

# Challenges and solutions for human resource development activities of the FPT Group in the age of digital technology



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**Abstract** In the context of the rapid growth of digital technology, it has become increasingly popular, playing an important role in many industries and bringing countless business opportunities to companies. However, the rapid explosion of science and technology also creates many challenges for human resource development, especially in technology businesses. Existing literature has not focused on the challenges and opportunities of digital technology for human resource development at large technology corporations. This research gap inspired the author to decide the research topic as “Challenges and solutions for human resource development activities in the FPT Corporation in the age of digital technology.” FPT is one of Vietnam's leading tech corporations, with over 30 years of experience in sectors like IT, telecommunications, and education. It offers a wide range of IT services and solutions, such as software, business management information systems, and new product development. This study aims to assess the effectiveness and identify the challenges of human resource development at FPT. Next, the study will propose management solutions to improve the effectiveness of human resource development and training. This study uses qualitative methods, including document review and in-depth interviews and surveys to collect information about activities, challenges, and human resource development effectiveness at FPT. The results show that FPT has achieved many achievements in training, improving welfare and recruiting interns. However, FPT also faces challenges in attracting and retaining talent, improving training policies, and building corporate culture in a constantly changing technology context. The article provides management implications to improve the quality of human resource management for FPT and other technology enterprises. The study suggests future directions including the use of artificial intelligence, automation in human resource management, and improvement of digital work environments to satisfy employee development needs.

**Keywords:** human resource management, human resource development, recruitment & training

## 1. Introduction

At the time of writing, the digital transformation process offers businesses great opportunities as well as many challenges that require the integration of digital technology into the business model. To be successful, businesses need a team of high-quality human resources that are capable of applying modern technology. The Learning Report of 2022 shows that L&D increasingly plays a strategic role in organizations, playing an important role in improving employees' professional skills and thereby improving business performance.

The Future of Jobs Report of 2023 explains that technology, especially AI and the IoT, has had a strong impact on human resource development activities, including recruitment and training. Betchoo (2016) and Chygryn (2019) also affirm the importance of digital technology in human resource management and development. In Vietnam, Vu (2021) reported that human resource development is influenced by factors such as socioeconomic and demographic policies, whereas Nguyen et al. (2021) emphasized that there is stronger cooperation between training institutions and businesses in training and using human resources.

However, current research has not focused on the challenges and opportunities of digital technology for human resource development at large technology corporations. This research gap inspired the author to decide the research topic as “Challenges and solutions for human resource development activities in the FPT Corporation in the age of digital technology.” FPT is a prominent technology company in Vietnam that has boasted over 30 years of growth across various sectors, including IT, telecommunications, finance, real estate, education, and entertainment” (FPT Corporation, 2024). This study aims to evaluate the effectiveness and identify challenges in human resource development at FPT, thereby proposing reasonable management solutions for improving the effectiveness of human resource development.



The study applies the qualitative research method of synthesizing and systematizing theories in a reliable way and uses in-depth interviews and qualitative surveys to collect data, thereby providing results that are highly applicable and have reference value. In particular, this study analyzes important activities and factors to evaluate the effectiveness of human resource development activities in the context of the current Industrial Revolution 4.0. In addition, the research highlights the challenges that the FPT Corporation is facing in the context of rapidly changing technology. As a result, improvements and management implications are proposed to enhance human resource management strategies at FPTs and similar technology corporations. The research is based on fundamental theories and collected models to make specific recommendations for promoting development and innovation in human resource management.

## 2. Literature review

### 2.1. Introduction to FPT Corporation

FPT is a leading technology corporation in Vietnam, with more than 30 years of development in many fields, such as IT, telecommunications, finance, real estate, education, and entertainment. FPT provides IT services and solutions such as software, business management information systems, technology skills training, and new product development. FPT's subsidiaries and affiliates include FPT Software, FPT Telecom, FPT Trading, FPT Education, FPT Play, and FPT Securities (FPT Corporation, 2024).

With its strong development in the early 2000s, FPT became a multi-industry technology corporation, with business areas including information technology, telecommunications, financial services, and real estate. The group has expanded its scale of operations to many international markets, such as the US, Japan, Australia, Europe, and countries in Southeast Asia (FPT Corporation, 2024; FPT Software, 2024).

Currently, FPT is a multinational technology corporation with more than 30,000 employees globally, and it operates in many different fields, including information technology, telecommunications, financial services, and real estate. With the vision of "digital transformation to create value for customers and society," the FPT has actively contributed to the development of the information technology industry in Vietnam and around the world (FPT Corporation, 2024).

