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ICT application in tourism industry in post-COVID-19 economy in Vietnam

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Abstract

This article analyzes the current state of the economy in Vietnam after experiencing the Covid-19 pandemic causing the global economic crisis and the opportunities and challenges in the application of ICT in businesses of both service and industry in Vietnam. In fact, the Covid-19 pandemic has had a strong impact on not only the world economy but also middle-income countries like Vietnam. In order to restore the economy that is suffering from many injuries, the application of ICT in the economic field is one of the best solutions to help restore the economy of our country. The article also proposes solutions to help apply ICT in the field of tourism in the best way.

Keywords: post-Covid-19, ICT application, tourism, Vietnam

1. Introduction

The general situation of Vietnam's economy after COVID-19

As of December 30, 2020, Vietnam recorded 1,465 infections (including 35 deaths) the COVID-19 epidemic is under strict control, the economy is gradually returning to normal operation under new normal conditions. for the economy, GDP growth in the fourth quarter of 2020 was somewhat prosperous compared to the third quarter of 2020. In which, the agriculture, forestry and fishery sector increased by 4.69% over the same period last year; industry and construction increased by 5.6%; the service sector increased by 4.29%. GDP in 2020 will increase by 2.91%, although this is the lowest level in the period 2011-2020, but in the context of complicated developments of the COVID-19 epidemic, negatively affecting all socio-economic fields, this is a very good numbers.

Prime Minister Nguyen Xuan Phuc said that, due to the impact of the COVID-19 epidemic while many regional countries around the world are in recession, Vietnam is a rare country that can maintain positive growth and domestic epidemics. controlled; economic and social security are guaranteed; culture, environment, national defense, external security, information and communication achieved impressive results. Propaganda and public mobilization work has brought about positive results.

The Economist magazine has ranked Vietnam in the top 16 most successful emerging economies in the world. According to World Bank data, with an average economic growth of 6.8% in the period 2016 - 2019, Vietnam is in the top 10 fastest growing countries.

These things show the correctness in directing and administering economic recovery and disease prevention along with the determination and consensus of the entire political system, the Government and the Prime Minister; the efforts and efforts of the people and the business community to effectively implement the goal of both disease prevention and socio-economic development.

From the end of December 2019 to the present time, Vietnam has experienced 4 outbreaks of the disease. If the 1st, 2nd, 3rd waves of the epidemic are not too serious, in the 4th wave (from April 27, 2021 to the present) it will be extremely fierce when the Delta mutation is extremely dangerous. Facing the extremely complicated situation of the epidemic, the State has made many decisions to take care of the health and life of the people.

However, the economic situation was almost paralyzed because of the directives set by the Government. The closure of businesses to limit the spread of the disease has caused many people to lose their jobs.

Total GDP in the third quarter of 2021 is estimated to decrease by 6.17% compared to the same period last year – this is the deepest decrease since Vietnam has calculated and announced quarterly GDP. GDP in the first 9 months of 2021 only increased by 1.42% over the same period last year due to the impact of the COVID-19 epidemic on all sectors of the economy, many key economic localities had to implement social distancing to prolong the period of time to prevent the virus from spreading rapidly.

The urgency of the subject

Vietnam's tourism is considered a spearhead economic sector with many potentials, diversity and abundance. However, due to the impact of the COVID-19 epidemic on the Vietnamese economy, the tourism industry has been severely affected. According to the General Statistics Office, the number of international visitors to Vietnam in the third quarter of 2021 decreased sharply, estimated at only 247.6 million arrivals, down 69.6% over the same period last year. In September, many localities eased social distancing from the application of Directive No. 16/CT - TTg to Directive No. 15/CT - TTg, so commercial activities and passenger transport increased compared to August but decreased compared to the same period last year. Particularly, the number of international visitors to our country still decreases because the State continues to implement measures to prevent and control the COVID-19 epidemic, so international tourism has not yet been opened. In the first 9 months of 2021, the number of international visitors reached only 114.5 thousand arrivals, down 97% compared to the same period last year.

The decrease in the number of visitors has affected tourism service revenue in the first 9 months of 2021, service export turnover is estimated at 2.66 billion USD, of which tourism services reach 107 million USD (accounting for 4% of the total). turnover), down to 96.6% over the same period last year; Import turnover of services in the first 9 months of 2021 was estimated at 14.35 billion USD, of which tourism services reached 2.7 billion USD (accounting for 18.7%), down 24.1% over the same period last year. before.

