2023 Annual Report on Vietnamese Enterprises' Digital Transformation

PROMOTING DIGITAL TRANSFORMATION WITH GREEN TRANSITION

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Executive Summary

During the period 2021-2023, the Agency for Enterprise Development, Ministry of Planning and Investment have collaborated with many other ministries and agencies, as well as both national and international associations and organisations, to implement numerous activities under the Supporting enterprises' digital transformation programme from 2021 to 2025, focusing on raising awareness of digital transformation among enterprises across 63 provinces and cities nationwide.

To date, these enterprises have made distinct changes in their awareness of the necessity of digital transformation. Many businesses have entered the phase of digitising data, standardising processes, applying digital technology, and moving towards a broader and more synchronised digital transformation. These are notable results of untiring efforts, a desire for change and aspiration from businesses, effective support from the entire political system from national to local levels, and associations promoting business digital transformation.

However, recently, the impact of global issues such as climate change and the depletion of environmental resources has posed numerous challenges to businesses in Vietnam and worldwide. This has created a strong motivation for businesses to transition to a sustainable business model. Along with this development trend, pairing digital transformation with green transition, also known as "Twin Transition," not only fulfils business objectives but also contributes to the implementation of sustainable development goals for both businesses and society.

In this context, the *2023 Annual Report on Vietnamese Enterprises' Digital Transformation* with the theme *"Promoting digital transformation with green transition"* is one of the efforts of the Agency for Enterprise Development (AED), Ministry of Planning and Investment, in coordination with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The report aims to achieve the following objectives:

1. Provide updates on the twin transformation landscape worldwide and the digital transformation technology trends in Vietnam.

2. Analyse the current situation, demands, and digital readiness level of Vietnamese enterprises in general and highlight several specific industries.

3. Highlight key government policies and support programmes for digital transformation.

4. Successful stories about digital transformation in Vietnam.

It is hoped that through this report, businesses in Vietnam, especially small and medium-sized enterprises (SMEs), will gain diverse perspectives on the Twin Transition. This will enable them to draw on valuable information and further strengthen their determination in the journey of innovation and improvement to achieve sustainable success.

In the future, the Supporting enterprises' digital transformation programme from 2021 to 2025 of the Ministry of Planning and Investment will focus on in-depth supports such as building digital transformation roadmaps, solution support, etc. aimed at promoting digital transformation and green transition at Vietnamese enterprises.

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Abbreviation

AED   Agency for Enterprise Development

AI   Artificial Intelligence

GDP   Gross Domestic Product

GHG   Greenhouse Gas

GIZ   Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH

ICT   Information and Communication Technology

IMDA   Infocomm Media Development Authority

IPSC   Improving Private Sector Competitiveness

IoT   Internet of Things

IT   Information Technology

SDGs   The Sustainable Development Goals

SME   Small and Medium-sized Enterprises

USAID   United States Agency for International Development

ZTAs   Zero-trust Architectures

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Part 1 - Global outlook on the Digital and Green "Twin" Transition and emerging technology trends

1.1. Why digital and green "Twin" Transition and why now?

Globally, technological trends in the Industrial Revolution 4.0 have had a strong impact on economic activities, changing the way businesses operate and bringing about new business models and growth. After the COVID-19 period, this trend has been further accelerated by the strong adoption of digital technology by businesses and organisations. This has contributed to accelerating the digital transformation time by several years compared to normal conditions. According to the McKinsey Global Survey of executives (2020)[1] companies have accelerated the digitalisation of their customer and supply-chain interactions and of their internal operations by three to four years. Additionally, the share of digital or digitally-enabled products in their portfolios has accelerated by a staggering seven years. Even now, when the COVID-19 pandemic has been declared over, business leaders around the world still believe that organisations should continually embrace digital transformation to reinvent themselves, capture new growth opportunities, streamline operations, and achieve better business outcomes.

Besides the digital technology trend, environmental risks are also a trend that requires changes and shifts in the economic and business activities of enterprises, as well as of economies. The World Economic Forum's global risk report 2021 found that environment-related issues continue to dominate the top five global risks in terms of likelihood and impact. With the current forecast of only a 7.5% reduction in greenhouse gas emissions by 2030, as committed globally, climate change will be a major risk affecting countries and economies.

Thus, the world needs a 55% reduction in greenhouse gas emissions by 2030 to stay on track with the goals of the Paris Agreement. Across the globe, these sustainable development goals now pose even tougher challenges to the strategies and operating models of business organisations in the digital era, in which both governments and business leaders consider digital transformation as a top priority for boosting economic and business development. In reality, digital transformation also poses potential threats to the environment. On the other hand, the advanced progress of digital technologies also bring new opportunities for high-emitting sectors to transition towards efficiency, circularity, and sustainability.

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The Information and Communication Technologies (ICT) sector currently accounts for 6-10% of global electricity consumption, or 3.7 % of global greenhouse gas emissions, equivalent to the entire worldwide air traffic. This concern deepens when this figure is forecasted to double by 2025. Additionally, 14% of the global CO_2 emissions are estimated to come from the ICT industry by 2040 (World Bank Group, 2022)

If digital solutions are applied to manufacturing industries such as energy, materials and mobility, they are expected to contribute to at least 20% of the necessary emission reduction by. Furthermore, according to an analysis by Accenture in collaboration with the World Economic Forum in 2022, with rapid adoption of digital technologies, these industries can further reduce emissions by 4 to 10%.

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1. The online survey was in the field from July 7 to July 31, 2020, and garnered responses from 899 C-level executives and senior managers representing the full range of regions, industries, company sizes, and functional specialties.

Part 1 - Global outlook on the Digital and Green "Twin" Transition and emerging technology trends

*The **digital transition** of society consists of all processes at all levels in society involving infrastructure, services, applications and human behavior that depend on the digital representation of knowledge and computer power. Meanwhile, the **green transition** of society is about reducing greenhouse gas emissions, preserving and restoring nature, reversing environmental degradation and ensuring that the majority of energy comes from renewable sources.*

(The Guild Insight Paper No. 5, 2023)

*The term **'Twin Transitions'** refers not only to two concurrent transformational trends (the green and digital transitions); the term also refers to uniting the two transitions, which could accelerate necessary changes and bring societies closer to the level of transformation needed.*

(EU Joint Research Center, 2022)

In recent years, although the goal of digital transformation and green transformation has become a priority for most business leaders and governments, these two processes are currently taking place mainly separately, without the necessary synchronisation to maximise the potential to increase productivity and efficiency for businesses and economic activities. Therefore, instead of solely focusing on digitalisation, organisations should integrate sustainability into digital transformation strategies to seize new business opportunities and benefit both society and the environment. This is why the digital and green "Twin" Transition has recently emerged as an increasingly prominent trend, especially in European nations. Furthermore, the need for digital and green "Twin" Transition is even more profound in developing and emerging economies, where the development of digital infrastructure and the implementation of climate-sensitive and resilient transformations are still in the early stages.

1.2. How countries around the world pair business digital transformation with sustainability

Climate change is occurring on a widespread, rapid, and intensifying scale, leading to extreme and unprecedented weather events, inflicting casualties and biodiversity loss. Many of these changes could result in long-lasting and irreversible damage. Therefore, around the world, the digital and green transition has become increasingly important in recent years, with various initiatives in place to pursue three key pillars: (1) to sustainably increase productivity and economic outcomes; (2) to build resilience and adaptation to climate change, (3) to reduce or minimise greenhouse gas (GHG) emissions. The following case studies showcase how different countries, including Germany, Switzerland, Singapore, and South Korea, have successfully bridged digital and environmental goals to mitigate global warming while protecting the resilience of businesses and the economy.

Part 1 - Global outlook on the Digital and Green "Twin" Transition and emerging technology trends

Germany

Climate change is one of the most significant global challenges, largely driven by greenhouse gas emissions from burning fossil fuels. To limit the severity of this alarming issue, in the Paris Agreement, a crucial objective was set out to limit the increase in global average temperature to 1.5˚C to achieve the SDGs in the 2030 Agenda. Attaining this long-term objective is a formidable task for Germany, a dominant industrial player in Europe and the world. Nevertheless, as part of its commitment, Germany has made significant strides towards the international objective. Central to achieving this goal are the ambitious plans for decarbonisation, which Germany sees as an integral part of fulfilling its commitment under the Paris Agreement.

Germany's transition to a decarbonised economy is embodied in an initiative known as Energy Transition (or 'Energiewende'). This is a comprehensive, multi-faceted strategy that refers to Germany's effort to switch to clean energy sources, which serves as the key framework to reduce greenhouse gas emissions and contribute to both their national and international climate goals. The main policy target of this strategy is achieving carbon neutrality by 2045, and the first major intermediary milestone is to reduce 1990 emission levels by 65 percent by 2030. The Energiewende encompasses two main pillars: (1) expanding renewable energy sources, (2) improving energy efficiency. In 2000, Germany produced around 6.2% of its electricity through renewable energy sources, while by 2019, thanks to Energiewende, this figure had increased to over 46%. The key element of this ambitious strategy is the expansion of infrastructure, such as energy grids and power stations, to accommodate renewable energy sources, primarily wind and solar energy.

To support Energiewende and further its decarbonisation efforts, the German government has launched several significant initiatives. The Climate Action Plan 2050, for instance, sets out the roadmap for Germany to be largely greenhouse gas-neutral by mid-century. It involves sector-specific emissions reduction targets, covering energy, manufacturing, buildings, transport, agriculture, and land-use sectors. Furthermore, according to a report from the Federal Ministry for Economic Cooperation and Development, in order to fulfil commitments to the green transition, in July 2020 the German Parliament approved legislation to fully shut down all coal-fired power plants by no later than 2038.

Image courtesy of iStock

The 'Energiewende' initiative encompasses two main pillars: expanding renewable energy sources while improving energy efficiency. This initiative embodies Germany's transition to a decarbonised economy.

Moreover, the shift away from coal has resulted in considerable job creation in the renewable energy sector. According to the Institute for Economic Structure Research (GWS), until 2022, the number of jobs in areas related to renewable energy in Germany was 387,000, three times higher than the figure recorded in 2000, this provides a promising outlook on the socio - economic aspect of decarbonisation.

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Germany's commitment to the Twin Transition extends beyond its borders. A considerable portion of Germany's aid is specifically earmarked to support nations in the Global South in their pursuit of low-carbon and sustainable economies. The Team Europe Initiative on Twin Transition, co-led by Germany and Sweden, exemplifies this commitment, serving as a multilateral platform to provide essential knowledge and resources for developing countries in their efforts to strengthen digital and green innovation in the Global South.

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The initiative revolves around five key pillars. First, it supports policy frameworks for the Twin Transition, providing technical assistance for effective climate and energy policies. Second, it promotes innovation and sustainable digital solutions, directing support to research in clean technologies. Third, it mobilises finance for the Twin Transition, offering grants and loans for clean energy and sustainable infrastructure in developing nations. Fourth, it focuses on greening digital infrastructure and guiding environmentally sustainable construction and operation. Lastly, the initiative supports the public sector in developing nations by providing training and capacity-building for government officials. Serving as a testament to Germany's unwavering commitment to global sustainability, the Initiative empowers developing countries on their Twin Transition journeys, fostering a greener future while paving the way for a more equitable and prosperous world.

Switzerland

Switzerland has committed itself to climate neutrality by 2050. According to the Federal Council's 2018 environmental assessment report, the environmental impact per capita in Switzerland has decreased by approximately 20% in the period from 1998 to 2018; however, challenges remain due to the significant environmental impact from raw materials extraction, agriculture, as well as further processing and disposal activities. As a result, it is believed that technology plays a decisive role in achieving the Swiss CO2 goals. In order to facilitate the implementation of the sustainable development strategy, "Digital Switzerland" highlights the intersection between the digital and green transition. With its "Digital Switzerland" strategy, the country provides a framework to leverage digital technology to address ESG-related issues. Thereby, an advanced ecosystem is already in place, which focuses on harnessing innovative technologies to address pressing issues and is supported by the recently launched Swiss Innovation Fund to support start-ups.