### 2.2. Concept of human resources

According to the International Labor Organization (ILO) in 1999, human resources include all individuals with the ability to work, from working people and self-employed people to informal workers. A study by Peter F. Drucker (1975) asserts that human resources are collectively the most important resource and determine the success of an enterprise. In addition to having people working in the organization, human resources also include individuals who have the capacity, experience, and ability to make valuable contributions.

Human resource development in an organization is a process that includes many activities, such as training, coaching, career development, and leadership, and is designed to help employees contribute more to the organization and develop their personal careers (Stone & Cox, 2020). This process requires long-term commitment and investment from the organization.

### 2.3. Concepts of talent development

The development of talent within an organization is an important management strategy for optimizing work performance and sustainable development. This process involves identifying, nurturing, and retaining individuals with high ability and potential so that they can contribute effectively to the organization. Identifying talent within an organization begins with identifying employees with high ability and growth potential, which is typically accomplished through performance appraisals, talent assessment programs, and feedback from management (Silzer & Church, 2010).

In addition, organizations need to invest in talent development through training, mentoring, and career development programs that include providing learning opportunities, participating in key projects, and accessing support resources (Iles & Preece, 2016). Retaining talented employees is a major challenge for organizations. To do this, organizations need to create a positive work environment, provide opportunities for advancement, and ensure appropriate recognition and rewards (Allen et al., 2010). A talent management strategy is an integral part of an organization's overall strategy. This includes integrating talent development activities into the organization's strategic plan and ensuring commitment from leadership (Al Barwani, 2019).

### 2.4. Human resource development in the digital technology age

The 4.0 digital technology revolution has led to significant changes in human resource management. Digital technology is widely used in the recruitment process, helping businesses find and attract candidates remotely through websites and online platforms. Candidates should have technological knowledge and skills, including software usage and data analysis. Human resources need to be continuously trained to master and apply new technologies such as artificial intelligence and data analysis tools. This helps increase productivity, optimize processes, and reduce costs and labor time (The Future of Jobs Report, 2020).

Human resource development in the 4.0 digital technology era involves adapting to changes in the work environment brought about by digital technology and the digital economy. Employees need to improve their digital skills to work effectively with new digital tools, software, and platforms. It is very important to support employees in the process of transitioning to work and absorbing new technologies, along with adjusting labor policies and regulations to suit the reality of digital technology and protect workers' rights (Doellgast & Wagner, 2022).

Emerging technologies such as AI, robotics, IoT, and automation are changing many aspects of society, including the workforce. In this context, human resource development requires improving the understanding of information technology and developing the skills and capabilities necessary to meet the requirements of the fourth industrial revolution. This includes acquiring digital literacy, creative thinking, data processing skills, and the ability to adapt to new technology (Schwab, 2017). Human resource development in the digital age is an important part of human resource management in the digital era, requiring employees to have sufficient technological knowledge and skills, playing an important role in the organization, helping to enhance competitiveness through creating high-quality human resources with updated skills and knowledge, and meeting organizational and labor market needs. This also helps increase employee motivation and enthusiasm, improve satisfaction and talent retention, and optimize resources to achieve business goals (Schuler et al., 2011).

The human resources development process includes identifying and analyzing development needs, designing and implementing training programs, performance management and personal development, career management, building leadership capabilities, creating a learning and development environment, and managing talented employees. These activities help employees improve their capacity, performance, and contribution to the organization's success (Nankervis et al., 2022).

### *2.5. Factors influencing human resource development in the digital technology age*

In the current digital era, human resource management and leadership play particularly important roles in human resource development. Their company's employees have the opportunity to learn, are motivated and encouraged to innovate, build strong teams, and develop skills and career directions (Groysberg & Slind, 2012).

Technology and its applications increase efficiency and effectiveness through automation and data management, expand online learning capabilities, and encourage creativity and innovation through data analytics, innovation, and strategic decisions (Chygryn et al., 2019).

By creating a learning and development environment, encouraging creativity, promoting capabilities, attracting and retaining talent, and providing motivation for employees, corporate culture strongly affects employee success and human resource development (Marx & Padmanabhan, 2020).

Employer branding has a significant effect on the development of human resources, increasing the ability to attract and retain employees, creating a more positive work environment, and increasing employee satisfaction (Kuepper et al., 2021).

In the age of Industry 4.0, wise decisions, increased performance, and the development of effective human resources policies are supported by effective and accurate data management. It also meets the high requirements for security and management (Sima et al., 2020).

### *2.6. Theoretical framework applied in research*

#### *2.6.1. Capability development theory*

According to this theory, an organization's capacity determines its ability to achieve business goals and adapt to a changing environment. Expanding knowledge and skills is not just part of capacity development; a supportive work environment is also part of the learning process. This theory emphasizes the building of the core capabilities of an organization to achieve competitiveness and sustainable development (Armstrong & Taylor, 2020).

