

## Effects of Digital Banking on Employees' Perception of Their Job Security in Commercial Banking Industry

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### Abstract

Digital banking reduces the demand for some job positions in commercial banks. Therefore, this research examines the effects of digital banking on employees' perception of their job security in commercial banking industry and their preparation for the impacts. The data are from self-administered questionnaires, which are collected from 402 bank employees in 70 commercial bank branches in Chiang Mai. The ordered probit model is used to identify individual and job characteristics determining employees' job security in commercial banking industry. The results show a high perceived job security of employees in the commercial banking industry of Thailand. In particular, the majority of the respondents are confident that they will be able to maintain their current career path with steady income growth with the current employers. A job position with a higher risk is teller and other positions with routine tasks. Both knowledge and skills, such as English, teamwork and digital skills, can significantly improve job and income security. The results indicate that Thailand's commercial banks can adjust their employment structure from technological disruption quite successfully and the employees feel secure with their current jobs.

**Keywords:** Digital Banking, Job Security, Commercial Banking, Employees' Adaptation

**JEL Classification Codes:** C12, C83, J28

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## 1. Introduction

New advances in information and communication technologies (ICTs) have transformed the commercial banking industry over the past three decades (Frame & White, 2014). The adopted technologies in banking industry (such as ATMs, e-banking and m-banking), which allow customers to conduct transactions wherever and whenever they prefer without having to travel to bank branches during opening hours, is called “Digital Banking” (Van der Boor, Oliveira, & Veloso, 2014). Digital banking can bring substantial benefits for banking industry such as increasing productivity, increasing efficiency and reducing costs (Kamau, 2011; Kasman, 2012). However, the digital banking of Thailand’s banks leads to reducing of the number of jobs available because most customers only come into bank branches for more complicated services now that routine tasks have been automated. Therefore, most Thai commercial banks plan to decrease their branches and cut their workforces (Phuket News, 2018). Since 2015 until 2018, the number of Thai commercial bank branches fell to 4.6% from 7,061 branches in 2015; 7,016 in 2016; 6,784 in 2017 and 6,734 in 2018 (Sanguanprasit, 2018). Strategies for downsizing and restructuring the labor forces include hiring no new employees and offering early retirement incentives (Thai PBS, 2018).

This situation has caused significant distress to many bank employees and forces them to prepare themselves for the impacts to their jobs (Abukhzam & Lee, 2010). To prevent the impacts of various automation technologies on bank employees, certain banks provide strategies for some employees from the closing branches. For example, some banks gave a few years notice, which will allow employees to upgrade their skills and adapt to the rapidly changing financial industry. Therefore, some bank employees can be redeployed to investment consulting and business loan assessment (Phuket News, 2018).

Although the adoption of new technologies usually reduces employment for bank workers (Frey & Osborne, 2015; Kumar et al., 2011), it is possible that some technologies will displace workers while others will simply eliminate particular activities or roles while shifting the focus toward higher-value tasks, potentially creating new employment opportunities (Olanrewaju, 2014). Therefore, this research aims to evaluate the effects of digital banking on employees’ job security in Thailand’s commercial banking industry by examine factors affecting job security for bank employees and explore how current employees prepare themselves for the possible impacts of digital banking.

## 2. Literature Review

Technological innovations have had a large impact on various service industries over the past few decades. Automation also increased during this era replacing routine tasks traditionally performed by service workers (Borland & Coelli, 2017). For banking industry in recent years, e-banking technologies have been adopted throughout the world which posing a further threat to bank employee jobs as fewer transactions require bank staff. There are widespread fears of job loss due to automation in the banking industry, as well as concerns about the loss of worker autonomy and the challenges of learning to use new technologies (Abukhzam & Lee, 2010). The problem of job loss resulting from new technology adoption may be terrible if there is lack of technological proficiency that further reduces employment prospects for less skilled workers.

There are some evidences that technological change could lead to job loss indirectly by affecting working conditions. Bashir and Ismail Ramay (2010) note that stressors affecting bank employees in Pakistan, including the need to keep pace with rapid technological changes in their field, contributed to increased job stress, which reduced job performance. This finding suggests that rapid adoption of new

technologies may contribute to job loss by negatively impacting performance. Other research has also linked performance to the ability to keep up with new technology. Abbas et al. (2014) found that although ICTs reduced bank employee workloads and provided immediate access to information that helped to improve service quality, but if employees did not receive sufficient training in the new technologies, their customer service and overall performance suffered.