As agriculture is at the frontline of a climate emergency while the global food demand is rising, "Smart farming" in Switzerland is on the rise and considered especially important against the backdrop of population growth, induced urbanisation, and subsequent reductions in farmland and biodiversity. Especially, agri-tech startups are playing a pivotal role in facilitating farmers'

digital revolution with a wide range of advanced technologies, such as remote sensing, big data, artificial intelligence, and robotics to enable precision agriculture, thereby enhancing soil, water, and crop management, as well as plan protection and animal health. The transition towards micro-managing farms with sophisticated information while reducing their ecological footprint has been referred to as the Fourth agricultural revolution.

In particular, drones, especially those with image-gathering technologies and satellites, have become a popular tool for Swiss farmers to survey their lands, generate crop data, and assess crop status. On average, a farm can generate half a million data points per day, ranging from soil temperature and individual (cow) milk yields to the presence of pests in a crop. All real-time data will be collected from the ground via sensors plugged in tractors and trucks as well as in fields, soil, and plants. Then, those data will be analysed and integrated with other information available, such as weather data, to provide farmers with granular data on rainfall patterns, water cycles, and fertiliser.

Especially, new AI technologies developed for plant protection spray by a Swiss start-up called eco-Robotix could help farmers reduce their use of plant protection products by up to

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Swiss farming can draw on a wide-range of expertise from the federal institutes of technology, other universities and the agronomy research centres run by the federal body Agroscope which is based on collaboration and invests in numerous projects in partnership with research institutes, universities and private companies, including start-ups.

95%. This means there is less pesticide residue in the food. Also, it changed farming from precision to 'predictive' agriculture. Apart from gathering data or spraying crops from the air, there are also developments taking place at ground level, with autonomous robotic vehicles being developed for various tasks such as weeding, the application of fertiliser, or fruit harvesting.

Another green technology innovation in Switzerland that minimises the use and waste of resources for better renewable energy integration is the Distributed Ledger Technology (DTL). The technology has the capability to cut out the middleman by directly connecting (green) energy producers with potential consumers via a peer-to-peer, established platform. There are many start-ups and companies developing products and services based on DTL to verify and trace generated energy quantities. Also, blockchain technology is applied to enhance decentralised energy networks as well as to create tokenised financial instruments for public utilities, which therefore tries to reduce energy waste and optimise its supply.

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Singapore

In line with Singapore's Green Plan 2030, which highlights the nation's commitment to concrete targets over the next decade to achieve long-term net-zero ambitions, numerous initiatives have been implemented across key sectors of the economy, particularly the built environment and ICT. These initiatives aim to unlock opportunities for technology and data to drive sustainable goals as well as apply sustainable thinking to technology, data assets, and infrastructure.

The built environment sector, particularly building management, has been at the forefront of the Greening by IT strategy adopted in Singapore. Not only large companies but also SMEs working in this sector are putting forth significant efforts to infuse sustainability within business operations. This includes tracking and reporting their emissions and resource usage, as well as investing in digital technologies to reduce their environmental impact. Such outcomes can be attributed to the application of digital and 'smart' elements such as automation, Artificial Intelligence (AI), the Internet of Things (IoT), and data analytics. These technologies enable the gathering of real-time data and the automation of processes to optimise resources, reduce inefficiencies, and improve transparency while delivering cost and time savings for businesses. In particular, the integration of multiple digital technologies within a building allows facilities management service providers and building owners/managers to easily collect data and track building performance with IoT sensors. They can also automate manual processes to enhance manpower efficiency and optimise resources and manpower deployment using AI and data analytics to save on manpower, material, and utility costs. Hence, these technologies can be applied across various services within the building management and operation space, including General Maintenance (i.e., cleaning, landscaping, and waste disposal), Integrated Building Management (i.e., building management systems), and Mechanical and Engineering Works (i.e., electrical systems service, HVAC services, lift & escalator operations, and plumbing, pump & chiller works).

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The built environment sector is regarded as a key pillar of Singapore's economy, accounting for almost 10% of the national GDP and 30% of total workforce employment. Building management and operations within this sector are highly carbon-intensive activities, contributing to over 20% of the country's total carbon emissions, with a majority arising from building operations. Besides, the treatment and production of clean water are also energy-intensive, while the non-domestic building sector (i.e., offices, hotels, and retail buildings) contributes to 55% of total water usage.

Together with the Greening by IT strategy, Singapore is also actively greening its ICT sector. To facilitate its Green ICT strategy, the Infocomm Media Development Authority, a statutory board in the Singapore government, has established the Green Data Centre Innovation Programme to support high-impact research, development, and demonstration (RD&D) in data centre efficiency in Singapore. It consists of three initiatives:

- The Green Data Centre Research Grant Call provides research funding for key areas of research that can be multi-disciplinary, and a focus on transferring research results is strongly encouraged.

- The Green Data Centre Innovation Call-for-Collaboration spurs innovation by catalysing the development and adoption of innovative green data centres related to products, solutions, and services. IMDA intends to invite proposals from the industry to prototype and pilot innovative solutions that cut across the facilities, ICT systems, and design to significantly improve the energy efficiency of local data centres.

- IMDA will work with the industry to establish and manage a Green Data Centre Innovation Hub to demonstrate emerging technologies and innovations that can be adopted by data centres. The Hub, as a data centre platform, will take a coordinated and multi-disciplinary approach towards open collaborations among industries.

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With a vibrant and thriving green information and communication technology (ICT) industry comprising more than 80 of the top 100 software and services companies in the world, Singapore is at the forefront of green ICT development.

In particular, Singapore has become a hub for digital sustainability by launching one of the world's first standards for optimising energy efficiency for data centres in tropical climate countries in early 2023. It is also the first country to join the Green Software Foundation and the European Green Digital Coalition in co-creating best practices for green software and green digital solutions. Most recently, the Infocomm Media Development Authority, together with Dell Technologies Inc. and Equinix Inc., have joined forces to drive innovation and promote green practices for a more sustainable digital future. They will work together to reshape the way digital infrastructure is designed, deployed, and maintained, with a focus on promoting sustainable digital solutions and green technology practices across the region.

The Republic of Korea

Since the 2000s, South Korea has been a globally recognised ICT powerhouse. It is also regarded as a founding member of the Digital Nations and is home to global electronics and ICT companies such as Samsung Electronics, LG, SK Telecom, etc. This country is also the world's leading memory chip producer, with the second-largest share of revenue (19 percent) in the global semiconductor industry as of 2019. Since 2017, when the government started shaping the Fourth industrial revolution strategies, Korea has sought to integrate data, networks, and AI to enhance industry competitiveness, the labour market, and the daily lives of its citizens. With the solid growth of the economy, especially the ICT sectors, at the same time, Korea is also viewed as one of the world's biggest GHG emitters, ranking 17th in terms of metric tonnes of CO_2 emissions per capita (12.2) in 2018. Although the government has considerably attempted

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to switch fuels, expand nuclear power, and increase the use of liquid natural gas (LNG), Korea's energy supply still depends heavily on fossil fuels. For the country's sustainable development, derived from the urgent need to reduce the country's carbon footprint since 2008, addressing the ICT sector's carbon footprint became one of the government's priorities in green transition. Also, the greening ICT strategy was clearly defined with three pillars: (1) data centres, (2) communication networks, (3) ICT devices. To fulfil those missions, the government has played a crucial role by exercising a variety of public policy tools to encourage the decarbonisation of the ICT sector in Korea, as below:

- Green procurement: In 2011, following the enactment of the Green Growth Act, the Korean government revised and expanded the Act on the Encouragement of Purchase of Environment-Friendly Products, which mandated government procurement of green products, including electronic products and ICT devices.

- Information and Product-based Instruments: As of December 2020, there were 17 environmental and green technology-related certifications that companies could acquire. 6 of which are mandatory and 11 are optional certification programmes meant to provide environmental information to consumers and induce firms to develop and produce green products.

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Korea was among the first countries to embrace green growth as a national development strategy and announce its commitment to green ICT sectors as early as the 2000s. The move for the greening of ICT in this country has been incorporated into and backed by a long-term vision and strong political commitment, large-scale infrastructure projects, R&D for innovative technologies, and a robust legal framework to support the implementation of green initiatives.

- Economic instruments: the Korean Emission Trading Scheme (K-ETS), a market-based scheme designed to cost-effectively meet a nation's GHG reduction targets by allocating several emissions permits to eligible entities, was launched in January 2015 as East Asia's first nationwide mandatory ETS. The participating entities can trade any surplus or deficit in their emission allowances with other participants in the market. K-ETS covers six sectors, including the industry sector, which is divided into 50 sub-sectors including semiconductor manufacturing, electronics component manufacturing (including display manufacturing), telecommunications, data processing, hosting, and related industries.

- Stimulating Innovation: The government is collaborating with public research institutes, academia, and industry to develop innovative carbon-neutral technologies that will improve the energy efficiency of data centres, networks, and ICT products over the next 30 years.

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Vietnam's context towards Twin Transition

The diffusion of digital technologies has significant potential to boost productivity, help access new knowledge, and facilitate the diffusion of innovation. Similar to other emerging markets, digital transformation has been inevitable for the Vietnamese economy and market in recent years. And the country has successfully approached opportunities from the Fourth Industrial Revolution and the rapid development of digital technologies to find new growth models and engines for the economy, then became a new digital powerhouse in Southeast Asia. Furthermore, in 2022, Vietnam also decided to accelerate its digital transformation with a new "National strategy to development of digital economy and digital society by 2025, orientation towards 2030". Under this, the government aims to improve the digital infrastructure's accessibility to 5G services and e-government portals, with a solid target for the digital economy to account for 30% of Vietnam's GDP by 2030.

Together with the digital economy, the green economy is also increasingly becoming a top priority in economies amid the world's complex, unpredictable fluctuations and intertwined challenges. Especially for Vietnam, green growth toward economic prosperity and environmental sustainability is viewed as not only an inexorable choice but also an opportunity for the country to become a pioneer in the region. Therefore, the "National Green Growth Strategy for 2021-2030, vision towards 2050" and the "National Action Plan on Green Growth for the 2021–2030 period" have set an ambitious target including:

- Reduce the greenhouse gas emissions intensity per unit of GDP by at least 15% until 2030, and by at least 30% until 2050 (compared to 2014);

- Transform the growth model towards greening economic sectors; applying the circular economic model through the economical and efficient use of natural and energy resources, with science and technology as the foundation; applying digital technologies and digital transformation; developing sustainable infrastructure to raise the quality of growth; bringing into play the competitive advantages and reducing the negative impact on the environment;

- Greening lifestyle and promote sustainable consumption.

Similar to other countries in the region and around the world, digital technologies and digital transformation are expected to be the driving force behind the successful transition to a green economic model, realising strategic green growth objectives in Vietnam. This points to the inevitability of the Twin Transition - digital transition and green transition - is a trend that the businesses in Vietnam need to keep up with to seize new business opportunities and ensure sustainable benefits for society and the environment.

According to the report on The leaders of the Twin Transition in Asia (World Bank Group, 2023), the Twin Transition technology space represents the technological links between all digital and green technologies. 16 green and 11 digital technologies are selected that could be regarded as being associated with the Twin Transition. This selection is based on an explorative investigation

of studies that identify key digital and green technologies using patent data. As depicted in this report, from 2017 to 2021, Vietnam held 15% of the total of 493 green patents in these emerging markets, placing itself behind Malaysia (51%), and Thailand (20%), while most green transition technology patents in Vietnam are related to Wind energy, Waste management, Air & Water pollution reduction, and Green buildings. Meanwhile, in terms of digital transition technologies, Vietnam only accounts for 8% of the total 537 patents of those catching-up economies, placing itself behind Malaysia (58%), the Philippines (16%), and Thailand (11%).