Talent theory: According to talent theory, successful companies rely on their ability to select, retain, and develop talent. Talent is considered an important resource, and talent management is an important part of business strategy. "War talent" emphasizes that talent involves people with knowledge and experience as well as those with creative thinking, vision, and adaptability (Michaels & Handfield-Jones, 2001).

The multidimensional human resource development theory of Carol D. Hansen and Randall S. Schuler demonstrates that human resource development is a multidimensional process that includes professional knowledge, working capacity, development potential, personal values, cultural diversity, and job roles. This helps companies emphasize many factors for effective human resource development (Jacobs, 1997).

#### *2.6.2. Theory of human resource diversification*

Improving the quality and efficiency of human resources depends on diversity in terms of gender, race, ethnicity, age, and health. Diversity fosters creativity, perspective, and problem solving. Companies must have a strategy for building a diverse working environment and then respect the differences to take advantage of this (Cox, 1994).

#### *2.6.3. A Human Resource Development (HRD) Model in Human Resource Development*

Theory and Practice” (Gold et al., 2017) is introduced as a theoretical and practical framework for the human resources development process in organizations, which includes the following stages: needs analysis, development planning, deployment and implementation, effective evaluation, and integration of HRD into the organizational strategy.

2.6.4. *The capability development model*

Was proposed by Gary Hamel and CK Prahalad in the book “Competing for the Future” (1994). This is a strategic management model for businesses that proposes that, to remain competitive in the future, businesses need to develop their internal core competencies. This model includes three stages of capacity development: potential capability, core capability development, and capability extension (Hamel & Prahalad, 1994).

2.7. *Review of previous studies*

Table 1 and 2 present the summary of previous studies.

Previous studies have conducted detailed analyses of human resource development (HRD) activities in various countries. Examples include a research paper on developing high-quality human resources to achieve the goal of building a prosperous and happy country (Nguyen & Vu, 2022), HRD in Southeast Asia and Asia (Crocco & Tkachenko, 2022), a study on the National Human Resource Development Strategy of Vietnam in response to the Fourth Industrial Revolution: an analysis from the labor market perspective (Tu & Pham, 2021), and HRD activities in private enterprises (Nguyen et al., 2021). The literature review considers specific industries, such as HRD in the textile industry of Vietnam (Tran et al., 2022) and the garment industry (Alam & Dhamija, 2022), and enhances practical awareness of green human resource development (GHRD) in the hotel industry (Osolase et al., 2023).

The authors mentioned specific HRD activities in enterprises and noted the challenges that businesses face in the digital age. However, the scope of previous research has been broad and has not focused on a specific country undergoing digital transformation, which may reduce the depth and specificity of the study. This can lead to imbalances in the results and difficulties in applying the research findings in practice.

To increase the quality of research in the field of HRD, it is necessary to focus more deeply on specific fields and industries. For example, examining a developing country such as Vietnam and concentrating on a leading technology company such as FPT can generate precise and practical recommendations and solutions. Furthermore, it is crucial to update data in the post-COVID-19 era and during digital transformation while maintaining diversity and clarity in the concepts and definitions utilized in the research. Providing trustworthy research data is also vital for enhancing the representativeness and generalizability of the research outcomes.

Therefore, this research focuses on a specific country, and a leading company such as the FPT can benefit in terms of research depth and specificity. Studying a country such as Vietnam, in the context of economic development and digital transformation, will help analyze specific HRD activities and provide specific implications applicable to FPT Corporation and the technology sector in general.

3. **Research methods**

3.1. *Research process*

Refer to figure 1 for the research process.

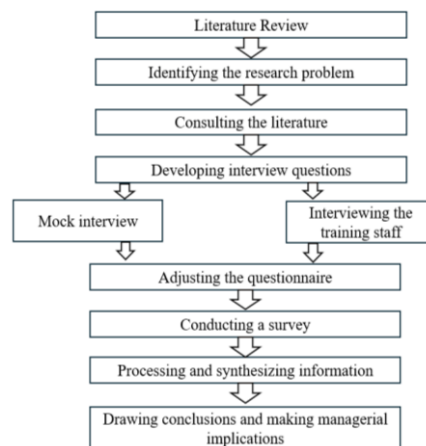


Figure 1 Research implementation process.

3.2. *Qualitative research methods*



Research on human resource development at the FPT Corporation in the digital age has used qualitative research methods. Data were collected from document reviews, in-depth interviews and surveys.

There were 10 in-depth interviews conducted with 3 groups, including 10 expert/human resource managers trained at FPT, all of whom had over 3 years of work experience at FPT. The content of the in-depth questionnaire is built with 6 specific questions designed on the basis of fundamental theories such as talent theory by Michaels & Handfield-Jones (2001), multidimensional human resource development theory, and capability development theory. The purposive sampling technique was employed to ensure that the selected participants, who have knowledge and experience with the human resource management system in FPTs, are suitable for the research scope and objectives. Refer to table 3 for participant information.