The complicated developments of the COVID-19 pandemic have seriously affected commercial and service activities. Negative growth in the first 9 months of 2021 of a number of service industries accounting for a large proportion reduced the overall growth rate of the service sector and the entire economy, the accommodation and food service industry decreased by 23.18% (down 0.57 percentage points over the same period last year).

The application of ICT in tourism helps to reduce costs, improve operational efficiency, service quality and customer experience, so the application in tourism is becoming more and more popular and flexible, especially when it comes to tourism post-COVID-19 point. The research and application of information technology in a methodical and appropriate manner not only brings great benefits to service providers but also brings convenience to customers.

The goal of the subject

Overall objectives

Describe and evaluate the application of ICT in businesses operating in trade and services in the tourism industry.

Detail goal

1. Describe the current situation of applying ICT in businesses operating in trade and services in the tourism industry.
2. Analyze the impact of the application of ICT in commercial activities and services in the tourism industry.
3. Some proposals for effective application of ICT in commercial and service activities of the tourism industry.

2. Theoretical basis

2.1 Trade and service sector of Vietnam's economy

For Vietnam, trade in services is a relatively new term. In modern conception, the national economic structure is divided into three main sectors, namely agriculture, industry and services. According to the National Accounting System (SNA), our country's economy has 20 primary sectors, of which agriculture has 2 (agriculture and fisheries), industry has 4 (mining industry, industry) processing, production and supply of electricity and water and construction), while services have up to 14 industries, some of which are quite familiar such as commerce, tourism, transportation, banking, telecommunications, etc. But there are also new industries that fall into the service sector such as education, health care, culture, physical training and sports, or activities of social organizations.

Service is a very broad concept, from meeting individual needs to serving a production industry, is an independent economic sector, currently accounting for a large proportion in the national economy and continuously increased.

Institute of Trade Research gives the following definition of service: "Commercial service is a concept to refer to economic sectors whose production process does not create ordinary goods but create services (special goods) by satisfying human needs (for others) in addition to the need for goods provided by agriculture and industry".

Currently, as the service industry plays an increasingly important role in the economy, there are more and more different conceptions of services from different angles. We will now consider service in terms of economic theory. According to this theory, "commercial service is a kind of economic product, but it is not an item, but a human work in the form of physical labor, knowledge, professional skills, organizational ability".

Characteristics of commercial products and services

1. Intangibility or immaterial?

It is easy to see that all products and services are intangible, so it is impossible to know the quality of services before consuming them. Not only that, even the quality of a service is difficult to assess, because it is affected by various factors such as the seller, the buyer and the time of purchase of that service. Therefore, to reduce uncertainty when consuming a service, buyers often consult with people who have used the service, or they can rely on location, staff, equipment, information, etc. news, icons or prices.

2. Inseparability from origin

That is, commercial products and services have the process of production and consumption taking place at the same time. Therefore, unlike physical products, production can only be consumed, but in products and services, this process must take place simultaneously. Commercial service cannot be

separated from its origin whether it is a person or a machine. This is also a limitation of service businesses, so there should be strategic perspectives to overcome this limitation, for example, service staff can learn to work with large groups. Customers and suppliers may seek to reduce service delivery times or expand distribution networks by training more service providers.

3. Unstable and difficult to determine quality

In fact, this is a problem we often face with many products, but with commercial products and services, this feature is more evident. Since service quality fluctuates over a very wide range, it also depends on the circumstances in which the service is created, such as employees, and when and where the service is provided. Simply as is the case with a barber, he cannot guarantee that everyone's hair is equally beautiful because it depends on his ability, on his mood, when cutting hair as well as depending on the feelings of each customer.

4. Inability to keep

Commercial services cannot be stored in a warehouse to buffer changes in market demand like other physical products. Therefore, although products and services do not have to be stored in the warehouse, this feature also causes many other limitations. It will not be worth mentioning if the demand for services is stable and accurately predicted, but if the demand for services changes erratically, service businesses will have great difficulty in mobilizing facilities, technical material and human resources. Therefore, commercial service businesses need to develop a plan on market demand accurately to have appropriate plans when market demand changes or increases. Like during the last Tet holiday, Vietnam Airlines had to carry out a series of no-load flights from the South to the North, because the demand for one-way travel from the North to the South after Tet increased too high.