Many researchers have examined the impacts of banking technologies on bank employment and employees' job security in various nations, but no studies were identified during the literature search that addressed the impacts of banking technologies on job security of employees in Thailand's banking industry. Therefore, this research will make an original contribution to the literature. However, this research will also have practical significance because determining how automation technologies affect job security could aid in the development of strategies for reducing employee fears about job loss and imparting the technological skills bank workers require to adapt to changes within the industry. Moreover, there are many positions in commercial banks in addition to bank tellers. This research will also provide insights into the evolving job roles of modern bank employees, which will be useful for determining the soft skills that must be developed to ensure that bank workers adapt successfully to new industry requirements.

### 3. Research Methodology

#### 3.1 Survey and data

As the main objective of this paper is to evaluate the effects of digital banking on employees' perception of job security in Thailand's commercial banking industry, we use the self-administered questionnaires to collect the data. The population of interest are key job positions of commercial bank branches in Thailand including bank managers, assistant managers, senior

employees, tellers, marketing staffs, cashiers and other positions. This study used the quota sampling method to collect the total of 402 samples (the 18 missing observations are because (1) some branches are small and do not have some job positions and (2) some personnel were absence from work at the survey date). Specifically, we collected 6 samples of employees with different job positions from each of the 70 bank branches of 20 commercial banks in Chiang Mai including Bank of Ayudhya, TMB Bank, Bangkok Bank, Government Savings Bank, KrungThai Bank, Siam Commercial Bank, Kasikorn Bank, UOB Bank, Thanachart Bank, Bank for Agriculture and Agricultural Cooperatives, Government Housing Bank, Islamic Bank, CIMB Thai, Land and Houses Bank, Export-Import Bank of Thailand, ICBC (Thai), TCR Bank, TISCO Financial Group, SME Bank and Kiatnakin Bank.

#### 3.2 Data Analysis

The analysis techniques were selected based on two research objectives. The first objective is examining the effects of digital banking on employees' perception of job security in commercial banking industry. The second objective is exploration of how employees are preparing themselves for the impact of digital banking. For the first objective, this study examines factors determining three aspects of job securities, which are (1) the security to be able to keep the job position (2) the security to have steady income growth and (2) the security to work with current employers. As the job security variables are measured using Likert scale, this objective was analyzed by using an ordered probit approach. That is, the dependent variables can take a number of values,  $y_i = \{0, 1, 2, \dots, 10\}$ , where  $y_i$  is job security. From the random utility model, the utility that individual  $i$  is

$$y_i^* = \beta' x_i + \delta_i$$

where  $x_i$  is individual and job characteristics.  $\epsilon_i$  is assumed to be independently and normally distributed with mean zero and variance normalized to 1. That is the distribution of  $y_i | x_i$  is normally distributed with mean  $\beta' x_i$  and variance 1.

The model defines  $n$  cut-off points or threshold parameters where  $\mu_1 < \mu_2 < \dots < \mu_n$ . The latent variable  $y_i^*$  cannot be observed but the choice variable  $y_i$  can be observed where;

$$y_i = \begin{cases} 0 & \text{if } y_i^* \leq \mu_1 \\ 1 & \text{if } \mu_1 \leq y_i^* \leq \mu_2 \\ & \vdots \\ n & \text{if } y_i^* > \mu_n \end{cases}$$

The probability that individual  $i$  choose alternative  $k$  is:

$$P_{ik} = P_r (y_i = k | x_i) = \begin{cases} \Phi(\mu_1 - \beta' x_i) & \text{for } k = 0 \\ \Phi(\mu_2 - \beta' x_i) - \Phi(\mu_1 - \beta' x_i) & \text{for } k = 1 \\ & \vdots \\ 1 - \Phi(\mu_n - \beta' x_i) & \text{for } k = n \end{cases}$$

where  $\Phi( . )$  is the cumulative standard normal distribution. The analysis of the first objective identifies which groups of employees get effected most in the age of automation technologies. The information could aid in the development of strategies for reducing employee fears about job loss and imparting the technological skills bank workers require to adapt to changes within the industry.