**Table 1** Summary results from domestic studies.

Author	Study topic	Research Methods	Research results
Nguyen and Vu (2022)	Developing High-Quality Human Resources to Fulfill the Aspirations of Building a Prosperous and Happy Country: Problems and Solutions	Methods of comparison, analysis, synthesis, and inference	Propose solutions to develop high-quality human resources to achieve the goal of building a prosperous and a happy country.
Ho (2022)	Solution to complete training and human resource development at Global Petroleum Commercial Bank	Statistical methods – analysis, comparison, synthesis	Clarify the benefits and limitations of human resource training and development, suggesting ways to improve GPBank’s training quality by focusing on training requirements, program frameworks and evaluating training effectiveness.
Tran et al., (2022)	Developing human resources in Vietnam’s textile and garment industry	In-depth interviews, surveys, data collection, and analysis	Identify difficulties and opportunities in digital transformation in the textile and garment industry, consider factors affecting the ability to improve skills and knowledge, and provide advice and human resource development strategies for the industry Vietnamese textile and garment in the context of digital transformation.
Nguyen et al., (2021)	Development of Human Resource Management Activities in Vietnamese Private Companies	Survey, interviews, and data analysis	Identify important factors affecting human resource management in private enterprises, provide solutions and proposals to improve the effectiveness of human resource management in Vietnamese private enterprises.
Tu and Pham (2021)	National human resource development strategy to meet the Industrial Revolution 4.0	Analytical method	To ensure Vietnam’s sustainable development in the era of Industrial Revolution 4.0, it is necessary to develop a human resource development strategy consistent with factors and trends in the labor market.

**Table 2** Results of foreign research.

Author	Study topic	Research Methods	Result
Osolase et al. (2023)	Developing awareness of green human resource development practices in the hotel industry	Collect and analyze data, survey, interview, observe, and evaluate	Raise awareness and encourage the adoption of green human resource development methods in the hotel industry, helping to minimize negative impacts on the environment, and promote sustainability.
Atiku et al. (2022)	Dimensions of learning organization: Implications for human resources effectiveness in commercial banks	Survey, interview experts, and review documents	Pointing out the role of learning organizations in commercial banks and its impact on the effectiveness of human resource development of commercial banks helps to clarify the role of learning organizations and to promote the development and effectiveness of employees.
Crocco and Tkachenko (2022)	Developing human resources in Southeast Asia and ASEAN	Document review, survey, in-depth interviews, statistical data analysis	Providing information on trends, challenges, and opportunities in human resource development in Southeast Asia and ASEAN, helping countries and organizations to understand the situation and policies and strategies better to improve efficiency and the human resource development results.
Alam and Dhamija (2022)	Developing human resources in the 4.0 era for the garment industry	Analyze documents, previous research works, and theoretical thinking methods	HRD 4.0 theory in Bangladesh’s garment sector, understanding the factors and processes necessary to improve the quality of human resources in the 4.0 era.
Wibowo et al. (2020)	Challenges and opportunities of human resource development in the 4.0 era	Collect data, interview, analyze documents	Highlights the challenges facing capacity development for defense human resources and provides opportunities and possibilities to leverage Industry 4.0 to improve the capabilities and performance of human resources at defense agencies.



**Table 3** Coding table of interview participant information.

No	Encoding name	Position	Group
1	GĐNS_1	Human resources manager	1
2	CGDT_1	Training specialist	1
3	QLDT_1	Training management	1
4	CGPT_2	Human resource development specialist	2
5	QLCT_2	Manage training programs	2
6	CGDG_2	Performance review expert	2
7	GVDT_3	Internal training instructors	3
8	QLNN_3	Human Resource Management	3
9	CVPT_3	Human resource development specialist	3
10	QLHT_3	Information system management and training	3

In addition, the author used the survey method to collect data from 100 employees working in different departments at the FPT. The author designed a set of questions on the basis of research documents and the results of previous in-depth interviews. Convenience sampling was applied to ensure a high number of responses and that the research objectives could be fulfilled. The survey includes 7 questions: 1 multiple-choice question to collect information about activities in which employees participate when working at FPT Corporation; 3 open-ended questions to collect information about policy support, challenges, and solutions proposed by employees to improve human resource development activities; and 3 questions rated on a scale of 1 to 3 according to level (agree, neutral, or do not agree). The interview questions and survey questionnaires were developed on the basis of the research objectives and previous studies.