Table 1 - Twin Transition technologies

Green technologies	Digital technologies
Air & water pollution reduction	Additive manufacturing
Waste management	Artificial intelligence
Water-related adaptation technologies	Augmented reality
Wind energy	Autonomous robots
Solar energy	Autonomous vehicles
Geothermal energy	Blockchain
Marine and hydro energy	Cloud computing
Green transports	Cybersecurity
Biofuels	Quantum computers
Batteries	Smart grids
Nuclear energy	Internet of things
Other energy storage	
Hydrogen	
Greenhouses gas capture	
Efficient power and combustion	
Green buildings	

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In conclusion, digital transformation and green transformation are now becoming inevitable trends for the Vietnam economy, as this is an essential requirement for the future. Therefore, to exploit the potential for simultaneous development of the digital economy and green economy, to achieve the goals set out in the "National strategy to development of digital economy and digital society by 2025, orientation towards 2030" and the "National Green Growth Strategy for 2021-2030, vision towards 2050 ", it is necessary to take serious and swift actions in the Twin Transition race.

Part 1 - Global outlook on the Digital and Green "Twin" Transition and emerging technology trends

1.3. Highlights on emerging technology trends outlook

According to a report from McKinsey Digital (2023) on the Technology Trends Outlook, five key emerging technology trends will be most significant for companies around the world in 2023.

i.   Theme #1: Generative AI

Generative AI, a new trend, has made a loud entrance into the technological world and has already shown potential for transformative business impact. This represents the next frontier of AI. Building upon existing technologies such as applied AI and the industrialisation of machine learning, generative AI has high potential and applicability across most industries. Unlike earlier versions of AI, it can enable the creation of new unstructured content, such as text, audio, videos, images,

Image courtesy of Getty Images

code, simulations, protein sequences, or consumer journeys, based on information it learns from similar formats of unstructured data. Thus, in a business context, generative AI could not only unlock novel use cases but also speed up, scale, or otherwise improve existing ones. It also has the potential to redefine businesses and value chains by enabling the deployment of new products and revenue streams, enhancing Customer experience and Omnichannel. Its impact is expected to materialise most, however, in improving employee productivity and experience.

ii.   Theme #2: Trust Architectures

Digital-trust technologies enable organisations to manage technology and data risks, accelerate innovation, and protect assets. What's more, building trust in data and technology governance can enhance organisational performance and improve customer relationships. The underlying technologies include zero-trust architectures (ZTAs), digital-identity systems, and privacy engineering. Other technologies

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help build trust by incorporating explainability, transparency, security, and bias minimisation principles into the design of AI. The adoption of digital-trust technologies, however, has been hindered by a range of factors, including integration challenges, organisational silos, a lack of talent, and its limited consideration as a critical component of value propositions. Building a comprehensive trust-first risk mindset and capabilities requires top-down leadership and deliberate changes to multiple spheres of activity, from strategy and technology to user adoption.

iii. Theme #3: Advanced connectivity

Advanced-connectivity improvements will enhance user experiences for consumers worldwide and increase productivity in industries such as mobility, healthcare, and manufacturing. Companies have been quick to adopt advanced-connectivity technologies that build on existing deployments and connectivity standards, but some of the newer technologies on the horizon, such as low-Earth-orbit (LEO) connectivity and private 5G networks, face obstacles that will need to be addressed to increase uptake.

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iv. Theme #4: Cloud and Edge computing

In the future, enterprises will leverage an infrastructure footprint that involves computing and storage at multiple location points, from on-premises to closer-to-premises (the edge) and from small regional data centres to remote hyperscale data centres. Edge computing provides flexibility for organisations to process

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data closer to their origins faster (ultra-low latency) and achieve data sovereignty and enhanced data privacy as compared with the cloud, which can unlock a variety of new use cases. The reduced distance to end users will shrink data transmission delays and costs while also providing faster access to more relevant sets of data. This advantage helps companies comply with data residency laws. The public cloud will continue to play a critical role in future enterprises by performing non-time-sensitive computing use cases at much better economies of scale. The seamless integration of cloud and edge resources will allow users to extend the innovation, speed, and agility of the cloud to edge and real-time systems, thereby accelerating innovation, lifting productivity, and creating business value.

v. Theme #5: Cleantech to drive the future

Beyond electrification and renewables, it is also essential for enterprises to scale up climate technologies, including carbon capture, utilisation, and storage (CCUS); carbon removal; natural climate solutions; circular technologies; alternative proteins and agriculture; water and biodiversity solutions and adaptation; and technologies to track net-zero progress.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

2.1. Highlights on digital transformation in Vietnamese enterprises

According to a report from FPT Digital in 2023, key technologies such as Cloud computing, Internet of Things (IoT), Artificial Intelligence (AI), and Cybersecurity will accelerate the digital transformation journeys of Vietnamese enterprises from 2023 to 2025.

Internet of Things (IoT)

The Internet of Things (IoT) is one of the key technologies in the global Industrial 4.0. According to the World Bank in 2021, this is the most widely applied technology in Vietnam, spanning numerous sectors, namely Agriculture, Smart home, Health, and Industrial production.

Regarding Agriculture, IoT plays a crucial role in the implementation of smart farming and precision agriculture. Vietnam is known for some agricultural exports such as coffee, rice, cotton, peanuts, sugarcane, and tea. According to a World Bank survey in 2021, despite the importance of some of these cash crops, Vietnam's production remains mostly based on manual processes, especially with tasks related to packaging, harvesting, weeding, and pest management. There are slightly more advanced technologies used in irrigation and storage. The most used type of storage facilities are those with cold or dry controlled environments (74%). In the case of irrigation, 44% of farms use small pumps, while 40% use drip or localised irrigation. This technology aims to enhance farming practices and improve crop production.

Industrial production is also projected to become one of the two most prevalent IoT application areas in 2025. One prominent application is the digitisation of manufacturing plants through the installation of IoT sensors in production lines. These sensors collect real-time data on machine performance, production rates, and maintenance requirements. This data allows for predictive maintenance, optimised workflows, and reduced downtime. Another vital aspect is remote factory control, where IoT technology enables remote monitoring and control of production processes. This capability empowers managers to oversee operations and make timely adjustments, leading to improved efficiency and reduced costs.

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Additionally, IoT gives automatic notifications about product status and quality. Sensors embedded in equipment can detect deviations, or quality issues, triggering alerts for swift action, improving product quality, and reducing waste. Lastly, IoT aids in inventory management by providing real-time visibility into stock levels, enabling accurate demand forecasting, and reducing unnecessary inventory. These IoT applications in industrial production have streamlined operations, enhanced product quality, and optimised costs, positioning the industry for increased competitiveness and growth.

Regarding the Healthcare industry, IoT has played a transformative role, particularly in health monitoring and diagnostics. One significant application is the use of wearables, such as smartwatches and fitness trackers. This employs IoT technology to monitor and track various individual vital signs, physical activities, and sleep patterns, helping people manage their health and assisting healthcare professionals in remote patient monitoring. Additionally, implantable Healthcare devices equipped with IoT capabilities have emerged, aiding in the continuous monitoring of critical health data by healthcare providers. These devices, such as smart pacemakers or insulin pumps, enable personalised treatment and prompt intervention. Furthermore, IoT has facilitated the connectivity of diagnostic equipment through Bluetooth or Wi-Fi, enabling the transmission of Healthcare data to healthcare facilities. This enhances the efficiency of diagnoses and facilitates remote consultations, leading to timely interventions. Through these applications, IoT has paved the way for more personalised and connected healthcare.

Cloud computing

Compared to the rest of the world, Vietnam is considered an emerging nation that ranked 53 out of 76 in the ranking of the Cloud Ecosystem Index in 2022. This technology is applied intensively in various key areas, ranging from the Finance & Banking, Manufacturing, Retail, to the IT industry.

In terms of the Finance and Banking industry, cloud computing has revolutionised this sector to enable direct access to data in the cloud by providing secure platforms for storing and processing financial data.

Cloud computing has also become increasingly prevalent in the Manufacturing industry, facilitating direct access to data stored in the cloud and transforming various aspects of the production process. Manufacturers can leverage real-time analytics and data-driven insights to improve operational efficiency and decision-making by integrating smart devices throughout the production chain, such as IoT sensors and connected machinery. This enables remote monitoring of production lines, predictive maintenance, and proactive quality control.

Cloud computing is also applied in the Retail industry, specifically through its application in centralised data synchronisation on retail systems. Traditionally, retail businesses struggled with managing and updating data across multiple locations, leading to inconsistencies and inefficiencies. However, with cloud computing, retailers can now centralise their data storage and synchronise it across various systems and locations in real time.

Concerning the IT industry, cloud computing assists in managing and processing a large volume of personal data, offering a secure and scalable solution.

Image courtesy of Getty Images

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

Other advanced manufacturing

In Wearing Apparel, the majority of firms make use of manual design and manual cutting, with machines manually operated for joining parts. The highest level of digital transformation can be illustrated by the fact that 80% of firms are using Computer-Aided Design (CAD) or 3D technologies at the design stage.

These technologies help design apparel products, enabling efficient and precise development processes, therefore allow designers to create realistic virtual prototypes, visualise designs, and make modifications before physical production.

Image courtesy of Getty Images

Additionally, firms have been utilising "semi-auto sewing machines", which integrate automation and human skills to streamline the sewing process. These machines assist staff in performing complex stitches or repetitive tasks, improving productivity and minimising errors. Similar to wearing apparel, most establishments in the leather and footwear industry use very basic and manual methods. The highest digital transformation level is also illustrated at the design stage. Firms have widely utilised 2D drawing software such as AI, CorelDRAW, or Sketch to design leather and footwear products, streamlining the design process and enhancing creativity. By applying such advanced technologies, enterprises in Vietnam can enhance productivity, improve design capabilities, and therefore maintain competitiveness in the global market.

In pharmaceuticals, a significant number of establishments are using advanced digital technologies for their business functions. Based on the FPT Digital 2023 survey results, the highest adoption rate can be seen in packaging, weighing, and distributing as well as in facilities. Firms in this industry have implemented HEPA (High-Efficiency Particulate Air) or ultra-HEPA air filtration systems in their manufacturing facilities to maintain sterile environments. These advanced filtration technologies effectively remove contaminants, ensuring the safety and purity of pharmaceutical products. Additionally, electronic scales and automated systems are employed for precise weighing and dosage calculations, enhancing accuracy and reducing human errors in pharmaceutical production. Moreover, automated packaging lines have been adopted by firms to streamline packaging processes. These technologies enable Vietnamese enterprises to ensure the production of high-quality and safe pharmaceutical products.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

2.2. Analysis on digital transformation readiness of Vietnamese enterprises in 2023

Overview

The analysis on digital transformation readiness of enterprises in Vietnam in 2023 is based on self-assessment data on the digital transformation readiness of enterprises on the Programme's portal (https://digital.business.gov.vn/), carried out by the Agency for Enterprise Development (AED) under the Ministry of Planning and Investment.

The survey was conducted throughout 2023 with the participation of 500 enterprises nationwide from various sectors, including Manufacturing and processing industry, Mining industry, Wholesale and retail, Education, Real estate, etc. All enterprises participating in the survey are SMEs and have not participated in the survey conducted in 2022.