The second objective, exploration of how employees are preparing themselves for the impact of digital banking, was studied using descriptive statistics. The analysis of the second objective can provide insights into the evolving job roles of modern bank employees, which will be useful for determining the soft skills that must be developed to ensure that bank workers adapt successfully to new industry requirements.

#### 4. Results

##### 4.1 Individual and job characteristics

The final sample size of the study was  $n = 402$  employees, which was slightly larger than the minimum sample targeted.

Demographic information was collected about the respondents (Table 1).

##### 4.1.1 Demographic information.

From the sample, the majority of respondents were female (73.3%), with a smaller group of male respondents (26.6%). The largest age group was aged 30 to 39 years (43.5%), followed by 20 to 29 years (34.6%), 40 to 49 years (15.2%) and 50 to 59 years (6.7%). All respondents had either a Bachelor degree (77.6%) or higher than a Bachelor degree (22.4%).

For the professional qualification, the information collected includes licenses that the respondent held, training received, and English skills and certification. For licensing, most of respondents held a life insurance broker license (86.8%) and a non-life insurance broker license (79.1%). A large group also held an IC license (46%). However, only a few respondents held a life insurance agent license (4%), a non-life insurance agent license (1.5%), or other licenses (2.5%). For on-the-job training, most of the respondents received an IC license course (51.2%). Large groups had also received personal skill development

training (42.8%) and teller training (36.1%). It was less common to receive English training (17.4%) or other training (5.7%). For English skill, most respondents indicated they had at least some English skills (91.3%). Respondents were most likely to rate themselves with fair (62.4%) or good (28.1%) listening and speaking skills

and with fair (62.2%) or good (27.4%) reading and writing skills. Most respondents had not taken formal English certifications. Of those that had, most had taken TOEIC, with scores ranging from 350 to 725. Only a small number of respondents had TOEFL or IELTS certifications.

**Table 1.** Summary of employees' demographic of the sample

		Frequency	%
<b>Gender</b>			
Male		107	26.6%
Female		295	73.3%
<b>Age</b>			
20-29		139	34.6%
30-39		175	43.5%
40-49		61	15.2%
50-59		27	6.7%
<b>Education</b>			
Bachelor degree		312	77.6
Higher than bachelor degree		90	22.4
<b>Total</b>		<b>402</b>	<b>100</b>
<b>Type of License</b>			
Life insurance agent license	No	386	96
	Yes	16	4
Life insurance broker license	No	53	13.2
	Yes	349	86.8
Non-life insurance agent license	No	396	98.5
	Yes	6	1.5
Non-life insurance broker license	No	84	20.9
	Yes	318	79.1
IC license	No	217	54
	Yes	185	46
Other license	No	392	97.5
	Yes	10	2.5
	<b>Total</b>	<b>402</b>	<b>100</b>
<b>Training received</b>			
Teller Trainee Program	No	257	63.9
	Yes	145	36.1
English Program	No	332	82.6
	Yes	70	17.4
IC License course	No	196	48.8
	Yes	206	51.2
Interpersonal skill development program	No	230	57.2
	Yes	172	42.8
Other program	No	379	94.3
	Yes	23	5.7
	<b>Total</b>	<b>402</b>	<b>100</b>

**Table 1.** Summary of employees' demographic of the sample (Continued)

<b>English skills</b>	<b>Level</b>	<b>Frequency</b>	<b>%</b>
Listening and speaking	Excellent	9	2.2
	Good	113	28.1
	Fair	251	62.4
	Poor	29	7.2
Reading and writing	Excellent	10	2.5
	Good	110	27.4
	Fair	250	62.2
	Poor	32	8
<b>English standardized tests</b>		<b>Frequency</b>	<b>%</b>
TOEIC Scores	Not taken	371	92.3
	350-450	9	2.2
	480-550	8	2.0
	560-650	9	2.2
	660+	5	1.2
<b>English standardized tests</b>		<b>Frequency</b>	<b>%</b>
TOEFL Score	Not taken	400	99.50
	450-500	2	0.50
IELTS Score	Not taken	399	99.25
	5-6	2	0.5
	7	1	0.25
<b>Total</b>		<b>402</b>	<b>100</b>

#### 4.1.2 Job characteristics.

Job characteristics included current position, previous position, and the knowledge and skill involvement of the employee in the current role (Table 2 and 3).