Thematic analysis was employed to identify patterns and uncover meaning within the data. This method is often used to analyze patterns and themes to reveal underlying meanings. It allows for an open-ended exploration of how participants experience the effectiveness and challenges of the human resource management system in their professional lives (Braun and Clarke, 2006).

**4. Results**

**4.1. Human resource development activities at FPT Corporation**

FPT focuses strongly on training and human resource development (Figure 2 and Figure 4), considering the training necessary to help employees improve their performance and capacity at work. “Training is the core basis for helping employees develop personal capacity, thereby helping to improve work performance,” according to CGDT\_1, a human resources training expert at FPT.



**Figure 2** Human resource development process at FPT Corporation.

Mr. CGDG\_2, a human resources quality assessment expert at FPT, said that “Fair performance assessment is the motivation for employees to strive constantly because human psychology wants to be recognized.”

Fair and transparent performance evaluation with policies: “The company’s human resources department always strives to build a working environment so that employees always feel secure and happy when working at FPT,” Ms. GDNS\_1, Human Resources Director of FPT.

It is important to have a positive organizational culture and welfare policies as well as a good working environment and concern for employee health.

“In addition to remuneration policies such as salaries and bonuses, corporate culture is a core factor in retaining employees,” shared Ms. QLNN\_3, a human resources manager at FPT.

In addition, if human resource development policies are public and transparent, they can help create a fair working environment. To develop and invest in human resources and help companies achieve greater efficiency, competitiveness, and sustainability, employees need financial support to participate in professional and skill development courses. Figure 3 illustrates survey results about policies to support human source development in FPT.

In addition to FPT factors, there are other human resource development activities. These include salary, bonus policies, and scholarship programs to create conditions for new graduates to have the opportunity to work in a multinational



environment and help FPTs expand their network of young and talented human resources.

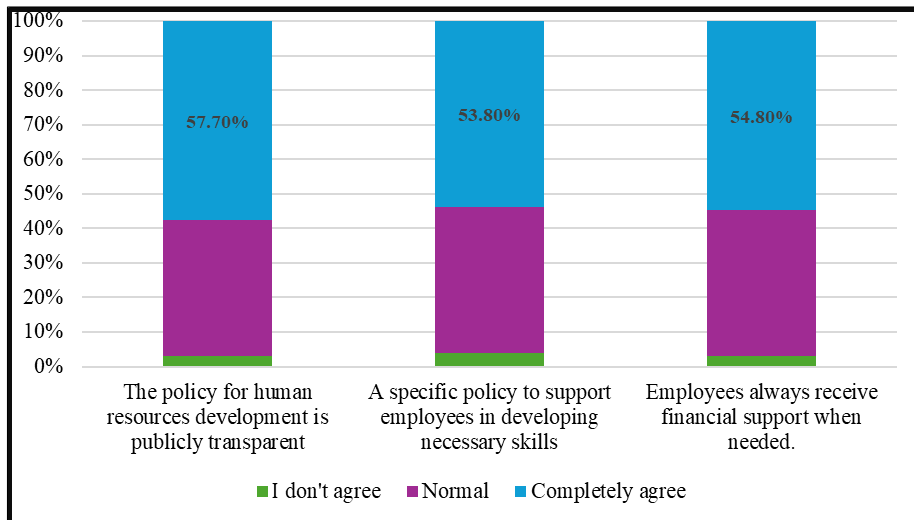


Figure 2 Survey results regarding factors used to evaluate policies to support human resource development activities in enterprises.

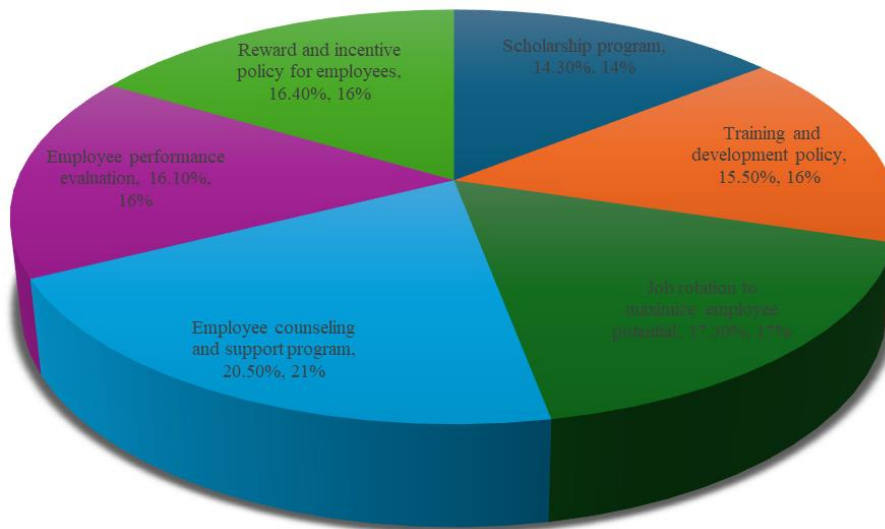


Figure 3 Human resource development activities at FPT Corporation.

