



(RESEARCH ARTICLE)



Challenges to employees in the context of digital transformation

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Abstract

With the foundation of digital technology and the integration of smart technologies to optimize production processes and methods, digital transformation is opening up many opportunities but also many challenges for Vietnam's workforce. Vietnam is facing with many challenges in the process of promoting digital transformation due to the arising of unprecedented new relationships, dealing with the consequences when traditional relationships may be disrupted. That changes the organizational structure, internal relationships as well as gives rise to new relationships between actors in the economy. On the other hand, while human resources for digital transformation have not been able to respond to changes in market demand, there is a risk of losing traditional jobs when workers do not receive advanced training in time to keep up with the requirement on the skills in the digital nation. The article focuses on analyzing and clarifying challenges for employees in the context of digital transformation. Thereby, the article mentioned solutions to support employees to adapt to the change that the digital transformation context creates.

Keywords: Digital Transformation; Employees; Challenges; Jobs

1. Introduction

In the period of 2021 - 2030, implementing national digital transformation, developing the digital economy, improving productivity, quality, efficiency and competitiveness of the economy is one of the six key tasks of the country. and determined in the Resolution of the 13th National Congress of the Party [1]. Vietnam is one of the first countries in the world to issue a national digital transformation program or strategy [2]. Digital transformation affects all aspects of socio-economic life, including employment of workers. Under the impact of digital transformation, workers' jobs have many changes, besides opportunities, digital transformation has been creating many challenges for jobs (especially for workers in low labor productivity countries). Employees who are at risk of losing their jobs, having their incomes reduced, or facing the requirement to regularly change their working knowledge and skills to adapt in the context of digital transformation are major challenges for all levels, sectors, enterprises and employees. The article focuses on research challenges to workers' employment in the context of digital transformation, on that basis, there are some recommendations to help workers better respond and adapt to employment challenges, promote employment and quality employment.

2. Material and methods

2.1. Information collecting methods

Secondary information sources were synthesized from topics, reports at seminars, statistics of authorities, data in industries and enterprises. Primary sources of information are obtained from carrying out a case study of 48 enterprises/production facilities in Hanoi (formal sector is 26, informal sector is 22), in all 3 industries, agriculture and

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services service. The number of ballots distributed was 480 votes (each field has 8 enterprises/business facilities, each enterprise/business facilities 10 votes); collected 465 valid votes.

2.2. Data analysis and processing methods

Statistical analysis methods are descriptive statistics (describing the current situation) and comparative statistics (comparing the change in employment of employees, comparing opportunities and challenges for employees' employment in different regions, occupations, age groups, etc.).

3. Results and discussion

3.1. The number of jobs in a part of the labor force decreased

According to the survey results, the trend of using the labor size of enterprises shows that some enterprises tend to reduce the size of their personnel. In which, the service industry decreased the most with 4/16 enterprises (accounting for 25%); followed by industry with 3/16 enterprises (accounting for 18.75%); agriculture with 2/16 enterprises (accounting for 12.5%).

Risk of job loss of a part of employees, there is gender instability. According to the survey results, there are 250/465 opinions that women are at a higher risk of losing their jobs than men in the context of digital transformation (accounting for 53.8%) and 46.2% of survey respondents said that the risk of men losing their jobs is higher than that of women (Figure 1).