Overall, about 25% of the surveyed enterprises are specialised in the Manufacturing and processing industries. The percentage of enterprises in the Agriculture, forestry, fisheries industry, and Education sectors is 12-13%. The distribution of participating enterprises by industry is shown in Figure 1 below.
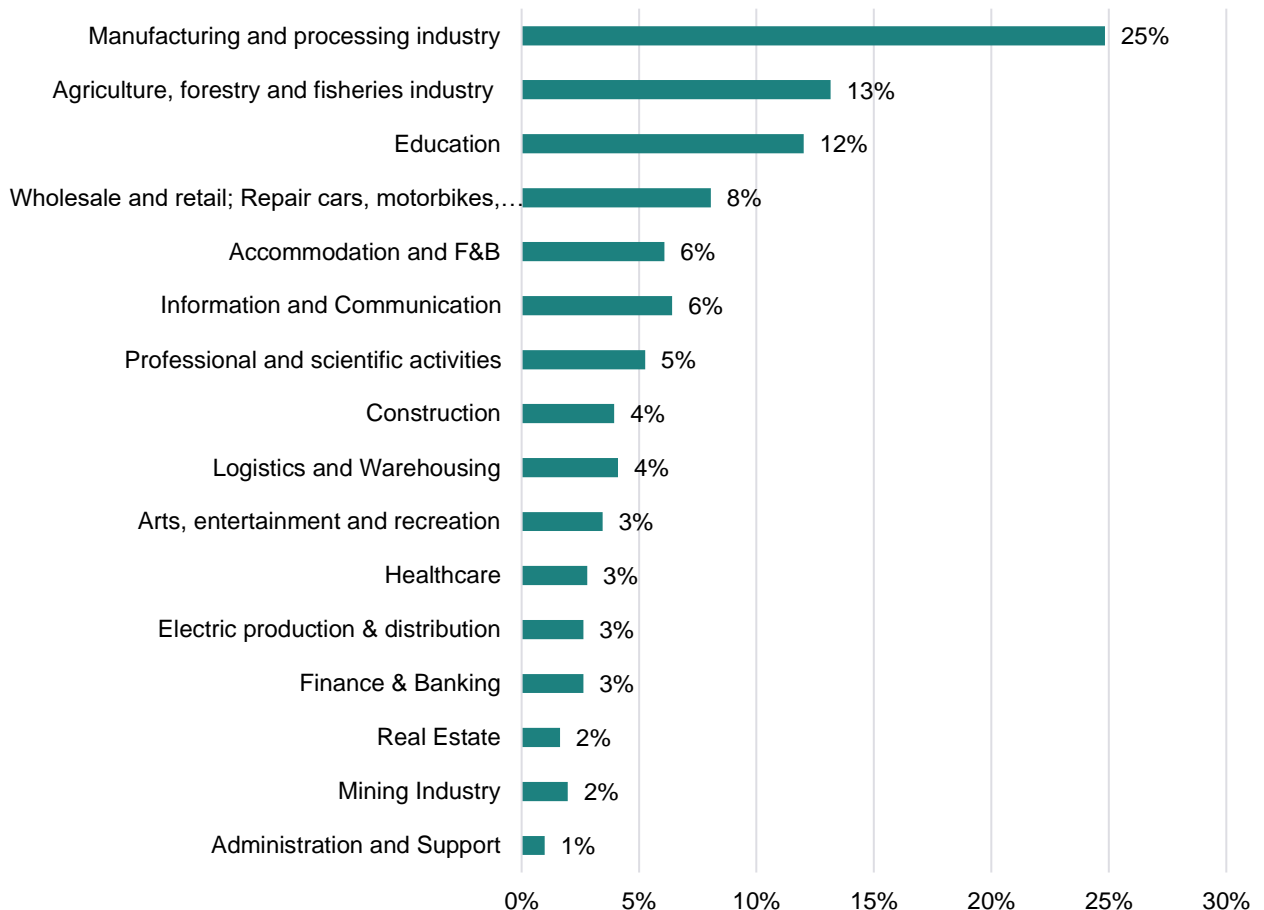

Figure 1: Distribution of enterprises participating in the survey by Industry

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

Figure 2: Geographical distribution of enterprises participating in the survey

- Hanoi - Ho Chi Minh - Hai Phong - Da Nang - Can Tho
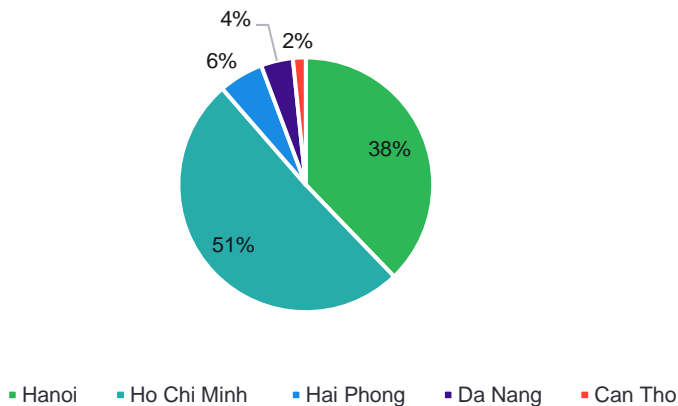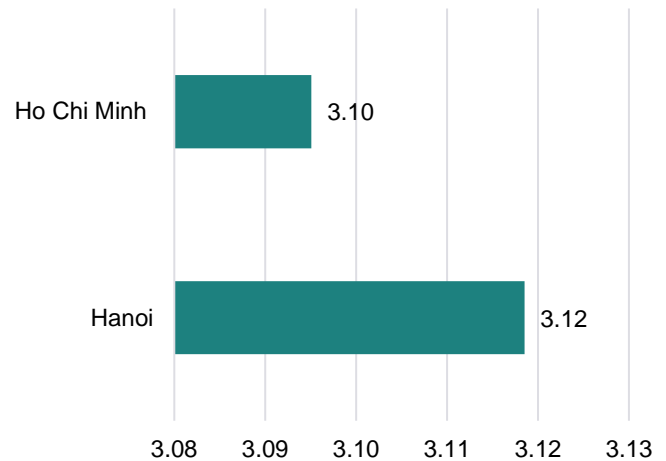
Figure 3: Average digital readiness of enterprises in large cities

About 90% of the company employees participating in the survey come from large cities such as Ho Chi Minh City and Hanoi, having average digital readiness at an Advanced level (at above 3.0).

Methodology to measure digital transformation readiness level

The Self-assessment tool for digital transformation readiness is a tool for businesses to perform a quick yet systematic assessment of their readiness for digital transformation. The digital transformation readiness assessment framework evaluates seven core areas within the business, divided into three groups: **Group 1 - Strategic transformation, Group 2 - Business model transformation, and Group 3 - Management capacity transformation**.

The component indicators that measure the level of digital transformation readiness in the seven core areas are as follows:

- Strategic objectives
- Customer experience & Omni-channel
- Supply chain
- IT systems & Data management
- Risk management & Cybersecurity
- Financial management, accounting, Planning, Legal & HR management
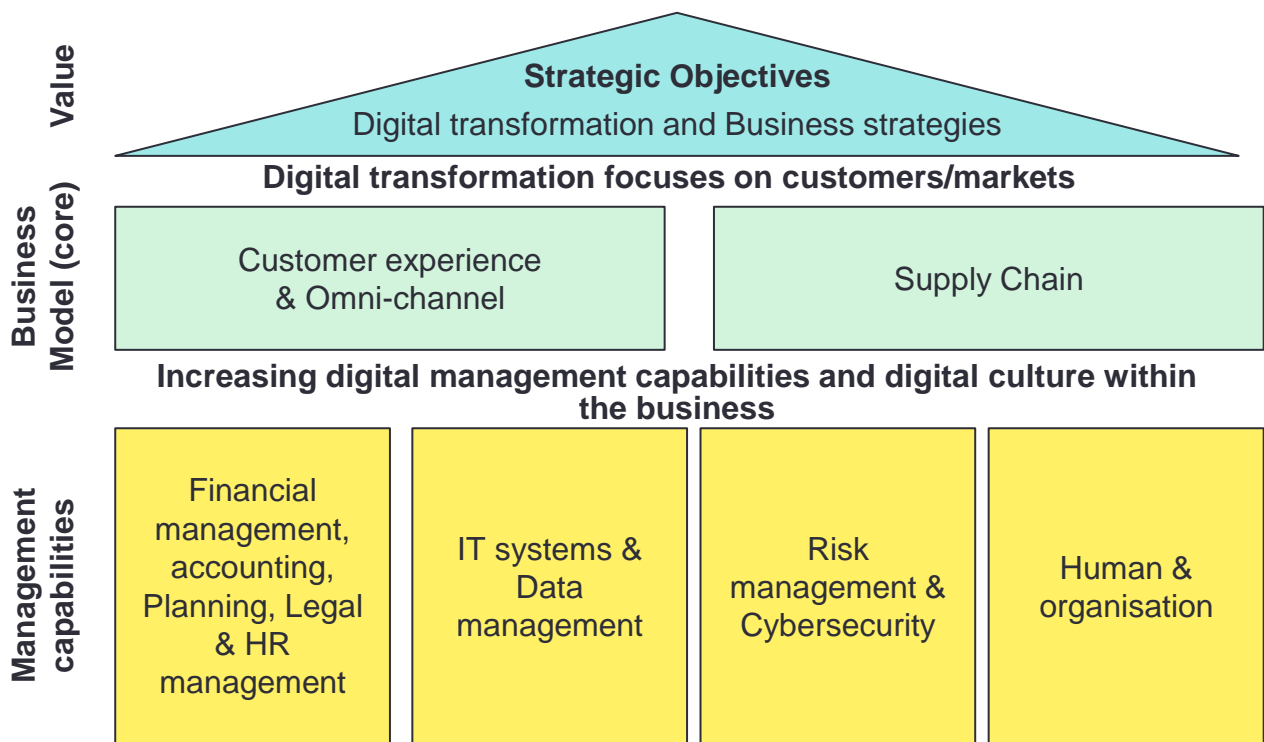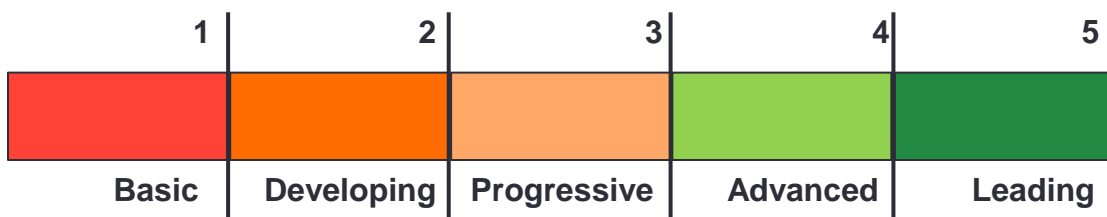- Human & Organisation

Figure 4: The key aspects of digital transformation within the business (Source: Ernst & Young)

Based on survey responses, the answers for each core area are converted to a rating scale from 1 to 5, corresponding to different levels of digital maturity:

- **Basic**: The enterprise has not formed current goals for digital transformation but has been able to implement basic digital transformation solutions to digitalise some internal processes or some products and services.

- **Developing**: The digital transformation objectives of the business have been built and developed. In addition, enterprise managers have realised the importance of digital transformation.

- **Progressive**: Digitalisation is an indispensable part of the business strategy. Tasks, plans to implement digital transformation have been formed, yet measuring and managing the implementation still face various challenges, and have not met the effectiveness.

- **Advanced**: Digital transformation is integrated into business activities, but expanding the scale and successfully implementing these changes across departments still face challenges.

- **Leading**: The enterprise is always conscious and continuously innovates, digitalising the industry, and is moving towards being a digital enterprise.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

Details about the assessment method are mentioned in the Digital Transformation Guidelines for Vietnamese Enterprises, published in 2021 on the Digital Transformation Portal of the Agency for Enterprise Development, Ministry of Planning and Investment: http://digital.business.gov.vn/

Digital readiness level of businesses in 2023
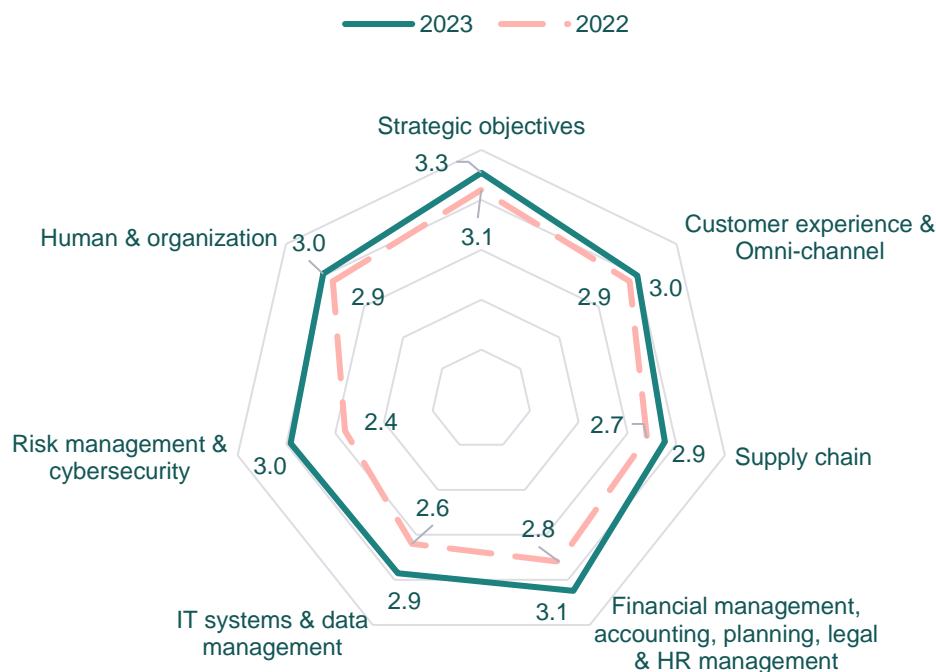
i.   In general

Figure 5: Readiness of digital transformation regarding 7 aspects of Vietnam enterprises (Source: Ernst & Young)

According to the self-assessment digital readiness survey results of over 500 enterprises in 2023, overall, these businesses have a relatively high level of awareness of digital transformation, reaching an Advanced level. Compared to 2022, the average digital readiness level in all aspects witnessed a slight increase. The Strategic objectives aspect topped the list in 2022 and continued to rank first in 2023 at a digital readiness level of 3.3. This can be attributed to the fact that, in recent years, businesses have increasingly understood the potential benefits of leveraging digital technologies to enhance business operations.