4.2. Effective human resource development at FPT

The FPT evaluates the effectiveness of human resource development by considering the following factors: work efficiency, the recruitment rate, employee capacity and skills, the employee retention rate, and employee evaluation of the company’s policies and culture. Figure 5 presents results of examining the effectiveness of human resource development.

Consider recruitment capacity by looking at the ratio between the number of candidates hired and the total number of candidates. According to CGDG\_2, “Proper recruitment and retention processes ensure that the company finds and develops employees with the right skills and mindset, creating conditions for personnel development and stability.”

It is important to track work progress, participate in training courses, and promote feedback from colleagues and customers.

Ms. CGDT\_1 noted, “The ability to implement human resources plans and goals helps to increase work performance, manage time and employee productivity, and ensure compatibility between human resources and company goals.”

The level of employee satisfaction and commitment to the company determines the employee retention rate. Income policies, benefits, company culture, management support, and advancement opportunities affect this factor. The promotion roadmap of FPTs is always public and clear. According to the survey results, 62.5% of the participants agreed that the FPT supports them with a detailed promotion roadmap.

Group 3 agreed that “Corporate policies and culture are core values in human resource development, creating a positive working environment, and creating trust and motivation for employees,” according to an expert interview. According to the survey results, 63.8% of the employees strongly agreed that they received continuous encouragement and many practice



opportunities to apply new skills. A total of 62.5% of employees completely agreed that FPT provides consulting and a clear promotion path.

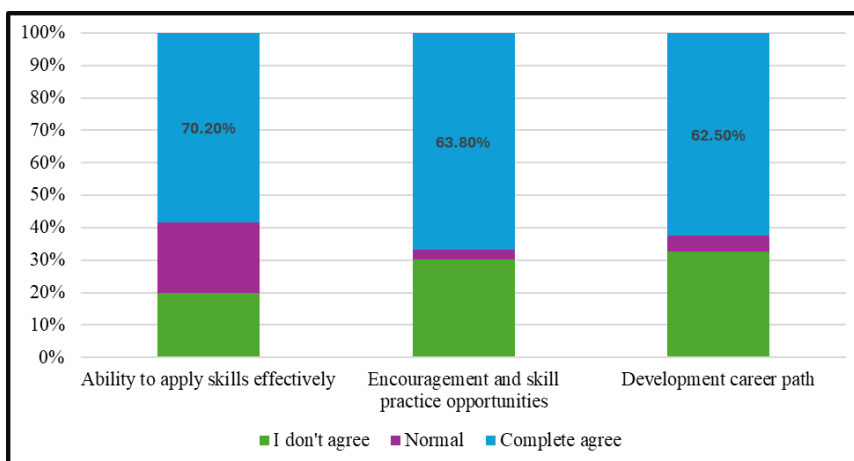


Figure 4 Results of examining the effectiveness of human resource development at FPT Corporation.

### 4.3. Challenges the FPT faces in terms of human resource development activities

In addition to existing human resource development activities and policies, FPTs face many specific and difficult challenges in the modern development of digital technology, as follows:

FPTs face a scarcity of human resources with high qualifications and experience in the technology field. This is particularly difficult when other technology companies also compete fiercely to attract and retain talent. As a large technology company, FPT provides opportunities to participate in large-scale and complex technology projects as well as meet high demand in a competitive technology market. However, 70% of the survey participants said that work pressure is a major challenge they face when working at FPTs. In addition, when talking with people in group 1, who are working in training management positions at FPT, they said, “The constant and rapid change of the 4.0 industrial revolution has led to us having to organize training courses continuously in order to update new knowledge promptly.” This also makes developing relationships with partners at FPT more difficult.

The continuous change in science and technology is a major challenge for training activities at the FPT, according to members from the training department and internal lecturers. They noted that the continuous development of technology creates significant barriers to meeting all the training needs of businesses. According to the survey, 65% of the participants said that the greatest challenge when working at FPT is fierce competition in the technology industry, which requires employees to update their latest professional knowledge constantly to keep up with trends and maintain the position of the enterprise in the market.

In addition, FPTs face the challenge of building diverse working environments, including diverse genders, ages, ethnicities, and cultures. This leads to many difficulties in the human resource management process. More than 50% of the interviewees said that, because FPT is a multinational enterprise, differences in language and culture are the greatest barriers to sharing information and understanding each other. To overcome this barrier, employees need to improve their communication skills and learn the necessary languages. Working in a multinational environment requires employees to understand and comply with each country’s laws and regulations.