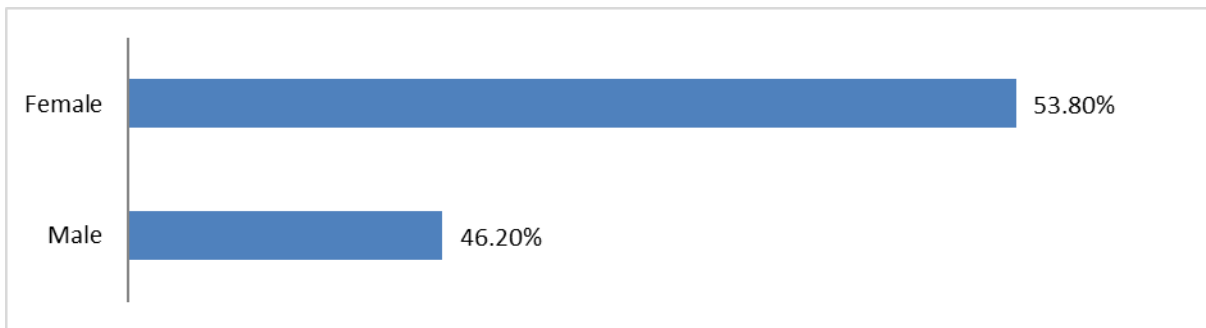


Figure 1 Risk of job loss by gender

Due to the nature of the work, some occupations and fields have more male or female employees, for example, the mechanical and energy sectors are more men than women, and the garment industry has more women than men. Therefore, digital transformation, application of information technology and internet in the production and business process, the risk of job loss of male and female workers is different depending on the industry and labor characteristics.

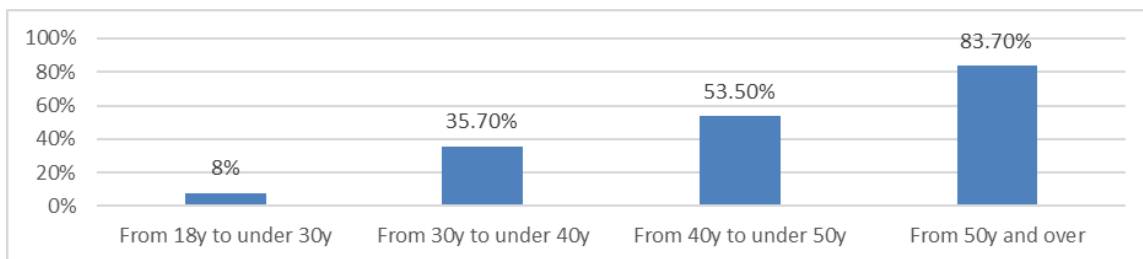


Figure 2 Risk of job loss by working age

According to the survey results, workers by age group are at risk of losing their jobs according to 3 levels (high risk, medium risk and low risk). At a high risk level, the group of workers aged 50 and over had the most choices with 389/465 turns (accounting for 83.7%); followed by the group of workers aged between 40 and 50 years old with 249/465 choices (accounting for 53.5%); lower is the group of workers from 30 to 40 years old with 166/465 choices (accounting for 35.7%); and the group of workers from 18 to under 30 years old have less choices (37/465 choices, accounting for 8%).

In different industries and fields, the risk of job loss at a high level varies by job position. According to the survey results, the group of direct workers with the highest number of choices is the group with the highest risk of job loss with 231/465 choices (accounting for 49.7%), followed by management workers. middle level with 115/465 choices (24.7%); Senior management employees have the least choice with 53/465 choices (accounting for 11.4%) (Table 1).

Table 1 High risk of job loss by job position

Unit: turns							
Job position	total	Agriculture		Industry		Service	
		Crop	Breed	Processing the wood	Metal manufacturing	Banking finance	Accommodation and food services
Senior management labor	53	9	10	8	8	7	11
Middle management labor	115	13	12	15	15	13	13
Direct labor	231	47	53	35	41	26	29

This result is also similar across industries, economic sectors and employment positions. According to the assessment in Table 1, in all 6 research industries, the risk of job loss is high, the most chosen are direct workers. This rate in the cropping industry is 47/80 choices (58.75%), the breed industry is 53/75 choices (70.7%), the wood processing industry is 35/76 choices. selected (46.1%), metal manufacturing is 41/78 (52.6%), banking finance industry is 32.5% and food and accommodation service industry was 29/76 (accounting for 38.2%).

Thus, for manufacturing enterprises, especially labor-intensive ones, when digital transformation, the risk of job reduction is often direct labor. For middle- and high-level workers, the same rating is available. In the agricultural sector, 25/155 employees believe that middle-management workers have the highest risk of losing their jobs (accounting for 16.1%) and 19/155 workers choose senior management workers (accounting for 16.1%). 19/155 employees choose senior management workers (accounting for 12.3%). In the industry, there are 30/154 employees think that middle management employees have the highest risk of losing their jobs (accounting for 19.5%) and 16/154 workers choose senior management workers (accounting for 19.5%). 16/154 employees choose senior management workers (accounting for 10.4%). In the service industry, there are 26/156 employees who think that middle management employees have the highest risk of losing their jobs (accounting for 16.7%) and 18/156 employees choose senior management workers (accounting for 16.7%);18/156 employees selected senior management workers (accounting for 11.5%).