2.2 Information and communications technology

Information & Communication Technology (ICT), is a term often used as a broader synonym for information technology (IT), but is often a generic term to emphasize the role of communication and information technology. unified communications and the combination of telecommunications (telephone lines and wireless signals), intelligent building management systems and audiovisual systems in modern information technology. ICT includes all technical means used to process information and facilitate communication, including hardware and computer networks, communication intermediates as well as necessary software. On the other hand, ICT includes IT as well as telephony, media, all kinds of audio and video processing, transport and network based control and monitoring functions. This expression first appeared in 1997 in a report by Dennis Stevenson to the British government and was widely circulated in new documents of the British National Curriculum in 2000. ICT is used as a general term for all types of technologies that enable users to create, access, and manipulate information. ICT is a combination of information technology and communication technology. In an increasingly interconnected world, the interaction between devices, systems, and people is increasing dramatically. Businesses need to meet the needs of their employees and customers to allow greater access to systems and information. All communication needs must be communicated in a uniform

manner. By providing scalable infrastructure, cloud computing models enable companies to work smarter with smarter and more cost-effective access to technology and information. This hybrid platform has reduced costs and increased productivity across businesses and beyond. Part of the ICT roadmap should be strengthening infrastructure, while adding benefits for users in collaboration, messaging, scheduling, instant messaging (IM), audio, video, and Web conferencing. Cloud computing makes transportation and energy consumption in IT more efficient and takes ICT to the next level.

2.3 Tourism Concepts

From time immemorial, tourism is considered an active rest activity of people. To this day, tourism has become one of the popular phenomena with widespread influence all over the world. With the continuous development of socio-economic development, tourism has become more and more popular and meets the needs of rest, relaxation as well as entertainment of people. Tourism is considered as an indispensable "spiritual activity" in life, especially in today's society. Due to different socio-economic conditions, space-time and different research angles, each scientific discipline, each person's point of view has a different understanding of tourism.

According to the International Encyclopedia of Tourism published by the International Academy of Tourism Sciences, tourism is a journey in which a person departs with a pre-selected purpose and on the other hand tools. satisfy their needs.

According to the World Tourism Organization, tourism includes all activities of people traveling, staying, for the purpose of visiting, exploring and learning, experiencing or in rest, entertainment, relaxation; as well as for the purposes of practice and other purposes, for a continuous period of time but not exceeding one year, outside of the permanent habitat; but excluding travel whose main purpose is to make money. Tourism is also a form of active rest in a different living environment than the place of settlement.

In Article 3, Clause 1 of the Law on Tourism promulgated in 2017, Tourism is defined as activities related to a person's trip outside his/her regular place of residence for a period not exceeding 02 years in order to meet the needs of sightseeing, relaxation, entertainment, research, discovery of tourism resources or in combination with other lawful purposes.

2.4 The role of ICT in tourism business

The application of technology to the tourism industry is an indispensable requirement in the process of integration and development, not only increasing the facilities for tourists and managers but also improving competitiveness with other countries.

In particular, technology affects the strategic management and marketing of modern organizations, which, as a paradigm shift, can transform best business practices globally. Technology transforms the strategic position of organizations by changing efficiency, differentiation, operational costs and reaction times. With the challenges of the continuous development of society, when traditional advertising means such as books, magazines, and television no longer hold the leading role as before, the need for an advertising medium new is inevitable. Instead, in recent years, the great development of information technology and especially the Internet and its tools has solved the pressing problems of

traditional advertising media. In a short time and large space, high efficiency and low cost, thereby opening up for Vietnamese businesses, especially small and medium-sized tourism businesses, the opportunity to exploit a new form of advertising and marketing that is full of opportunities effective at low cost.

In particular, technology has stimulated fundamental changes in the operation and distribution of the tourism industry. The most obvious example is the application of technology in the booking process that allows both consumers and industry to save significant time in identifying, consolidating, booking and purchasing travel products.

As the use of ICT is in full swing, travelers can browse the Internet and identify a rich range of offers to make travel choices tailored to their individual requirements. As a result, the focus shifts to individual tours and dynamic packages. This will improve service and provide a seamless travel experience, while it will enable tourism organizations to stay competitive in the modern development environment.

In addition, the application of ICT in tourism helps to reduce costs, improve operational efficiency, service quality and customer experience, so the application of information technology in tourism is becoming more and more popular and more flexible.