The digital readiness in terms of Financial management, accounting, planning, legal, and HR management functions, as well as the Customer experience & Omni-channel aspects, have shown significant improvement compared to 2022, reaching 3.1 and 3.0 respectively. Due to the widespread awareness of the importance of digital transformation, businesses are also more ready to implement digital transformation in order to optimise internal management capacity and business models. The Customer Experience & Multi-channel Sales aspect is particularly focused on the application of digital transformation because it is a key factor that helps businesses maintain and increase their attractiveness to customers and revenue streams. Specifically, with the rapid changes in customer behavior and shopping and consumption habits, especially the popularity of e-commerce platforms, businesses are required to actively invest and develop digital solutions and technologies to meet customer expectations and provide better, more personalised experiences.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

In recent years, there have been an increasing number of cyberattacks, leading to risks concerning information security and the protection of personal user data. The year 2023 witnessed a significant change in the digital transformation readiness of the Risk management and Cybersecurity aspect, increasing from 2.4 to 3.0, as the government issued Decree 13/2023/ND-CP on personal data protection to strictly handle violations of cybersecurity regulations. Additionally, the government has also recommended that businesses enhance the implementation of technical solutions, management solutions, and policies to ensure the security of personal information in the network environment.

The Human & organisation aspect continues to be a focus of investment for businesses, with an advanced digital readiness level of 3.0. Businesses have recognised the importance of upskilling employees with digital capabilities, fostering a digital culture, and restructuring processes and teams to adapt to the changing digital landscape.

The Supply chain and IT systems and Data management aspects have the lowest digital transformation readiness levels, both at 2.9. This is due to the significant capital investment required to develop infrastructure and systems in a synchronised application. In reality, the transportation system and information technology infrastructure in Vietnam are still incomplete and limited in terms of connectivity. Businesses may want to carry out digital transformation, but they can only do so on a small scale without strong connections with other businesses.

Image courtesy of Adobe Stock

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises
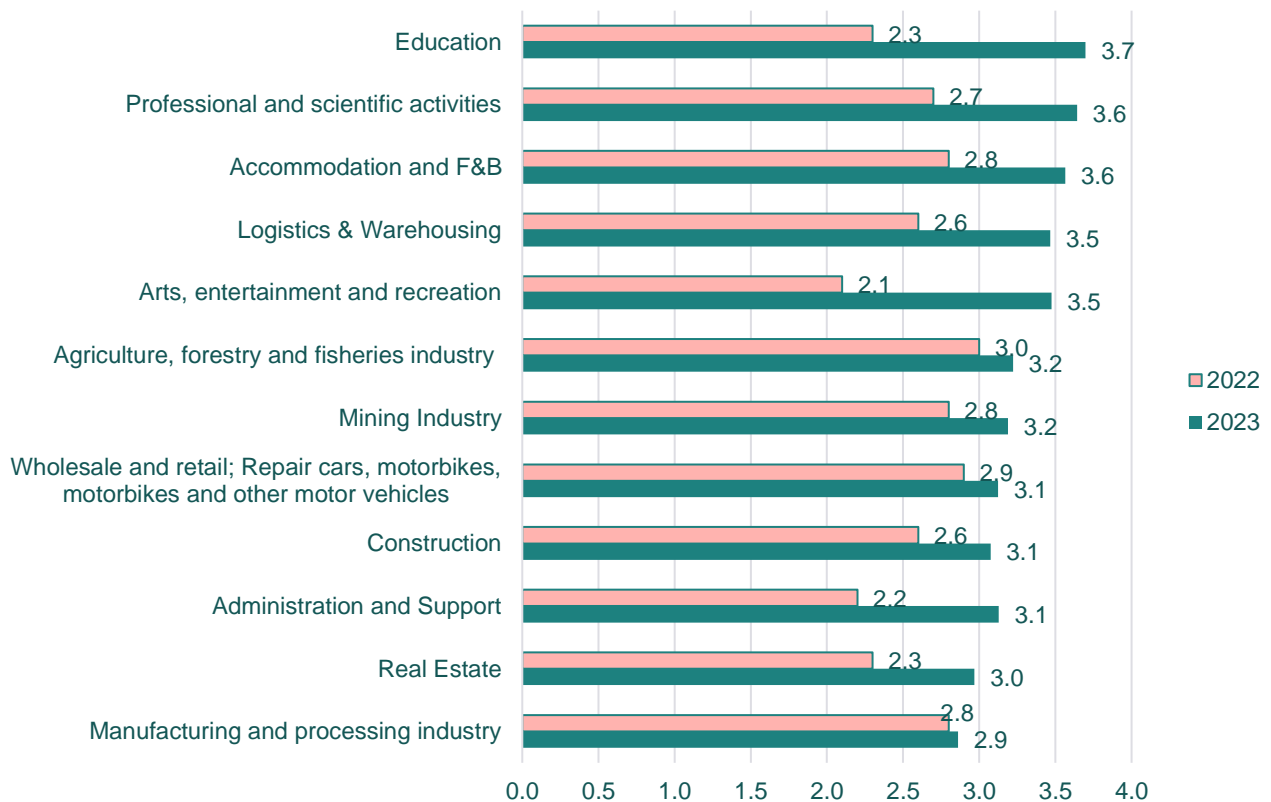

Figure 6: Digital readiness by Industry

The survey by the Agency for Enterprise Development under the Ministry of Planning and Investment in 2023 was conducted on a range of SMEs from 12 industries. While in 2022, four industries, including Education, Real estate, Administration and support, and Arts, entertainment, and recreation, had below-average digital readiness scores (<2.5) (Figure 6), 2023 witnessed strong growth in all industries, reaching above average (>2.5) in all industries with an increase of 0.7 – 1.4 points compared to the previous year. This indicates that the surveyed industries have set and are achieving digitalisation targets within their strategic planning, accompanied by the establishment of necessary management positions or dedicated digital transformation projects. This is a positive signal, indicating that businesses in all sectors are ready for this breakthrough and comprehensive shift.

It is evident that industries such as Education, Professional and scientific activities, Accommodation and F&B, and Logistics & Warehousing witnessed a remarkable increase in digital readiness compared to last year. Notably, the Education industry experienced remarkable growth, surpassing all other industries and topping the readiness list in 2023. On the other hand, the Manufacturing and processing industry almost showed no growth after one year, maintaining a score of 2.9. This may stem from insufficient investment in infrastructure, machinery, and equipment for digital transformation.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises

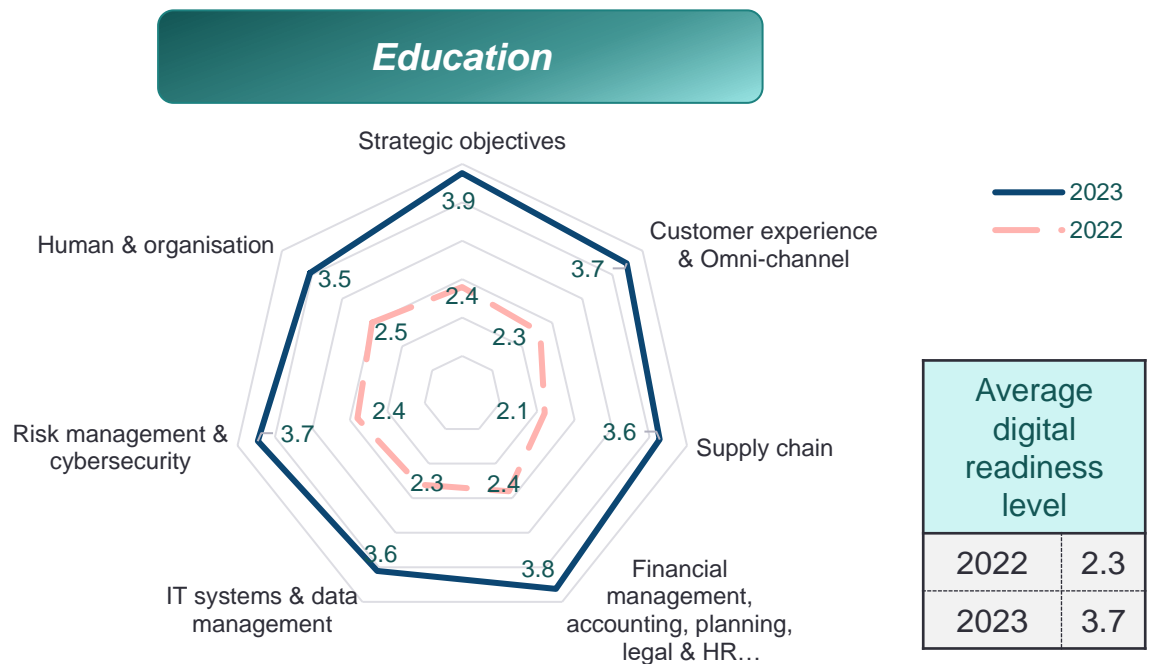## ii.   *Digital transformation in specific industries*

Figure 7: Digital readiness in Education

As mentioned above, the Education industry is the sector with the most significant growth readiness. From 2022 to 2023, the industry's average digital level has seen a remarkable increase from 2.3 - Developing to 3.7 - Advanced. Since COVID-19 has accelerated the adoption and acceptance of e-learning in Vietnam, schools are transitioning to online teaching. This has laid a strong foundation for the growth of digital transformation in the education sector. Students are getting used to hybrid learning, a new method of knowledge delivery that combines both in-person learning and online learning. In addition, the application of AI technology also brings diversity to teaching solutions. Therefore, digital readiness score of the strategic objectives aspect therefore went up to 3.9, which was the highest among the 7 aspects.

Besides, students and parents have increasingly recognised the importance of personalised learning experiences. Digital transformation allows for customised learning paths, adaptive assessments, and personalised feedback, catering to individual student needs. That is the reason why the digital readiness level of Customer experience & Omni-channel is remarkably high at 3.8 – an Advanced level. The changes in the strategic objective aspect have fostered an increase in the Financial management, accounting, planning, legal, and HR management aspect and the Human & organisation aspect, reaching 3.8 and 3.5 respectively. To achieve these strategic objectives, schools, universities, and educational institutions need to invest in technologies for financial management and management processes and build the digital capacity for teachers to quickly adapt to the digitalised Education industry. The digital readiness of Supply chain is also high – 3.6 – thanks to the increased flexibility and diversity in teaching methods.