The risk of job loss of employees working in different economic sectors is markedly different. For workers working in the formal sector, it is also found that the risk of job loss is higher than that of workers in the informal sector (Table 2).

Table 2 High risk of job loss by economic sector

Unit: turns				
STT	Job position	total	Official area	The informal sector
1	Senior management labor	53	41	12
2	Middle management labor	115	70	45
3	Direct labor	231	98	133

Senior managers and middle managers are two groups of positions with a higher "high risk of job loss" selection in the formal sector than in the informal sector. Specifically, for senior management positions, the selection rate in the formal sector is 41/53 turns of people (accounting for 77.4%) and the informal sector is 12/53 turns of people (accounting for 22.6%).). For middle management positions, the selection rate in the formal sector is 70/115 people (accounting for

60.9%) and the informal sector is 45/115 people (accounting for 39.1%). Particularly for direct labor positions, there is a higher risk of job loss due to digital transformation in the informal sector than in the formal sector with 57.6% (formal sector is 42.2%). These are the workers who are most likely to be vulnerable in the context of digital transformation, due to the lack of legal guarantees on labor and social security (or the absence of labor contracts and social insurance, ect) and most of these informal workers are often outside the coverage of policies such as training support, preferential credits, unemployment insurance, and some employment support policies of the Government.

Finding out how hard it is to find a new job, up to 377/465 opinions said that skills did not meet the job requirements of recruiting enterprises (accounting for 81.1%); 214/465 opinions said that it is difficult to find and collect recruitment information (accounting for 46%); 135/465 comments that it is due to age barriers (accounting for 29%); 109/465 opinions said that because of the low demand for human resources of enterprises and organizations (accounting for 23.4%).

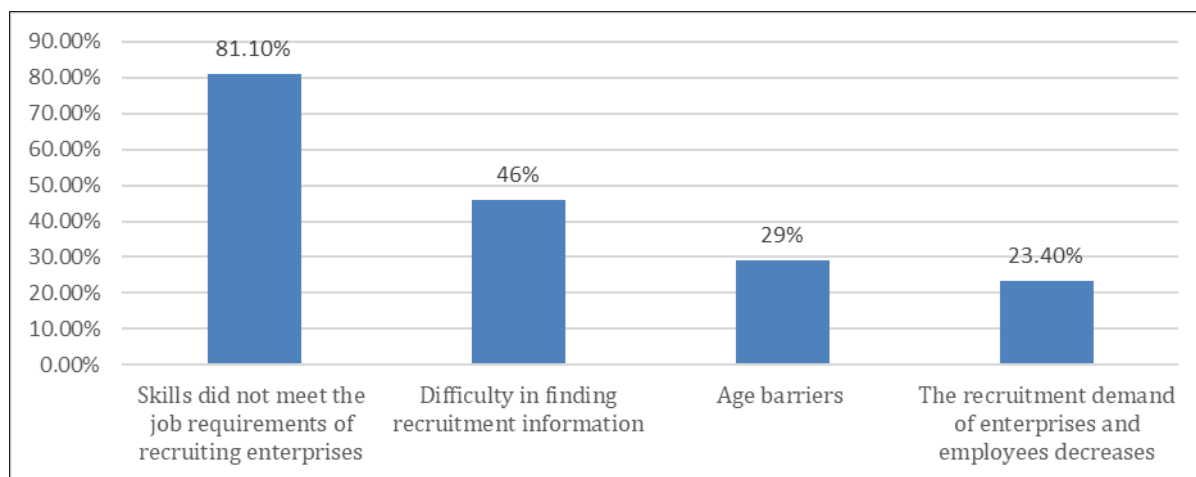


Figure 3 Difficulties of workers when looking for new jobs

Thus, digital transformation has both created new jobs, and at the same time some jobs will be lost, some jobs no longer need many people to do, or the capacity requirements of people doing the work change leads to a group of workers facing the challenge of reducing the number of jobs, the risk of job loss or income reduction. According to the above analysis, older workers, direct workers in some occupations will be the subjects at higher risk of losing their jobs.