ICT supports management and gives appropriate directions in business development and tourism, not only that, it is also a perfect support tool in marketing and increasing competitiveness as well as attracting many customers customer image. Studies have shown that the application of information technology is an effective measure to develop the market in the fastest and most positive direction, directly affecting the experience and behavior of tourists. Therefore, a methodical and appropriate research and application of information technology will bring great benefits to service providers as well as convenience to customers.

3. Research Methods

3.1 Data sources

In tourism industry research, it is extremely important to have access to and have some complete and accurate data to make a report. Therefore, in addition to focusing on the theoretical basis, the author also needs to find out the appropriate data sources related to his topic, here are some data sources taken from reputable websites that the author uses found as:

- General Statistics Office – Ministry of Planning and Investment (<https://www.gso.gov.vn/>)
- Ministry of Health (<https://moh.gov.vn/>)
- Open Encyclopedia (https://en.wikipedia.org/wiki/Page_Ch%C3%ADnh)
- Vietnam National Administration of Tourism (<https://www.vietnamtourism.gov.vn/>)

3.2 Data collection method

Secondary data is data that is available, not low-income, has been published, so it is easy to collect, saves time and money in the process of collection, but is an important document in research marketing research as well as other social sciences. In practice, when the researcher cannot find suitable secondary data, or the secondary data does not meet the requirements of the research, the researcher will have to conduct primary data collection which is the data not yet available, collected for the first time, collected by the researcher himself.

▪ Steps to collect secondary data

Step 1: Determine the data required for the study.

Step 2: Identify secondary data that can be collected from an internal source. This data source has very rich information, there are data that can be used immediately. And the secondary data inside can be obtained easily and inexpensively.

Step 3: Identify secondary data that can be collected from external sources. External secondary data sources are published documents, obtained from unions, Government, local authorities, NGOs, trade associations, professional organizations, trade publications, professional research organizations.

Step 4: Conduct secondary data collection.

Step 5: Conduct a detailed study of the data value.

Step 6: Form the data sources to be collected from the original sources.

3.3 Research process

Step 1: Identify and clarify the research problem.

Step 2: Research related theories and evaluation models.

Step 3: Determine the research model.

Step 4: Collect secondary data.

Step 5: Study the data value in detail.

Step 6: Analyze research data.

Step 7: Present the research results.

Step 8: Conclusion and recommendations, complete the research.

4. Research results and discussion

4.1 Characteristics of the tourism industry

The tourism industry is currently considered one of the key economic sectors of our country, with a great demand for human resources in the near future. In 2017, the Ministry of Education and Training asked universities to develop a project to implement policies on specific mechanisms for tourism industries, encouraging students who have graduated from other majors to switch to second degrees in universities this field. This is one of the majors in the group with high admission scores because it attracts many students to apply for admission.

Tourism products include tourism services, goods and amenities provided to visitors, created by a combination of natural factors, technical facilities and tourism labor at a tourist site certain region or location. Tourism products make a difference in tourism development, creating the brand and image of each tourist destination, each locality, each region and each country. Tourism products are formed on the basis of a combination of the values of tourism resources, the conditions of social infrastructure, the system of tourism and the responsiveness of tourist facilities.

The basic characteristics of tourism products

- **Intangibility:** tourism product is often an experience so it is easy to copy and imitate, and product differentiation is more competitive and difficult than commodity trading.
- **Simultaneousness between production and consumption:** tourism products are often located far from the tourist's residence, so visitors often buy the product before seeing the product.
- **Non-transferability of ownership:** for tourism products, visitors do not have the right to own the products they buy, only have the right to use them under specific

conditions.

- **Seasonality:** tourism products are distinctly seasonal, the demand for the product appears at certain times of the year, depending on certain conditions.
- **Immobility:** tourism products cannot be transported to other places, so consumers have to move to consume tourism products.
- **Heterogeneity:** it is difficult for customers to check product quality before buying, making it difficult to choose products.

4.2 The current state of competitiveness of the tourism industry compared to other sectors in Vietnamese economy

In recent years, tourism has made significant contributions to the global economy, accounting for 10% of GDP and creating 1/10 of the world's jobs. The Economic Forum conducts a global tourism competitiveness assessment every two years. The 2019 report shows that the competitiveness of Vietnam's tourism industry has improved significantly, ranking 63/140 economies, up 4 places compared to 2017. In which, the indicators on cultural resources and natural resources are ranked in the top group in the world.