This study surveyed all job positions in all 70 bank branches. That is, the current position of the sample composes of branch manager, assistant manager, senior officer, bank teller, marketing officers and cashiers. It was most common for respondents to have spent two to five years in their current position (54.5%). For about half the respondents, their current position was their first in the company (47.3%). Of

those that had held a previous position, it was most common for them to have held a bank teller role (20.1%). Most reported two to five years in the previous position (35.6%).

For knowledge and skills required by their current position, as shown in Table 3, respondents perceived their roles to have a relatively high knowledge and skill involvement. While respondents were least likely to agree that their role requires English skills ( $M = 6.57$ ,  $SD = 2.112$ ), they were most likely to view their roles as requiring communication skills ( $M = 9.15$ ,  $SD = 1.463$ ).

**Table 2.** Summary of job characteristics of the sample

<b>Current positions</b>	<b>Frequency</b>	<b>%</b>
Bank branch manager	16	4
Assistant manager	64	15.9
Senior officers	74	18.4
Bank tellers	91	22.6
Marketing officers	49	12.2
Cashiers	21	5.2
Other	87	21.6
<b>Total</b>	<b>402</b>	<b>100</b>

**Table 2.** Summary of job characteristics of the sample (Continued)

<b>Time in current position</b>		
0-1 years	97	24.1
2-5 years	219	54.5
6-10 years	70	17.4
11-20 years	13	3.2
More than 20 years	3	0.8
<b>Total</b>	<b>402</b>	<b>100</b>
<b>Previous Positions</b>		
Bank branch managers	3	0.7
Assistant manager	16	4
Senior officers	13	3.2
Bank tellers	81	20.1
Marketing officers	21	5.2
Cashiers	4	1
<b>Previous Positions</b>		
Other	74	18.4
Never in current company before current position	190	47.3
<b>Total</b>	<b>402</b>	<b>100</b>
<b>Time in Previous Position</b>		
0-1 years	58	14.4
2-5 years	143	35.6
6-10 years	110	27.4
11-20 years	54	13.4
More than 20 years	37	9.2
<b>Total</b>	<b>402</b>	<b>100</b>

**Table 3.** Knowledge and skill involvement of the current role

	<b>Mean</b>	<b>Std. Deviation</b>
1.1 My job is considered routine.	7.30	2.518
1.2 My job is knowledge-based.	8.56	1.451
1.3 My job requires English skill.	6.57	2.112
1.4 My job requires teamwork skill.	8.92	1.284
1.5 My job requires sale skill.	8.80	1.732
1.6 My job requires communication skill with customers.	9.15	1.463
1.7 My job requires critical thinking skill.	7.82	2.912
1.8 My job requires problem solving skill.	9.09	1.201
1.9 My job is appropriate for me.	8.37	1.540

#### 4.1.3 Employment restructuring.

Questions about employment restructuring included five-year predictions for changes in banking service channel utilization, possible branch closures and changes in the employment structure in the employee's own branch.

For the changes in banking service channel utilization, in general, respondents expected reductions in physical branch channel utilization for services including

account and transaction viewing, deposits and withdrawals, domestic transfers, and product information. They were not certain about overseas transfers, bill payments and top-ups, official account opening, credit card opening, account or card suspension, formal statement requests, loan applications, loan advice, exchange rate checking, currency exchanges, mutual fund sales, and insurance sales.

For the potential overall branch reduction, most respondents were not certain how many physical branches their bank had closed nationally (71.9%), regionally (66.4%) or provincially (58.2%) over the past two years. Respondents were also not sure how many branches would close in the next five years nationally (78.6%), regionally (80.8%), or provincially (81.3%). For the changes in the employment structure in the employee's own branch, most employees did not expect the positions (70.9%) or number of employees (71.4%) in

their own branch to decrease over the next five years.