3.2. The lack of digital skills of workers

Vietnam's economy is benefiting from the process of digitization, whether the benefit is fast or slow depends a lot on the development of the labor market and the quality of human resources. Although the quality of Vietnamese labor is gradually improving, there are still many limitations such as the high rate of untrained or untrained workers. This proportion has a large disparity between informal and formal workers (87.15% versus 42%). The labor market is experiencing a shortage of practical engineers and middle and high-level technical workers. The barrier to digital transformation in Vietnam is seen in "The future of Vietnam's digital economy - Towards 2030 and 2045" [3], which is human resources at all three levels, including the mass level of the consumer society for the adoption of digital applications, the IT workforce for digital production, and the elite group to lead the digitization process. As a result, Vietnam is lagging far behind its main regional competitors in terms of existing digital skills.

Much of the workforce is lacking in core job skills, typically digital skills. Report "The current situation and skill needs of workers in the manufacturing and processing industries in FDI enterprises in Vietnam in the period of 2021-2023" [4], surveying 200 enterprises Foreign direct investment (FDI) shows that the level of responsiveness to digital skills of workers in FDI enterprises is mainly new at medium and low levels. According to the results of the enterprise survey of the Institute of Labour Sciences and Social Affairs in 2021 [5], most employers believe that new workers respond at a medium and low/very low level in the fields of data analysis (83.25%); data security/communication security (86%); the field of application of support systems (83.3%); collaborative software applications (84.5%); application of non-technical skills such as systems thinking and process understanding (74.1%). This shows that there is still a big gap between the actual digital capabilities of employees and the requirements of enterprises.

The survey results of 48 enterprises and production and business establishments on the responsiveness of workers to digital skills in 3 groups of industries, agriculture and services also show a lack of digital skills of employees. labor (Figure 4).

Unit: business

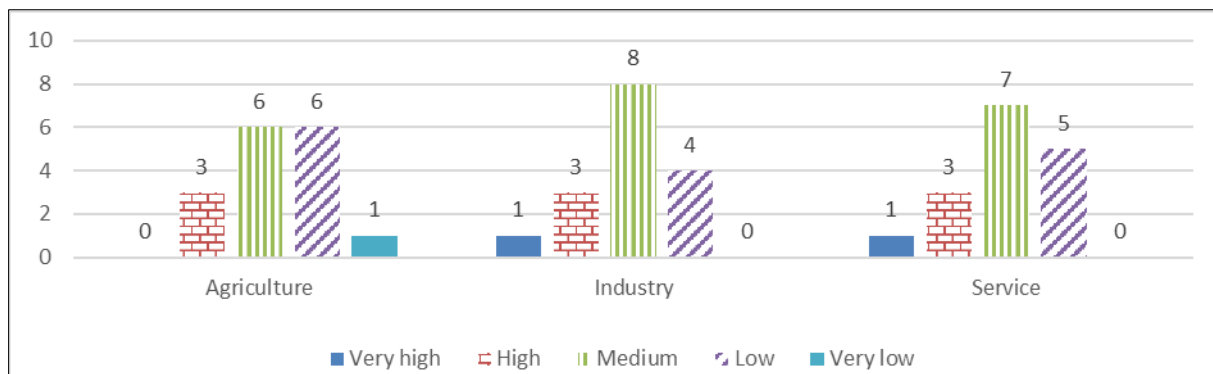


Figure 4 Level of response to digital skills of workers by industry

According to the survey results, the level of responsiveness to digital skills of workers in the three industries is mostly normal. The percentage of enterprises rated high and very high is still quite low. The agricultural sector has the lowest response rate. There are 3/16 enterprises with high rating (accounting for 18.75%), but there are 7/16 enterprises with low and very low rating (accounting for 43.75%). The industry has a higher level of digital skills response with 4/16 businesses rated at high and very high (25%), low also accounted for 25%, no very low rating. The service industry also has 4/16 enterprises with high and very high rating (accounting for 25%), 5/16 enterprises with low rating (accounting for 31.25%) and no very low rating. Thus, although the skills of workers have been improved, in the context of digital transformation businesses, those skills have not yet met the requirements of the job. This makes it a big obstacle to taking on new jobs that require high digital skills.

There is a large difference in the level of responsiveness to digital skills of workers according to the formal and informal economic sectors. In general, the level of responsiveness to digital skills of workers in the informal sector is lower than in the formal sector.