Lastly, to adapt with the Education industry in the digital era, it is necessary to develop online platforms, learning management systems, and risk management and users' information security system. This boosts the digital readiness level of IT systems & Data management and Risk management and Cybersecurity to comparatively high levels of 3.6 and 3.7, respectively.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises
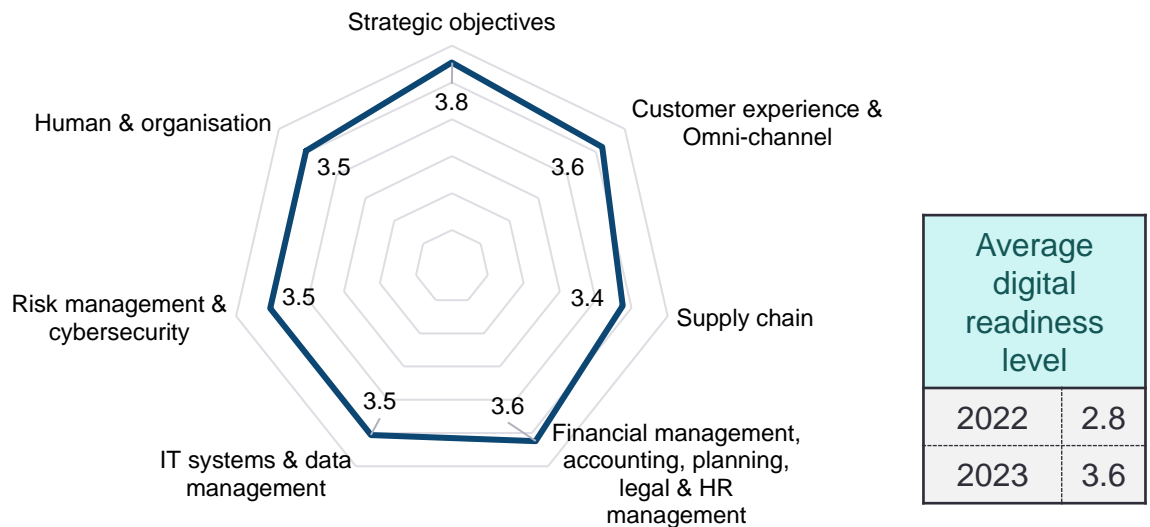

Figure 8: Digital readiness in Accommodation and F&B

The average digital readiness level of the accommodation and F&B industry has undergone significant changes, from 2.8 in 2022 to 3.6 in 2023. The scores of seven aspects of these industries are relatively similar, ranging from 3.4 to 3.8 (an Advanced level).

The growth of online booking platforms in the accommodation and F&B industry has transformed the way customers look up and book services. This change in consumer behaviour requires businesses to have timely digital transformation strategies to adapt to these changes and improve their operational processes. Businesses can apply integrated property management systems, inventory management software, and automate processes to streamline operations and reduce manual errors. Besides, businesses need to equip their staff with the necessary knowledge and skills to operate these online platforms. This is the reason why the scores for the Strategic objectives, Financial management, accounting, planning, legal and HR management and Human & organisational management are relatively high, at 3.8, 3.6, and 3.5, respectively. Additionally, digital transformation enables businesses to offer personalised and seamless services for customers by leveraging data analytics to understand customer preferences, providing personalised recommendations, and tailoring services to individual needs. Therefore, the digital readiness score of Customer experience & Omni-channel aspect is high at 3.6.

The scores for the Risk management & Cybersecurity and IT systems & Data management both reach a high level of 3.5. Due to the operation of services on a digital platform and the increasing popularity of contactless payment services require enterprises to maintain a risk management system, ensure safety, data security, user information, as well as stable IT infrastructure and data management.

However, the supply chain system in Vietnam still faces certain limitations in terms of infrastructure, resulting in a score of 3.4 for the Supply chain aspect.

Part 2 - Digital transformation current state and readiness of Vietnamese enterprises
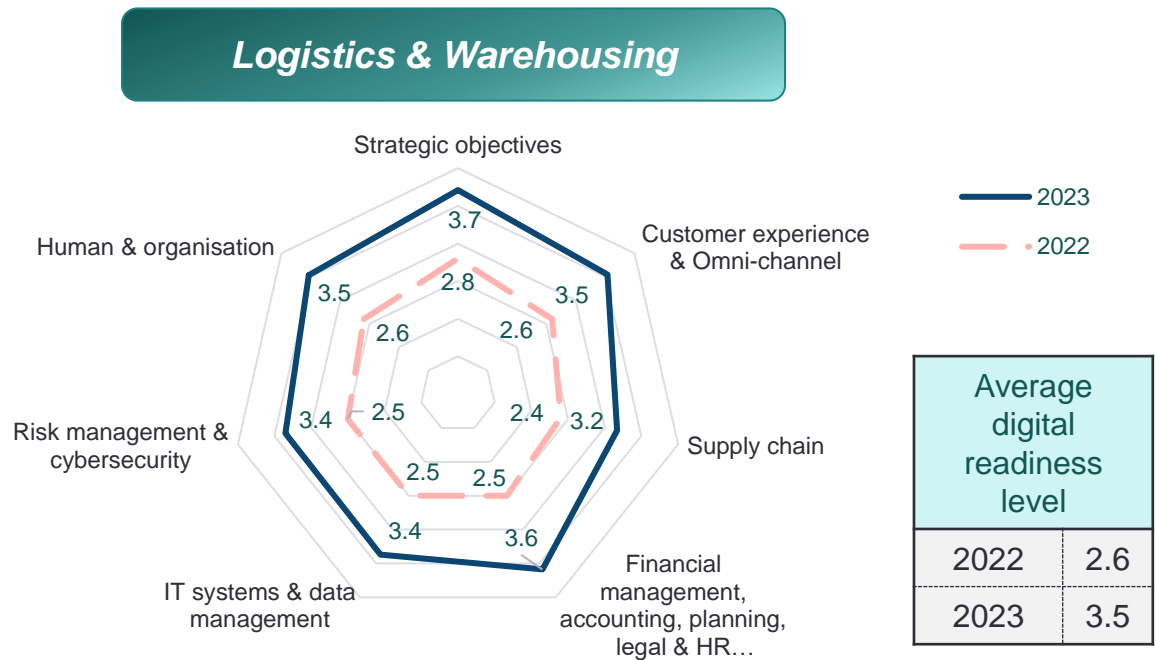

Figure 9: Digital readiness in Logistics & Warehousing

Compared to last year, the digital readiness level of the Logistics & Warehousing industry in Vietnam has undergone significant changes, increasing from an average digital readiness level of 2.6 to 3.5. The increasing demand for transportation of goods and logistics services in the domestic market, along with the development of international trade and economic integration, has driven the need for digital technology improvement to enhance the domestic transportation network. Simultaneously, in recent years, an increase in the e-commerce sector has raised the demand for digital transformation in the Logistics sector in Vietnam. This is the reason that the Strategic objectives, Human & Organisations, and Financial management, accounting, Planning, Legal & HR management aspects have reached relatively high levels, with scores of 3.7, 3.5, and 3.6, respectively.

With increased interaction and transactions on e-commerce platforms, consumers expect more from services and products. They demand flexibility, convenience, and fast delivery, as well as timely checking of information about shipping journeys. This drives the development of fast and flexible delivery services within the Logistics industry. In order to meet customer demands, businesses need to improve their logistics service processes based on customer-focused approaches to enhance user experience. This explains why the digital readiness score for the Customer experience & Omni-channel aspect is relatively high at 3.5 – an Advanced level.

However, the Supply chain aspect in 2023 only reaches a score of 3.2, which is lower than the other aspects. This is due to the fact that the transportation infrastructure system in Vietnam is still underdeveloped and unsynchronised, as well as the significant investment required by businesses to ensure system connectivity.

Part 3 - Digital transformation support policies and programmes for enterprises

LEGAL FRAMEWORK

In 2023, the guideline documents for implementing the Law on Support for Small and Medium-sized Enterprises continued to be refined and institutionalised, introducing many new policies such as financial support for training, consulting, leasing, and purchasing digital transformation solutions for businesses, etc. These are the legal basis for agencies and organizations to utilise their resources to support businesses in their digital transformation.

1. Decree 80/2021/ND-CP dated August 26, 2021 by the Government provides detailed provisions and guidelines for the implementation of certain articles of the Law on Support for Small and Medium-sized Enterprises (SMEs). According to this Decree, SMEs are entitled to the following support:

- Maximum support of 50% of the value of digital transformation consulting contracts, up to 50 million VND/contract/year for small enterprises, and up to 100 million VND/contract/year for medium-sized enterprises.

- 50% support for the costs of renting, purchasing digital solutions, up to 20 million VND/year for micro enterprises, up to 50 million VND/year for small enterprises, and up to 100 million VND/year for medium-sized enterprises.

2. The detailed guiding documents for the implementation of Decree 80/2021/ND-CP include:

- **Circular 06/2022/TT-BKHDT** on May 10, 2022 by the Ministry of Planning and Investment providing guidelines for certain articles of Decree 80/2021/ND-CP.

- **Circular 52/2023/TT-BTC** on August 8, 2023 by the Ministry of Finance providing guidelines on the mechanism for using regular budget funds to support SMEs as stipulated in Decree 80/2021/ND-CP.

Part 3 - Digital transformation support policies and programmes for enterprises

On January 7, 2021, the Minister of Planning and Investment approved the programme "Supporting enterprises' digital transformation from 2021 to 2025".

Photo courtesy of AED

Mr. Nguyen Chi Dung, the Minister of Planning and Investment, and Ms. Ann Marie Yastishock, the Director of the United States Agency for International Development (USAID) in Vietnam, co-chaired the announcement ceremony.

General objective of the Programme:

To support and promote digital transformation in businesses through the integration and application of digital technologies to enhance operational efficiency, improve capacity and competitive advantage, and create new values for businesses.

Specific objectives:

- **100%** of businesses receive information from the Programme and enhance their knowledge of digital transformation.

- **100** exemplary successful businesses in digital transformation from "doing digital" to "being digital".

- **100,000** businesses receive support from the Programme (using self-assessment tools for digital readiness, training and consulting support, connecting with digital solutions).

- Formation of a network of **100 experts**, including organisations and individuals providing advisory services and digital solutions.

Part 3 - Digital transformation support policies and programmes for enterprises

Activities of the Programme

To achieve the objectives of the Programme, the Department of Business Development, Ministry of Planning and Investment has collaborated with ministries, sectors, localities, business associations, and sponsoring organisations to implement various specific activities during the period of 2021-2023.
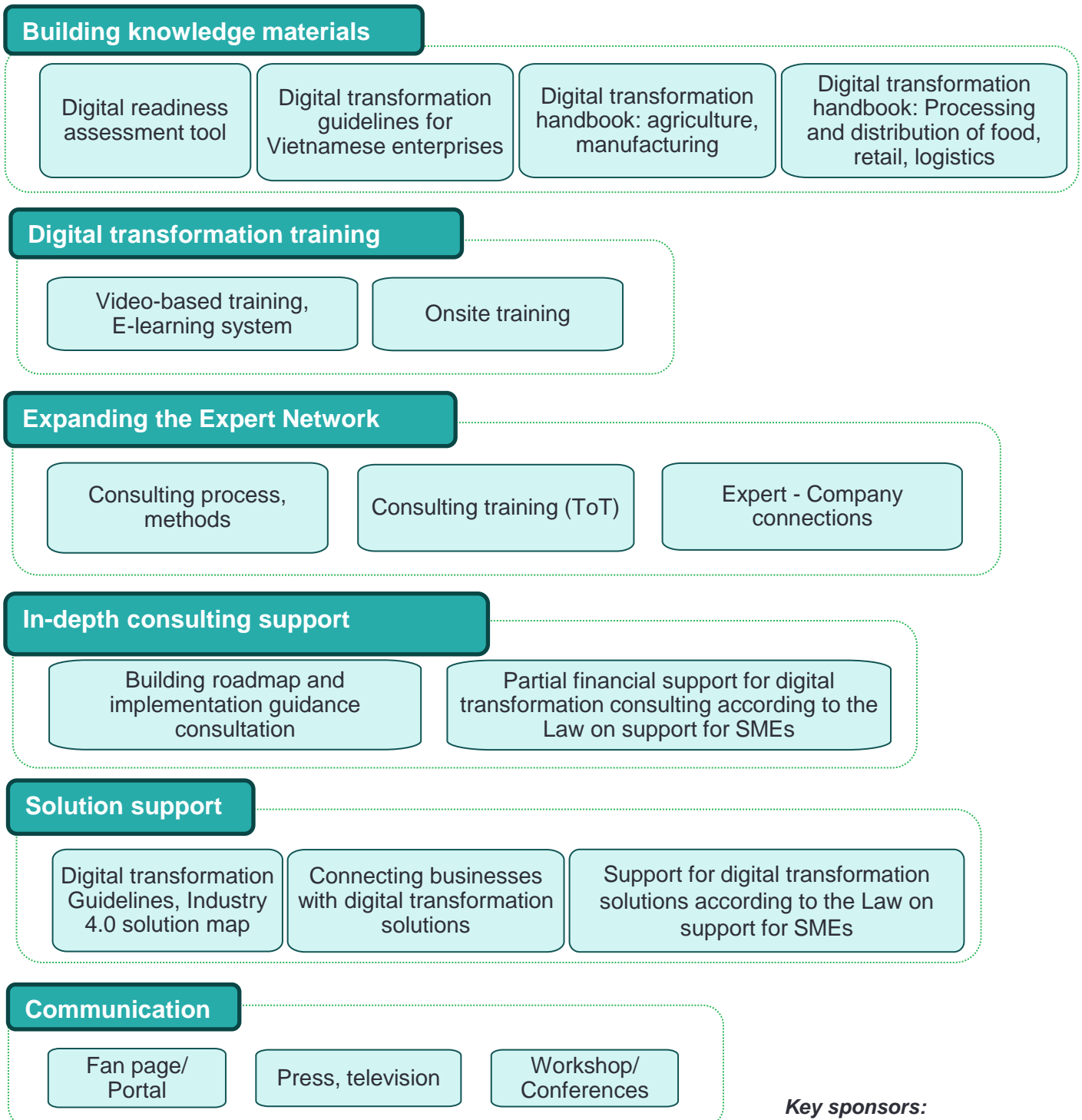
Building knowledge materials