### 4.4. Result analysis based on the SWOT model

The research results collected via the SWOT model (Table 4) are as follows:

**Strength:** The FPT has developed a modern and high-quality training system, especially in the IT field, with advanced programs to improve the qualifications of human resources and therefore meet the increasing requirements of the market. In addition, FPT operates in many different technology fields, creating a diverse and comprehensive working environment. This helps employees develop many skills as well as the ability to adapt well to continuous changes in the industry. FPTs also maintain close cooperative relationships with many domestic and foreign businesses, giving interns the opportunity to access real work. This enables FPTs to access and recruit young, talented human resources.

**Weakness:** FPTs face fierce competition in attracting and retaining talent, especially when other technology companies and international corporations are also actively looking for high-quality human resources. Although FPTs have a significant scale, they are still limited compared with large international technology corporations, which affects FPTs’ influence and ability to participate in large-scale projects. Additionally, some employees have difficulty finding career advancement opportunities or feel that they are not being evaluated fairly in terms of their work performance, leading to a loss of talent and reduced motivation.



**Opportunity:** FPTs are increasing investment in training and professional development programs, including courses on management and leadership, as well as information technology from basic to advanced and international training. These programs help employees equip themselves with the necessary knowledge and skills. In addition, the company promotes a collaborative and knowledge-sharing environment by organizing skill exchange programs, seminars, discussions, and internal forums and therefore helps employees learn from each other and update their knowledge regarding new technology trends. Furthermore, the FPT has the opportunity to expand its scale and influence through international cooperation and participation in global technology projects.

**Challenge:** FPTs face fierce competition from large technology corporations around the world, which makes attracting and retaining talent difficult. The rapid advancement of information technology forces FPTs to invest heavily in continuous training programs to ensure that employees are always kept up-to-date with new knowledge and skills. However, organizational and financial challenges have been encountered. As FPTs expand, developing and managing a leadership team also becomes difficult, requiring sufficient leaders with the necessary skills and capabilities. In addition, cultural integration and multinational management require FPTs to understand and adapt to different cultures and working styles, creating more challenges for companies.

**Table 4** SWOT model.

Strengths	Weaknesses
Modern, high-quality IT training system.	Fierce competition in attracting and retaining talent.
Diverse technology fields creating a comprehensive working environment.	Limited scale compared to large international technology corporations.
Close cooperation with domestic and foreign businesses, offering real work experience to interns.	Some employees struggle with career advancement and feel undervalued, leading to talent loss.
Opportunities	Challenges
Investing in professional development and IT training programs.	Competition from large global technology corporations.
Promoting a collaborative, knowledge-sharing environment.	Need for continuous investment in training to match the rapid IT advancements
Expanding scale and influence through international cooperation and global projects.	Managing a growing leadership team with the necessary skills.
	Adapting to different cultures and working styles in multinational management

## 5. Discussion

This study focuses on human resource development at FPT in the context of modern technology. Previous studies focused on a wide range of different sectors and regions, such as research papers on developing high-quality human resources to meet the goal of building a prosperous and happy country of Vietnam (Nguyen & Vu, 2022), developing human resources in Southeast Asia and the Asian region (Crocco & Tkachenko, 2022), Vietnam’s National Human Resources Development Strategy to meet Industrial Revolution 4.0: An analysis from the labor market perspective (Nguyen et al., 2021), Human Resources: Human resources in Vietnam’s textile and garment industry (Tran et al., 2022), human resource development in the 4.0 era for the garment industry (Alam & Dhamija, 2022) and green human resource development (GHRD) for the hotel industry (Osolase et al., 2023). Despite the increasing focus on the topic of human resource management across different areas, there is still a significant gap about the exploration of current status and obstacles facing human resource management system within large-scale technological corporation in emerging economies.

In this new study with the aim of filling the highlighted gap, the authors focus on human resource development at the FPT in the digital technology age, using numerous different theories and research methods. This research aims to provide specific solutions to help FPTs overcome current challenges and shape the future. These solutions both help to overcome the limitations of previous studies and bring practical benefits to FPTs. Moreover, these solutions can also be applied to many other technology corporations.