In 2019, Vietnam was ranked 4th in terms of international tourist arrivals to Southeast Asia. The World Tourism Organization ranks our country at 6/10 countries with the fastest growth rate of international tourists in the world. However, in 2020, the COVID-19 pandemic has had a severe impact on the entire tourism industry, affecting the competitiveness of the industry.

The priority level for the tourism industry is one of 14 groups of indicators constituting the competitiveness of the tourism industry, in terms of policy factors and support conditions. Vietnam is always in the leading group in the world in terms of the index "Timeliness of providing tourist information monthly/quarterly", the index of "Government spending on tourism" and the index "Comprehensiveness of tourism". on annual tourism statistical data" is always in the last group.

4.3 Impact of the COVID-19 pandemic on service trade in Vietnam

Gross domestic product in the third quarter of 2021 was estimated to decrease by 6.17% over the same period last year. In which, the service sector decreased by 9.28%. GDP in the first nine months of 2021 only increased by 1.42% over the same period last year due to the COVID-19 epidemic seriously affecting all sectors of the economy, many key economic localities had to implement social distancing to prolong the life of the economy long to prevent disease. In the general growth of the whole economy, the service sector decreased by 0.69%, reducing by 22.05%.

The COVID-19 epidemic is complicated, seriously affecting commercial activities and services. The negative growth in the first nine months of 2021 of a number of service industries accounting for a large proportion has reduced the overall growth of the service sector and the entire economy. The wholesale and retail sector decreased by 3.1% over the same period last year, reducing 0.3 percentage points in the growth rate of total added value of the whole economy; the transportation and warehousing industry decreased by 7.79%, reducing 0.47 percentage points; accommodation and catering services decreased by 23.18%, down 0.57 percentage points. The health sector and social assistance activities achieved the highest growth rate with an increase of

21.15%, contributing 0.26 percentage points; financial, banking and insurance activities increased by 8.37%, contributing 0.45 percentage points; the information and communication sector increased by 5.24%, contributing 0.32 percentage points. Regarding the structure of the economy in the first nine months of 2021, the service sector accounted for 40.19%.

Total retail sales of consumer goods and services in September 2021 was estimated at VND 308.8 trillion, down 28.4% over the same period last year; the third quarter reached 915.7 trillion dong, down 28.3%. In the first nine months of 2021, the total retail sales of consumer goods and services will reach VND 3,367.7 trillion, down 7.1% over the same period last year, if excluding the price factor, a decrease of 8.7 % (the same period in 2020 decreased by 5.1%).

Cargo transport in September was estimated at 114.5 million tons of transported goods, down 27.6% over the same period last year and rotated 24.3 billion tons-km, down 15.9%; The third quarter of this year was estimated at 319.1 million tons of transported goods, down 29.7% over the same period last year and transported 70.5 billion tons-km, down 14.6%. Generally, for the first nine months of 2021, freight transport reached 1.195 million tons of transported goods, down 5.6% over the same period last year (decreased by 7.3% in the same period in 2020) and rotated 242.8 billion tons .km, decreased by 0.3% (the same period last year decreased by 8.2%).

Telecommunications revenue in the third quarter of 2021 was estimated at VND 76 trillion, down 0.2% over the same period last year (if excluding the price factor, it decreased by 0.3%). In the first 9 months of 2021, revenue reached 234 trillion dong, up 1.6% over the same period last year (if excluding the price factor, it increased by 2.1%).

4.4 The current status of the impact of the COVID-19 pandemic on the tourism industry of Vietnam's economy

According to the Vietnam National Administration of Tourism, in the first nine months of 2021, the number of international arrivals is estimated at 114.5 thousand, down 97% compared to the same period last year; serving 31,500 thousand domestic tourists, down 1.2% over the same period last year; total revenue from domestic tourists in the first 9 months of 2021 is estimated at 136,850 billion VND.

Passenger transport in September was estimated at 80.9 million passengers, down 70.7% over the same period last year and rotated 2.4 billion passengers-kilometers, down 79.2%; In the third quarter of this year, it was estimated that 247.6 million passengers transported, down 69.6% over the same period last year, and 7.8 billion passengers-kilometers transported, down 78.1%. Generally, in the first nine months of 2021, passenger transport reached 2,018.8 million passengers, a decrease of 23.8% over the same period last year (the same period in 2020 decreased by 29.6%) and a turnover of 82.7 billion. passengers.km, down 30.9% (in the same period last year, down 35.2%).