- Digital readiness assessment tool
- Digital transformation guidelines for Vietnamese enterprises
- Digital transformation handbook: agriculture, manufacturing
- Digital transformation handbook: Processing and distribution of food, retail, logistics

Digital transformation training

- Video-based training, E-learning system
- Onsite training

Expanding the Expert Network

- Consulting process, methods
- Consulting training (ToT)
- Expert - Company connections

In-depth consulting support

- Building roadmap and implementation guidance consultation
- Partial financial support for digital transformation consulting according to the Law on support for SMEs

Solution support

- Digital transformation Guidelines, Industry 4.0 solution map
- Connecting businesses with digital transformation solutions
- Support for digital transformation solutions according to the Law on support for SMEs

Communication

- Fan page/ Portal
- Press, television
- Workshop/ Conferences

Key sponsors:

USAID   german cooperation   Implemented by giz

Figure 10: Activities in the Programme of Ministry of Planning & Investment

Part 3 - Digital transformation support policies and programmes for enterprises

Key results of the Programme in the period of 2021-2023

During the 2021–2023 period, the Programme has implemented numerous synchronised activities, focusing on raising the awareness of businesses in 63 provinces and cities and on the digital platforms of the Programme as well as mass media. As a result, businesses have made significant changes in their perception of the need for digital transformation. Many enterprises have entered the stage of data digitisation, process standardisation, and the application of digital technology, and are moving towards a broader and more comprehensive digital transition. Simultaneously, an ecosystem to support businesses in digital transformation has been established.
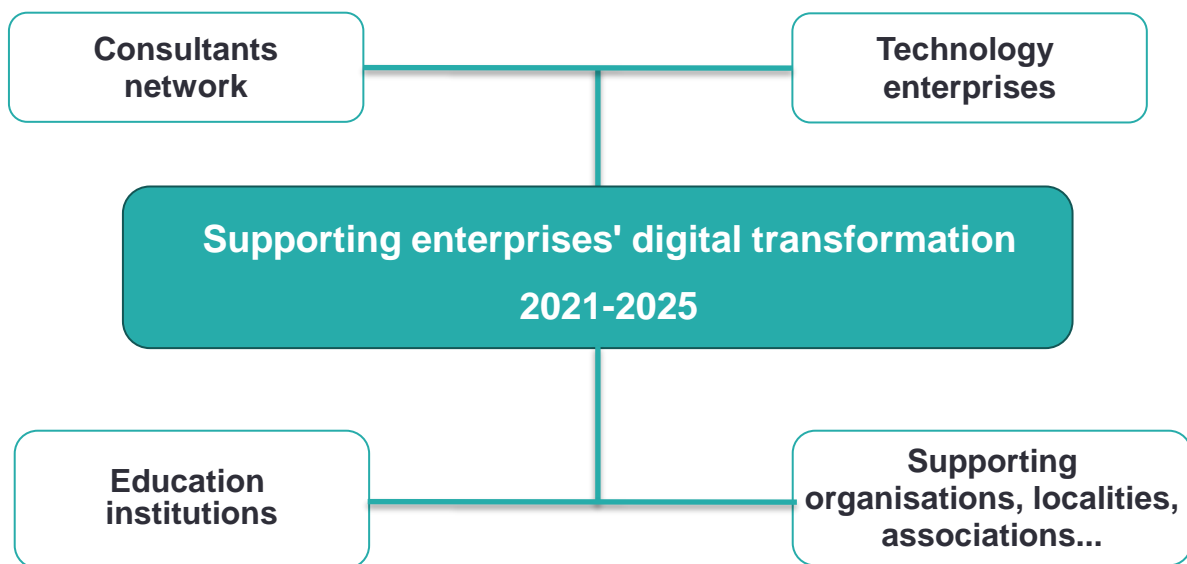

Figure 11: Supporting enterprises' digital transformation programme from 2021 – 2025

Specific results

According to statistics from the Programme's media platforms, as of August 2023, the Programme has achieved:
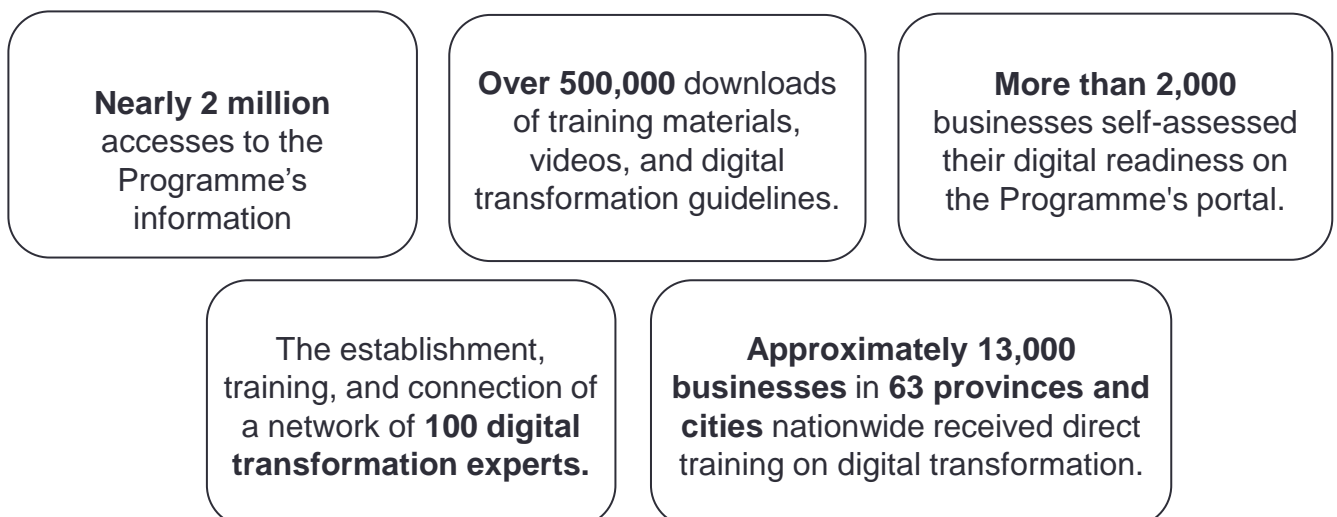

*Figure 12: Specific results of the Programme for businesses 2021-2025*

The Programme's information portal and the Digital readiness assessment tool

All tools, documents, training videos, and support packages for digital transformation have been digitised and made available 24/7 on the information portal: https://digital.business.gov.vn. They are widely disseminated, allowing any business to easily access and engage with materials, knowledge, expert networks, digital solutions, and the government supports for digital transformation in businesses.

The Digital readiness assessment tool for SMEs has been digitised and can be accessed at the following address: https://digital.business.gov.vn/. Businesses can self-assess their digital readiness and receive direct feedback on their assessment results.
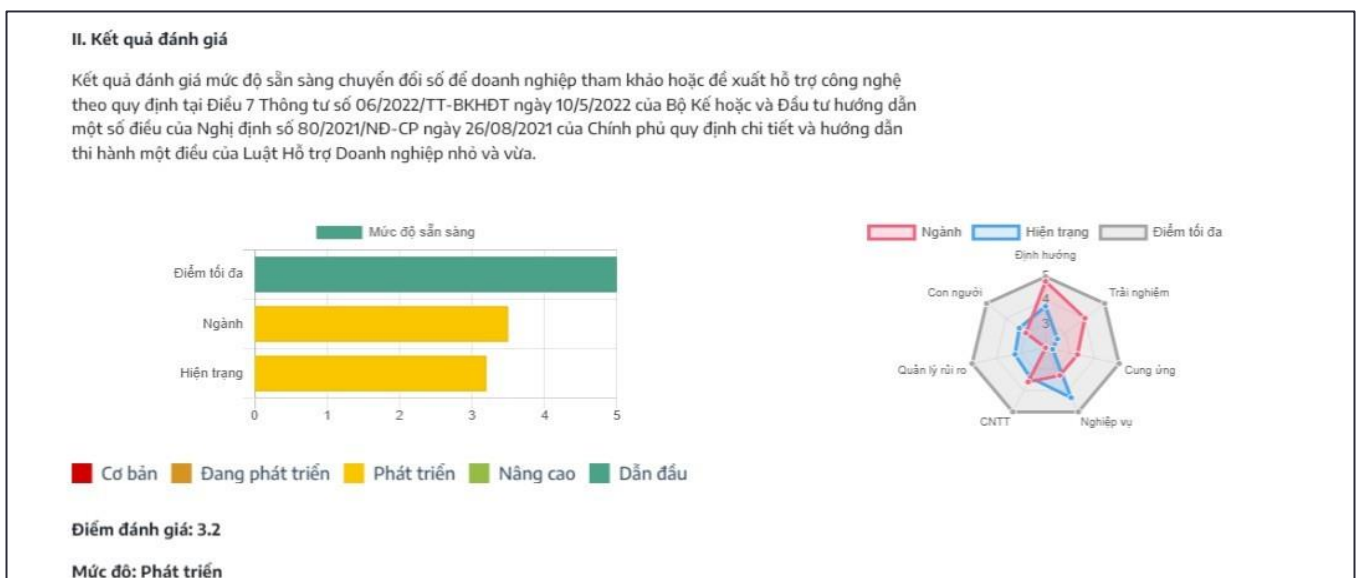
Enterprises self-assessment digital readiness results

Developing materials:

Development of digital transformation handbooks for SMEs in various sectors such as agriculture, industry, processing and distribution of food, retail, and logistics.

URL of digital transformation materials: https://digital.business.gov.vn/

Digital training:

Creation of training videos through an e-learning system and conducting onsite training sessions at localities and businesses.

Video đào tạo 17: Chuyển đổi số cho ngành du lịch

MIỄN PHÍ

Cung cấp bởi: Cục phát triển doanh nghiệp - Bộ Kế hoạch và Đầu tư
Chứng nhận hoàn thành: Không có

ĐĂNG KÝ HỌC

Video đào tạo 16: An toàn an ninh mạng cho DNNVV

MIỄN PHÍ

Cung cấp bởi: Cục phát triển doanh nghiệp - Bộ Kế hoạch và Đầu tư
Chứng nhận hoàn thành: Không có

ĐĂNG KÝ HỌC

Video đào tạo 15: Mô hình kinh doanh kỹ thuật số

MIỄN PHÍ

Cung cấp bởi: Cục phát triển doanh nghiệp - Bộ Kế hoạch và Đầu tư
Chứng nhận hoàn thành: Không có

ĐĂNG KÝ HỌC

Providing Digital transformation trainings for SMEs in different provinces and cities such as Gia Lai, Binh Thuan, Quang Tri, Quang Ngai, Dak Nong, and more.