Table 3 Level of responsiveness to digital skills of workers by economic sector

Unit: business				
STT	Level of digital skill response	Total	Official area	The informal sector
1	Very high	2	2	0
2	High	9	6	3
3	Normal	21	13	8
4	Low	15	5	10
5	Very low	1	0	1
	Total	48	26	22

According to the survey results (Table 3), the level of response to digital skills is high and very high, with 8/26 enterprises in the formal sector selected (accounting for 30.8%); this rate in the informal sector is only 13.6%. Meanwhile, with the low and the lowest has the opposite result. There are 5/26 enterprises rated this level (accounting for 19.6%) but the informal sector has quite high results with 11/22 enterprises (accounting for 50%).

Find out how difficult it is for workers to improve their digital skills, survey results of employees working at 48 enterprises show the challenges of digital skills shortage. The factor that hinders the most is the employee's reluctance to change with 259/465 choices (accounting for 55.7%), difficulty in arranging suitable time due to current work and

family factors with 172/465 people to choose (accounting for 37%); the third is limited financial capacity with 156/465 people to choose (accounting for 33.5%); The opinion is different from 26/465 people (accounting for 5.6%) such as the business has not created favorable conditions in terms of time, or the housing location is not convenient, ect.

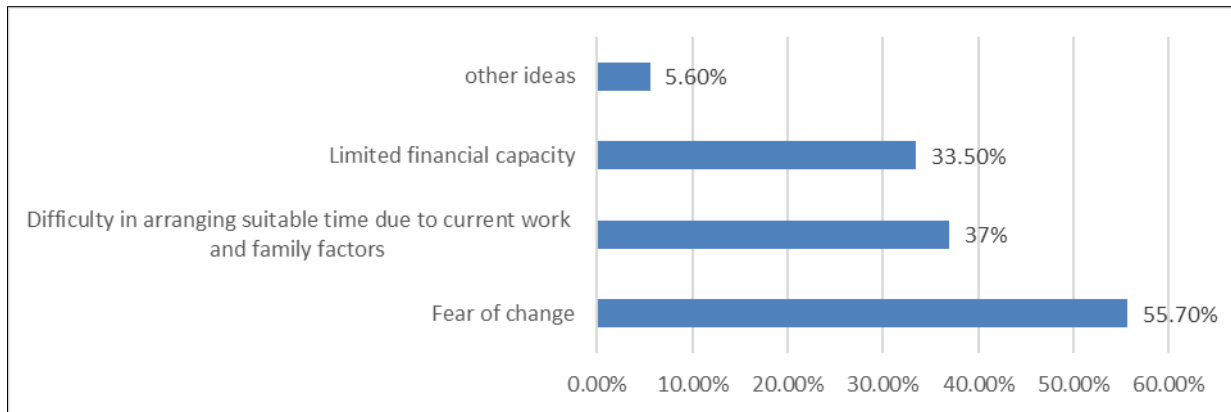


Figure 5 Difficulties of employees in improving digital skills

Thus, employees face many difficulties in improving their digital skills, and there are many reasons for this situation, possibly from the employees themselves and also from the businesses.

Survey of 465 employees to find out the need for digital skills to be trained gives results as shown in Figure 5