The tourism industry has suffered a lot and is expected to last even after the epidemic ends. Due to complicated developments, the impact of the COVID-19 epidemic not only has a direct impact on the number of tourists but also on accommodation facilities. Capacity The operating capacity of accommodation establishments in this period is only 20-30% compared to the same period in 2019. The number of guests canceling rooms at accommodation establishments in Hanoi is more than 80,613 times, the number of days canceled room about 57,652 days.

Hotels across the provinces and cities across the country in turn announced to close at least until the end of April 30, such as: Silk Queen system, OHG system owning 4* & 5* hotels such as Oriental Suites Hotel & Spa, O'Gallery Premier Hotel & Spa, O'Gallery Majestic Hotel & Spa or Thien Minh Group with a chain of 5* luxury Victoria hotels & ships. It is this that causes tourism workers to lose their jobs, companies, hotels and restaurants, in turn, have to cut their payroll by 60%. For multinational companies, even 4/5 of the number of employees is reduced. At least until the end of June 2020, more than 80% of employees are unemployed.

Tourism is an integrated economic sector, involving many other industry groups, such as: transportation, accommodation, and food services, so the impact of the COVID-19 epidemic makes the revenue of all these industries also decreased at the same time. The COVID-19 pandemic has had a huge impact on the tourism industry. In fact, Vietnam's tourism industry is facing two main problems: the current dependence of the tourism industry on the Chinese market and the Government's support policies for businesses operating in the industry when there is a crisis.

After the first wave of COVID - 19, the Government has directed to boost domestic tourism and open up international tourism when conditions permit. Accordingly, the Ministry of Culture, Sports and Tourism has implemented the domestic tourism stimulus program "Vietnamese people travel to Vietnam" and has had some positive results. Vietnamese tourism businesses have also quickly launched attractive products with prices considered "unprecedented", committed to quality assurance to attract domestic tourists. Forming links between airlines, travel agencies, restaurants, hotels, and destinations has created a domestic stimulus program with deeper discounts, many attractive points to attract domestic tourists. On the side of the Vietnam Tourism Association, right from February 2020, a stimulus program has been implemented and a safe tourism regulation has been adopted by tourism businesses and units. Next, the Vietnam Tourism Association launched a nationwide domestic tourism stimulus program with the theme "Vietnam tourism - A bright destination" including 2 phases (from May 15 to July 15) and from July 15 to the end of 2020). This program has the principle of stimulating demand to ensure safety for tourists, reducing prices but not reducing service quality or keeping prices but increasing services. Demand-stimulating products focus on novelty, uniqueness, low prices and more diverse promotions. Thanks to the efforts of the whole system, although there are still people's apprehension, domestic tourism has recorded encouraging signs. During the holidays of April 30, May 1, many tourist areas and destinations have opened their doors, welcoming thousands of visitors.

However, in July, Vietnam's tourism industry continued to face difficulties when the COVID-19 epidemic broke out again in the community in some localities across the country. The re-emergence of COVID-19 has quickly caused the domestic tourism situation to have negative developments. Some localities, which had no cases or were not related to the case, were also negatively affected immediately after the outbreak re-emerged. Tourism businesses that have not yet recovered from the 1st outbreak have suffered the 2nd wave of COVID-19 epidemic, making already difficult businesses even more difficult. The tourism stimulus packages were almost frozen due to the sudden increase in the number of tourists canceling tours, while the tourism industry is in the

context of having passed the peak domestic tourist season. In order to recover soon after the second COVID-19 epidemic, the tourism industry continues to launch the second domestic tourism stimulus program in the direction of promoting safety and attractiveness. The Vietnam National Administration of Tourism has issued a set of tourism safety criteria and launched the application "Safe tourism in Vietnam". Tourism businesses have also taken advantage of the time when tourism activities are stagnant to adjust business strategies, innovate products, improve service quality and train human resources throughout the system to prepare for travel. catch up with new tourism trends; At the same time, actively associate with localities and businesses to create strength. Localities together with businesses review the tourism situation in the past time to have a direction to meet market demand. This shift has initially brought optimistic signals to the tourism market.

According to experts, tourism is the industry most affected by the pandemic, but also one of the fastest to recover. In the context that the COVID-19 pandemic has not been controlled in the world, international tourism activities have not been reopened, domestic tourism is gradually recovering and plays a role in maintaining the stability of the whole industry. If Vietnam can grasp the new tourism trend, Vietnam will have the opportunity to make a breakthrough, so businesses need to be prepared so that as soon as the epidemic is over, the tourism market will prosper, there will be suitable products. service to visitors.

