.

They were willing to reskill in any situation because they would like to enhance their skill sets and knowledge to catch up with the trend in the digital transformation era, career advancement, and job security.

Managerial Policy

A company can use results from the research as a guideline as follows.

1. Management and department involved should create and build a learning environment and support their employees to develop digital skills, such as providing the upskill/reskill programs that meet high-demand skills, promoting mentoring and reverse mentoring to encourage the work experienced employee and technological-oriented younger employee to share an idea, collaborate, and teach each other.

2. Executive should set up practical policies and strategies that support activities of reskilling and upskilling by setting tangible rewards and incentives to employees who achieved the training course both online and offline.

3. HR department can conduct a skill gap analysis through employee interviews and performance assessments to identify the gap between the existing skills and skills it needs for a company's growth and sustainability. It helps organizations to highlight skill deficits, what training should be conducted, and the appropriate method to deliver the trainings.

4. HR department can record reskill and/or upskill progress and use it as a performance evaluation of each employee.

Providing meaningful supports that meet employees' needs will facilitate digital skill development and retain an experienced and high-skill workforce who can create significant value to the organizations.

Limitations and Future Research

Future work can compare the behavior of each generation to explore unique characters of each group if exists and explore the guideline of HRD programs that suitable for a distinct group of employee characteristics and job fields.

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