#### 4.2 Job security and factors determining the level of job security

Respondents showed positive, but not strongly positive, views on their job security (Table 4). They were most likely to believe that their income would grow over the next five years ( $M = 8.12$ ,  $SD = 1.849$ ), but least likely to believe they would remain in their current position over the next five years ( $M = 7.11$ ,  $SD = 2.625$ ).

**Table 4.** Descriptive statistics: Job security

	Mean	Std. Deviation
3.1 I believe I still remain in my position in the next five years.	7.11	2.625
3.2 I believe my income will grow steadily until the next five years.	8.12	1.849
3.3 I believe I still remain in my current bank in the next five years.	7.12	2.658

The factors determining the level of job security were examined using three ordered probit regressions corresponding three different dimensions of job security as shown in Table 4. To summarize, Model 1 studies factors determining the security in job position, Model 2 studies factors determining income security and Model 3 studies factors determining employer security. The job security determinants compose of individual and job characteristics. Individual characteristics include the dummy for life insurance broker license, non-life insurance broker license, IC license, female gender, higher education than bachelor degree, English listening and speaking skills and English reading and writing skills. Job characteristics include the dummy for work experience in current bank, job's routine, job's knowledge-based, teamwork skill, sale skill, problem solving skill, job's relevance with digital banking, manager position, assistant manager position, senior officer position, bank teller position, marketing officer position, cashier position and appropriateness for job (Table 5).

For individual characteristics, the ordered probit results showed no significant

determinants for job position and employer security. However, for the income security, the life insurance broker license has a significantly negative effect on income security and English skill has significantly positive effect. These findings are generally consistent with previous studies, which have shown that employees with lower skills and lower education levels are more threatened by automation than high-skill, highly educated employees (Borland & Coelli, 2017; Liu & Jacobs, 2014; Michaels, et al., 2014). Age did not play a role as such, as has been shown in previous studies (Wong & Tetrick, 2017). However, the amount of time in role did affect job security, which could be related. In line with the findings of Davis (2017) there was no significant difference in job security by gender. This could indicate that the difference in vulnerability to automation has disappeared, but it could also indicate that banks are not as gender-segregated as institutions that have shown these effects (Burris, 1989).

In contrast to individual characteristics, several job characteristics significantly affect security for job position, income and current employer. For

employees with different task characteristics, employees with routine tasks perceive that they are more likely to change job positions. However, they do not perceive that they will have lower income and still will have a job at their current banks. Employees with specific knowledge or specialization perceive that they have a higher job security in all dimensions. Employees with tasks that require teamwork answered that they have higher income security than those with individual tasks. Employees with digital tasks have a higher tendency to remain in the same job position. A problem-solving task has a significantly negative impact on the probability that employees will stay in the same bank because problem solving skill are a good foundation for non-routine tasks. This result is counter intuitive when interpreting the tendency to change job only as the lack of job security. In this case, the negative outcome may not imply a lower job security but a higher opportunity to move to other employers.

To compare employees in different job positions, managers have a higher security in the position and more likely to remain at the same bank comparing to other positions because management position requires more non-routine skills. On the other hand, the position with routine tasks like tellers, feel less secure about their income. This implies that management position feels more secure than operation position. In addition to all tasks and positions, employees who think that their tasks are appropriate to them have a higher job security. These findings are broadly consistent with studies that have indicated that low-skill jobs like clerical and sales positions are vulnerable to automation, but high-skill jobs are less vulnerable to automation and therefore may be perceived as being more secure (Borland & Coelli, 2017; Capgemini, cited in Wilts, 2017; Edmonds & Bradley, 2015). Given the rest of the findings, it is likely that employees with higher knowledge/skill involvement may also have longer job tenure.

**Table 5.** Ordered Probit results

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
	Security in job position	Income security	Employer security
Life insurance broker license	-0.143	-0.404*	-0.115
	(0.212)	(0.214)	(0.214)
Non-life insurance broker license	0.227	0.217	-0.0685
	(0.176)	(0.177)	(0.177)
IC license	-0.138	-0.0792	-0.160
	(0.120)	(0.121)	(0.120)
Female gender	0.0480	0.0144	-0.0454
	(0.120)	(0.121)	(0.121)
Higher education than bachelor degree	-0.114	0.0580	0.0936
	(0.136)	(0.139)	(0.137)
English listening and speaking skills	0.132	0.457***	0.0933
	(0.174)	(0.175)	(0.173)
English reading and writing skills	0.0135	-0.109	-0.0941
	(0.169)	(0.170)	(0.169)
Work experience in current bank	0.00698	-0.0108	0.0113
	(0.00907)	(0.00907)	(0.00919)