The FPT applies strict recruitment standards, especially in terms of qualifications, experience, and skills, which is in line with the capacity development model of Hamel and Prahalad (1994). The company invests significantly in training and the development of its personnel, offering attractive programs such as travel and wellness, which can be supported by capability development theory (Armstrong & Taylor, 2020), which emphasizes the necessity of building the core capabilities of the organization to achieve competitiveness and sustainable development. FPT also focuses on personal development, setting clear goals and promotion paths for each employee, which is in accordance with Richard E. Boyatzis’s capacity development model (Boyatzis, 1991) and the capability development model by Hamel and Prahalad (1994). The corporation’s investment in workforce diversity and inclusion aligns with Cox’s (1994) human resource diversification theory, which emphasizes the efficiency of managing human resources through diversity in gender, race, ethnicity, age, and health. FPT’s human resource management system appears to be effectively managed in accordance with principles and models developed by earlier theorists and researchers. The study’s findings are also consistent with previous research, such as Atiku et al. (2022) and Crocco and Tkachenko (2022), which explore emerging trends, challenges, and opportunities in human resource development in



developing Southeast Asian countries. Additionally, the results align with studies like Tien et al. (2021) on key factors influencing human resource management in private enterprises in Vietnam. This consistency can be attributed to similarities in research contexts and cultural factors. However, this study offers unique insights due to the specific characteristics of a large-scale technology solutions provider like FPT, which are further elaborated in the SWOT analysis.

However, the company faces the challenge of managing and retaining a diverse workforce, which also requires building a diverse work environment and establishing a fair evaluation system. Notably, the FPT has begun to apply human resource diversification to encourage creativity and efficiency; however, at the same time, it has to cope with the challenges of management and performance evaluation in a multicultural context. The research findings focus on FPT's high-quality training system, clear human resource development policies and processes, and highlight the importance of a positive corporate culture, emphasizing the importance of creating a positive corporate culture at FPT. On the basis of the human resource development (HRD) model from "human resource development: theory and practice" (Gold et al., 2017), the authors propose managerial implications for human resource development in the 4.0 Industrial Revolution era, which are stated in the section of conclusions.

## 6. Conclusions

Based on the adoption of a reliable qualitative method,, this study analyzes important activities and factors to evaluate the effectiveness of human resource development in the context of the current Industrial Revolution 4.0. In addition, the research also identifies the challenges that the FPT Corporation is facing in the context of rapidly changing technology.

The development of human resources at FPTs is extremely important in the digital technology age to meet new challenges and opportunities. The company encourages employee creativity and provides opportunities for developing professional skills. FPTs organize events, exchanges, and sports programs to create a positive and cohesive working environment. Moreover, close links with universities and research institutes help FPTs attract human resources and provide internship opportunities for students. The company regularly evaluates performance to improve employees' working capacity and promote values of diversity and equality, encouraging employees to develop their full potential in a diverse and bright working environment.

The FPT measures human resource development effectiveness with indicators to evaluate the performance and results of human resource development activities. This helps the company determine the extent to which it meets its human resource needs and then evaluate the effectiveness of related policies and programs. The measurement methods used include the following: the recruitment success rate, the employee retention rate, performance improvement after each review, and employee satisfaction.

Facing the challenges of the digital technology age, FPTs face important issues in terms of human resource development. First, the rapid pace of information technology development and adoption of new trends and fierce competition from other technology companies make it difficult to recruit and retain talent. Second, the diversity of human resources and the differences in language and culture in a multinational environment create challenges in communicating information and ensuring fairness. Third, the scarcity of human resources is a matter of concern. It is also challenging to manage a growing leadership team with necessary skills. Finally, managing human resource-related processes and policies requires coordination across multiple levels of management and compliance with complex regulatory approvals.

The result findings indicate that the FPT's management team should consider several managerial implications. First, the focus should be on identifying human resource development needs on the basis of the company's overall strategy, planning, and organization of continuous training activities. Second, online training, mentoring, and coaching programs should be provided to develop employees' technology and soft skills while promoting a flexible work environment and career development opportunities. Finally, leaders should be strengthened, and a creative and interactive work environment should be built. Additionally, to enhance the effectiveness of human resource development in the digital age, organizations need to change their culture and mindset and create an environment that supports personal growth and knowledge sharing. It is also necessary to establish supportive policies such as updating educational practices, improving financial policies, and developing career advancement programs to meet the demands of digital technology.

This study has several limitations, such as limited research samples and the complexity of digital technology, which affects the accuracy and reliability of the collected data. Given these limitations, this study suggests future directions, including the use of artificial intelligence and machine learning in human resource management, the development of human resource management automation tools, and data analytics. Human resources should be used to forecast human resources. Moreover, this study encourages the development of a working environment adapted to digital technology and digital learning platforms to meet employee learning and development needs.

## Ethical considerations

The ethical considerations for the study were as follows: Participant consent – Participants were fully informed about the research objectives, the interview process, and the intended use of the collected data. The interviewees' written consent

(through an informed consent form) documented their agreement to participate. Voluntary participation – It was emphasized that participation was completely voluntary, allowing participants to skip any questions or withdraw from the interview or the survey at any point. Anonymity and confidentiality – The identities and personal details of participants were kept confidential, ensuring that no names or identifying information were disclosed.

### Conflict of interest

The authors declare no conflicts of interest.

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