Expand expert network:

Development of consulting processes and methods for experts. Collaborating with partner institutions like GIZ and USAID to organise Training-of-Trainers (ToT) sessions for consulting teams and experts.

Photo courtesy of GIZ

Training for digital transformation experts and consultants is conducted in Ho Chi Minh City and Hanoi.

In-depth consulting support:

Providing consulting support in building roadmaps and implementing digital transformation for individual businesses. Providing partial financial support for digital transformation consulting according to the Law on Support for SMEs.

Photo courtesy of GIZ

Meetings between Programme experts and businesses to conduct assessments to develop in-depth digital transformation roadmaps for businesses.

Part 3 - Digital transformation support policies and programmes for enterprises

Solution support:

Development of the Yellow pages of digital transformation and the Industry 4.0 solution map. These resources help businesses connect with suitable digital transformation solutions and provide support for businesses to lease or purchase solutions according to the Law on Support for SMEs.


Photo courtesy of AED

Programme experts conduct surveys and evaluate the compatibility of solutions offered by businesses.

Photo courtesy of AED

Recognition of exemplary digital transformation solution providers who have been accompanying the Programme.

The Yellow pages of digital transformation for businesses is built based on a database of over 100 solution providers in the market. From this database, 40 outstanding businesses are selected to accompany the Programme. Businesses that lease or purchase solutions have the chance to get special offers and discounts from the selected providers in the Guidelines.
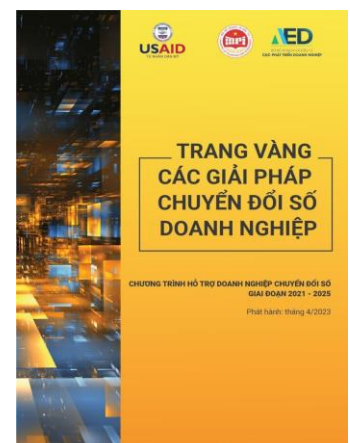
Part 3 - Digital transformation support policies and programmes for enterprises

Establishing partnerships to drive digital transformation in businesses

Collaborating with the GIZ to organise the "Vietnam Enterprises Digital Transformation Partnership Conference 2023". This conference aims to share government-supported directions and solutions for business digital transformation, update global digital transformation trends, and exchange ideas and solutions to support business digital transformation with partners both domestically and internationally.

Photo courtesy of GIZ

Delegates from organisations and corporations such as the European Union Delegation in Vietnam, GIZ, the Vietnam Posts and Telecommunications Group, Grab Vietnam, among others actively participated in positive discussions and proposed initiatives to support digital transformation in businesses in the coming period.

Photo courtesy of GIZ

Part 4 - Successful stories about digital transformation

4.1. Digital transformation optimises inventory and increases sales

Image courtesy of USAID IPSC

Mr. Thai Xuan Bien founded the Thai Xuan Bien Company, located in Gia Lai Province, to pursue a career in tree seedling nurseries and successfully produce and distribute high-quality seeds for forestation. He frequently travelled to Vietnam's southern provinces to purchase tissue culture plants, and the company produces 4.5 million seedlings and 8 million germinated seeds every year.

The company was well positioned to scale up its business; however, inventory management was conducted manually, resulting in challenges in production, identification, and classification, particularly of acacia and eucalyptus trees, which include hundreds of unique species and are the company's main products.

With the support of USAID Improving Private Sector Competitivity (IPSC), Mr. Bien and his staff have successfully implemented the QRLabel.NET system to credibly trace information about its products and virtually eliminate information-gathering errors, optimising inventory management and order fulfillment. In addition, Thai Xuan Bien Company started deploying Enterprise Resource Planning (ERP) software functions for location-based inventory management, product quality management, and designing a sales website.

Source: USAID IPSC , led by the Agency for Enterprise Development, Ministry of Planning and Investment, sponsored by the United States Agency for International Development

Following USAID IPSC's comprehensive technical assistance, Thai Xuan Bien Company invested and gradually implemented a QRLabel.NET traceability system, Viindoo enterprise management software, and a sales website. These technologies have helped the company improve its efficiency, productivity, and customer service at a low cost. These actions also demonstrate the company's commitment to digital transformation.

Most impressively, Thai Xuan Bien increased its seed yield by 15% through optimising inventory and production management. From April to August 2023, Thai Xuan Bien sold 1,180,312 eucalyptus trees and 442,078 acacia trees, generating an income of $139,000, an increase of $14,000 or 10% compared to last year.

Thai Xuan Bien also sold 2,000 seedlings in May 2023, a 5% increase from the previous month, to existing customers in the Quang Binh, Quang Ngai, Binh Dinh, and Gia Lai Provinces.

Part 4 - Successful stories about digital transformation

4.2. Digital transformation to export digital products to the world

Thu Do Multimedia (TDM) is a pioneering enterprise offering solutions for the digital communication area with digital copyright products such as Sigma Multi-DRM and Sigma SSAI. In recent years, TDM has provided solutions for most domestic and international broadcasters such as Viettel, Vinaphone, VTVCab, FPT, TrueID, JungoTV... Recognising that exports constitute up to 12% of its annual total revenue (115 billion VND), TDM acknowledges the pressing necessity to enhance the professionalism of its methods and processes for managing international clients. From the early days of receiving technical support from the USAID IPSC project, TDM's leadership has been ready to deploy a key staff team to initiate the ERP system in 2023.

Image courtesy of USAID IPSC

As an IT company, TDM understands that digital transformation is not just about introducing software to control and expedite work, but more importantly, it's about transforming people and optimising processes. The ERP deployment is an important boost in TDM's digital transformation programme. When deploying the EPR system, with sponsorship from USAID and experts from the IPSC, right at the beginning of the project, standardising business processes according to the "best practices" integrated into the ERP solution as per international standards brought TDM positive signs of enhancing efficiency and coordination speed between departments, thereby significantly improving productivity and elevating the quality of customer service. This is especially important for TDM to meet the increasingly high demands from a global, borderless market.

Along with supporting TDM to deploy ERP, the USAID IPSC project also implemented "Key Customer Relationship Management" and "Leadership Transformation" training programmes for the company's staff. This blocked training programme is key to expanding new knowledge to support breakthrough sales mentality, and at the same time helps the company standardise customer relationship management processes as per international standards through implementing JBP (Joint Business Planning).

TDM is confident that the combination of existing internal resources along with the support of business support programmes of the Agency for Enterprise Development will lead to a successful transformation into a leading business, bringing its "Make by Vietnam" digital products to the global market. The company aims to achieve a minimum double-digit growth rate (over 10% revenue growth each year) in the coming years thanks to this comprehensive transformation programme.

Source: USAID IPSC , led by the Agency for Enterprise Development, Ministry of Planning and Investment, sponsored by the United States Agency for International Development.

Part 4 - Successful stories about digital transformation

4.3. Dai Phuc Hai strengthens production management through digital transformation

The Dai Phuc Hai Printing and Packaging company, located in Hai Phong province, has been in the printing and packaging industry since 2011 and boasts a professional team of around 30 employees. With advanced and modern technology and machinery, diverse printing services, and an experienced workforce, the company is committed to delivering high-quality products and packaging services.

However, the COVID-19 pandemic disrupted the company's supply chain. Raw material shortages and a significant increase in the cost of packaging production materials, which accounted for 60–70% of production costs, significantly affecting the company's profits. Furthermore, the printing and packaging industry has become increasingly competitive, resulting in declining sales volume. The company recognised the need to standardise production processes, optimise resources, and expand its markets, but struggled to determine where to start and how to do it.

Image courtesy of USAID IPSC

Dai Phuc Hai has seen significant positive changes in production management following USAID IPSC support, including digital transformation. The enterprise management system allowed the company to create quality control and production plans, calculate production costs, and monitor production defect rates. As a result, the company rectified and controlled 30% of printing processing errors, standardised production processes, and increased labour productivity. Additionally, eliminating waste in all production stages, from raw materials to finished goods, has minimised negative environmental impacts and led to significant cost savings.

By implementing the enterprise management system, Dai Phuc Hai also improved the effectiveness of customer relationship management and sales and marketing activities, thereby enhancing the company's image. The company can now quickly respond to changes in the marketplace and is confidently expanding its domestic market by reaching out to potential customers in Quang Ninh, Bac Giang, and Hanoi.

Part 4 - Successful stories about digital transformation

4.4. Increasing customer experience through digital transformation

In recent years, optimising the customer experience has become a priority for service providers. This is what Journey of the Senses (JOS) has successfully applied to create an agile digital environment, meeting customer needs. JOS is a social impact enterprise in Ho Chi Minh City, providing jobs for 57 workers, including 21 women, 9 LGBT+ individuals, and 13 people with disabilities. JOS's experiences, products, and services include restaurants, spas, and gifts, which are primarily provided by people with visual or auditory impairments.

Image courtesy of USAID IPSC
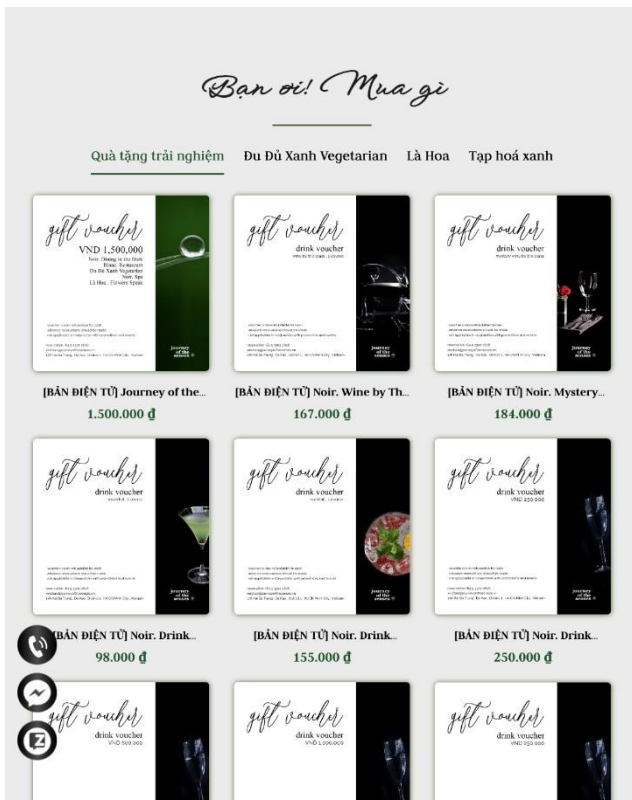
In 2022, JOS received digital transformation support from the ISEE-COVID project. Subsequently, JOS initiated building brand identity by constructing an e-commerce website, helping to convert and balance products from offline to online. The customer experience journey was also innovated through barcode scanning, online shopping, delivery, and digital payment, which not only enhanced the customer experience but also facilitated employee communication with customers.

These innovations have helped diversify the enterprise's channels, increase sustainability for the business model, and improve the convenience experience for customers regardless of geographical constraints, maximising and diversifying customer segments, leading to a 229.54% increase in company revenue compared to 2021 (6 months in 2021 had to close due to the COVID-19 pandemic).

Source: ISEE-COVID project" funded by the Ministry of Global Affairs Canada (GAC), co-implemented by the Agency for Enterprise Development, Ministry of Planning and Investment, and United Nations Development Programme (UNDP) in Vietnam

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CONTACT INFORMATION:

DIGITAL TRANSFORMATION OFFICE
AGENCY FOR ENTERPRISES DEVELOPMENT
MINISTRY OF PLANNING AND INVESTMENT

Website: http://digital.business.gov.vn/

Facebook: https://www.facebook.com/chuyendoisodn/

Email: digital@mpi.gov.vn
chuyendoiso.mpi@gmail.com

Hotline: 080-43853