**Table 5.** Ordered Probit results (Continued)

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
	Security in job position	Income security	Employer security
job's routine	-0.0566** (0.0248)	0.0145 (0.0249)	-0.00150 (0.0248)
Job's knowledge-based	0.155*** (0.0443)	0.107** (0.0449)	0.0774* (0.0439)
Teamwork skill	0.0202 (0.0521)	0.127** (0.0529)	0.0138 (0.0522)
Job's sale skill	-0.0130 (0.0380)	0.0136 (0.0385)	0.0130 (0.0381)
Problem solving skill	-0.0908 (0.0565)	0.0504 (0.0564)	-0.0979* (0.0563)
Job's relevance with digital banking	0.0631** (0.0275)	-0.00201 (0.0278)	0.0398 (0.0274)
Manager position	0.968** (0.385)	0.197 (0.356)	1.091*** (0.392)
Assistant manager position	0.0403 (0.197)	-0.0957 (0.200)	0.0248 (0.198)
Senior officer position	0.0340 (0.181)	-0.278 (0.183)	0.218 (0.183)
Bank teller position	-0.150 (0.175)	-0.317* (0.178)	-0.0818 (0.176)
Marketing officer position	-0.134 (0.209)	-0.0728 (0.214)	-0.109 (0.210)
Cashier position	-0.132 (0.260)	-0.308 (0.262)	-0.245 (0.260)
Appropriateness for job	0.153*** (0.0426)	0.0934** (0.0432)	0.191*** (0.0425)
Observations	402	402	402

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

### 4.3 Employee adaptation

Finally, respondents were asked about their adaptation. This included their five-year future plans (Table 6), their required skills if staying in the current company and their required skills if planning to move to a new company (Table 8).

**Five-year future plans.** Most of the respondents saw themselves as working in their current positions or growing in their current career line (61.2%). Only 19.2% were planning to move to a different position

in their current company, while 19.7% were planning to move to a new country.

**Moving within the company.** The skills most commonly identified as needed for these new roles in the current company included teamwork and customer communication (10%) and technical skills (9.7%).

**Moving to a new company.** Technical skills were most commonly identified as required (10.9%).

**Table 6.** Descriptive statistics: Five-year future

How do you see your future work in the next five years?	Frequency	%
Still working in current positions or growth in the same line	246	61.2
Move to other positions in different line within current company	77	19.2
Move out from current company	79	19.7
Total	<b>402</b>	<b>100</b>

## 5. Discussion and concluding remarks

This research examines the level of job security in three dimension including the security in job position, income security and employer security of commercial banking staffs in the age of digital banking. The key finding is that most respondents showed positive views toward their job security. The majorities of the respondents are likely to be able to and will remain in their career path with steady income growth with the current employers. As the digital banking has caused commercial banks to reduce the number of their physical branches, the survey outcomes are rather surprising. A possible explanation is the lack of awareness. From the survey, employees were in general not certain about bank branch closures (either past or future) and did not anticipate job losses or reduction in employees in their own bank branches over the next five years. Another explanation is that the impact of digital innovation already started in the banking industry. Some adjustments, such as a reduction in new recruits and re-skilled programs, have already been made. Therefore, on the

average, current branch employees believe that they have decent career transition plan. Although the overall reported level of job security is high, a job position with a higher risk is teller and other position with routine tasks. Both knowledge and skills, such as English, teamwork and digital skills, can significantly improve job and income security.

An issue to be noted in this study is that the three dimensions of job security were measured with survey questions (1) I believe I still remain in my position in the next five years, (2) I believe my income will grow steadily until the next five years and (3) I believe I still remain in my current bank in the next five years. Therefore, the level of job security might be underestimated as employees may voluntarily change jobs. With the possible bias, the results still show that the levels of the three dimensions of job security are all above 7 out of 10. That is, Thailand's commercial banks can adjust their employment structure from technological disruption quite successfully and the employees feel secure with their current jobs.

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