Unit: turns

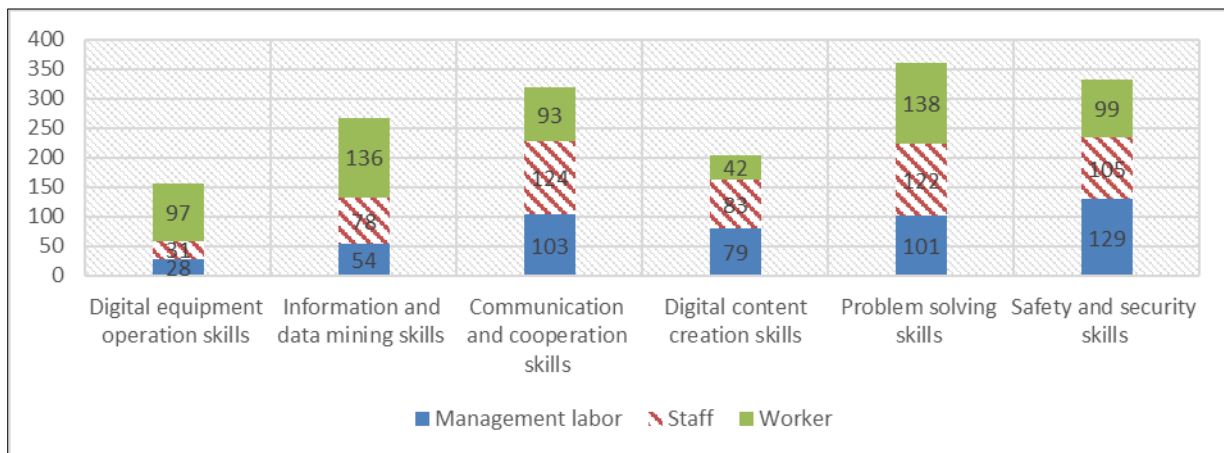


Figure 6 Digital skills training needs of employees

For the management labor group, the demand for safety and security skills training is the most with 129/142 choices (90.84%); followed by communication and cooperation skills with 103/142 choices (72.54%); the third is digital content creation skills with 79/142 choices (accounting for 55.63%); problem solving skills with 101/142 choices (accounting for 71.13%); information and data mining skills with 54/142 choices (accounting for 37.99%) and finally, digital equipment operation skills with 28/142 choices (accounting for 19.72%).

For staff, communication and cooperation skills and problem-solving skills are the two skills with the most training needs with the rate of 77.99% and 77.73%, respectively; followed by safety and security skills with 66.04%; digital content creation skills with 52.2%; Information and data mining skills are 49.06% and finally digital equipment operation skills with 31/159 choices (accounting for 19.5%).

For 164 workers, the most training needs were in problem solving, information and data mining with the selection rate of 84.15% and 82.93%, respectively; Safety and security skills and digital device operation skills are also in high demand

with 60.37% and 59.15%, respectively; communication and cooperation skills are in lower demand (56.71%); The lowest need is digital content creation skills.

Thus, with each different job position, the demand for skills is different. Since then, the time, method, content, and training program should also be different.

3.3. Reduce the income of a part of employees

Digital transformation brings opportunities to increase income for a number of target groups, which are mainly skilled and highly skilled workers who are able to apply digital technology in the working process. Besides, digital transformation creates the risk of having no income due to job loss, or reducing the income of a part of employees with 34.7% of the respondents choosing. The survey on the risk of income reduction shows the results in Table 4.

Table 4 Risk of income reduction among labor groups

		Unit: turns		
STT	Labor group	Agriculture	Industry	Service
I	Sex	155	154	156
	Male	75	61	79
	Female	80	93	77
II	job position	155	154	156
	Senior management labor	15	13	12
	Middle management labor	47	39	45
	Workers	93	102	99

The risk of reducing workers' income is different in different groups of workers. For sectors, the risk of reduction in labor income is basically the same between agriculture and industry. The service industry has some differences.

By gender, women are more likely to lose income than men in both industry and agriculture. But for the service, the risk of male losing their income is higher than that of female with 50.6% and 49.4%, respectively.

By job position, all three industries tend to be direct workers with the highest risk of income reduction (60%; 66.2% and 63.5%, respectively); followed by middle-level workers (30.3%, 25.3% and 28.8%, respectively); finally senior management (9.7%; 17.5%, and 11.5%, respectively).

Find out the causes of income reduction when businesses convert digitally, with the following results:

Among the reasons why the income of workers is at risk of falling, reasons for paying salary based on ability, the formal sector has 194/255 options (accounting for 76.1%); the informal sector is 137/210 selected (accounting for 65.2%). As for the reason for the decrease in labor productivity, the informal sector has many opinions to choose with 146/210 turns (accounting for 69.5%), the formal sector is 106/255 (accounting for 41.6%). For the reason that enterprises have low salary policy, the formal sector has 82/255 choices (accounting for 32.2%); the informal sector had 89/210 options (42.4%) (Figure 6).

Thus, it can be seen that digital transformation creates many great challenges for employment, including the risk of job loss, reduction in wages and income of a part of employees; challenge vocational skills, digital skills (especially for simple workers, elderly workers). The challenge to workers' employment also varies between workers in the formal and informal sectors, as well as workers in different occupations.

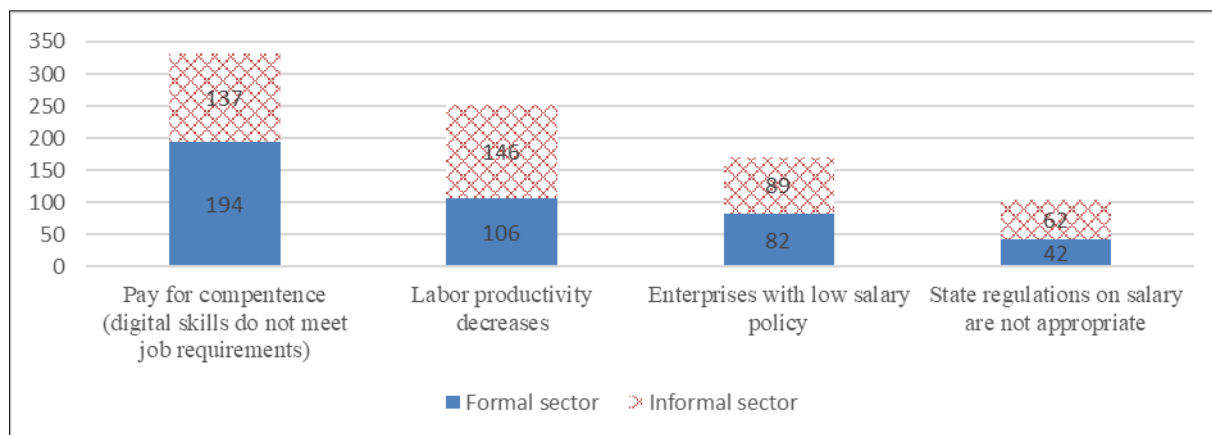


Figure 7 Reasons for the decrease in employee's income

4. Conclusion

Helping employees better cope with the challenge of employment in the context of digital transformation, as well as ensuring jobs and stabilize income is the responsibility of all levels, sectors, businesses and employees. .

For the State

Building and completing a common legal framework suitable to the context of digital transformation, building a legal environment to facilitate sharing of digital data; Improving institutions and policies on employment and labor market, developing policies to support and encourage enterprises to employ elderly, disadvantaged and vulnerable workers; completing the policy system, promulgating laws, improving the effectiveness and efficiency of state management of vocational training and education.

Promoting the startup ecosystem, incentive programs to support innovative start-ups, incubators and incubators. Promulgating more diversified financial support policies for small and medium-sized enterprises in digital transformation, expansion, and job creation.

Developing mechanisms to promote and support enterprises in training and retraining human resources. Encouraging the formation and development of a network of information technology training centers . Deploying technology solutions to support employees' online self-study and lifelong learning. Completing the labor market information system towards integration. Strengthen vocational guidance, training according to market demand , labor market forecast. Raise awareness and capacity for digital transformation for businesses and employees .

For the enterprises

Enterprises need to be proactive and strengthen cooperation with universities and vocational education institutions in training human resources to update the knowledge, practical skills and digital skills that businesses need. There is a mechanism to allow teachers, students and learners at educational and training institutions to access part of technical and technological documents of enterprises to improve the quality of training in education and training institutions.

For enterprises with many elderly workers in occupations with a high risk of job loss, it is necessary for businesses to take the initiative in training and re-training in time for employees, as well as having solutions. support workers in job restructuring, job connection. From there, on the one hand, ensure jobs and human resources for their own businesses, as well as join hands to contribute to ensuring jobs and reducing unemployment for elderly workers or middle-aged workers in Vietnam.

For employees

Employees in enterprises, in addition to actively participating in training courses organized by enterprises, need to actively train themselves in skills and digital skills to meet current job requirements through various forms. Employees can participate in are seminars, short-term skills training courses in the market, information technology skills training

classes at centers, universities, and educational institutions as well as self-study and self-training via the internet, etc.

Actively approach support packages, support policies of the State, support stakeholders in training and skills development, ensuring employment benefits, creating jobs, transferring change jobs.

For vocational education institutions

Vocational education institutions continue to innovate training contents and methods to develop vocational skills for learners right at school in an open and flexible manner. Transferring intensive training to broad-based training, focusing on multi-skill training, including soft skills, digital skills. Forming self-learning and self-adaptive capacity for learners in the context of digital transformation. Transforming and improving school governance capacity towards digital governance.

Compliance with ethical standards

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Disclosure of Conflict of interest

The authors declare that no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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