4.5 ICT application in mitigating consequences and finding competitive advantages during the COVID-19 pandemic of the tourism industry

The application of technology to the tourism industry is an indispensable requirement in the process of integration and development, not only increasing utilities for tourists and managers but also improving competitiveness with other countries.

In particular, technology influences the strategic management and marketing of modern organizations as a paradigm shift that can transform best business practices globally. Technology transforms the strategic position of organizations by changing efficiency, differentiation, operational costs and reaction times. With the challenges of the continuous development of society, when traditional advertising media such as books, magazines, television, etc. can no longer hold the leading role as before, the need for a medium becomes New advertising is inevitable. Instead, in recent years, the great development of information technology and especially the Internet and its tools has solved the pressing problems of traditional advertising media. In a short time and large space, high efficiency and low cost, thereby opening up for Vietnamese businesses, especially small and medium-sized tourism businesses, the opportunity to exploit a new form of advertising and marketing that is full of opportunities. effective at low cost.

In particular, technology has stimulated fundamental changes in the operation and distribution of the tourism industry. The most obvious example is the application of technology in the booking process that allows both consumers and industry to save significant time in identifying, consolidating, booking and purchasing travel products.

As the application of information technology is strongly deployed, travelers can browse the Internet and identify a rich range of offers to make travel choices that suit their

individual requirements. As a result, the focus shifts to individual tours and dynamic packages. This will improve service and provide a seamless travel experience, while it will enable tourism organizations to stay competitive in the modern development environment.

5. Conclusions and recommendations

5.1 Conclusions

The study systematically evaluates the impact of ICT on commercial and service businesses, especially the tourism industry. The impact of ICT is present, but the magnitude of the impact is still limited. During the COVID-19 pandemic, ICT has significantly changed the way Vietnamese businesses operate. Businesses must transform their business models accordingly and minimize costs. ICT application not only helps tourism businesses reduce costs, but also contributes to the overall economic growth of the country.

ICT still has great potential to stimulate economic sectors, especially the tourism industry in Vietnam to develop. However, the Government needs to overcome the backlog points to enhance the impact of ICT, specifically:

1. Increase investment in information and communication technology.
2. Enhance spillover effects from the application of information and communication technology as an input to production.
3. Enhance business innovation through the application of information and communication technology (ICT).

To do so, on the Government's side, ICT policy needs to create a stimulating environment for investment. The ICT investment environment can be stimulated from the demand side, through programs such as: e-Government, digital transformation program for businesses and organizations. The government also needs to stimulate innovative, applied and risk-taking research in the development and application of new information and communication technologies by promoting applied research and promoting enterprises in start-up technology in Vietnam.

5.2 Suggestions and recommendations

To ensure sustainable economic growth, the government and policy makers in Vietnam should increase investment in mobile phone infrastructure as it is more cost-effective and beneficial than landline telephones, especially in the North and South regions.

Authorities should design policies and solutions that require upgrading and expanding existing IT infrastructure to accelerate Internet use and broadband adoption. Further enhance the effectiveness of e-Government to promote good governance and improve publicity efficiency.

Policy is needed to stimulate the diffusion of ICT in the private sector through a number of policy interventions such as: tax reductions, subsidies, promotion of e-commerce and development of private partnerships-public in the development of telecommunications infrastructure and services. This is important because it has been shown that these new technologies positively affect economic growth by promoting the development and adoption of innovative processes and promoting competition.

Efforts should be made to increase the openness of economies and prioritize resource allocation for information technology infrastructure development.

Promulgate policies to provide a more convenient legal and

institutional environment to attract foreign investors, promote fair competition in the field of information and communication technology, and promote support services. Internet and its presence, including e-Government and e-commerce.

5.3 Solutions to minimize consequences and find competitive advantages during the COVID-19 pandemic of the tourism industry

It can be said that, in the context that the Industrial Revolution 4.0 has impacted and spread on a very wide scale like today, the tourism industry has both benefited and also faced great pressure due to competition. of the previous countries and achieved many achievements in both in-depth research and practical activities. This requires all sectors in the tourism industry, from state management agencies to companies providing tourism products and services, to act promptly, promote the application of technology, implement the digital transformation process as soon as possible if you don't want to be delayed compared to other countries in the region.

The Ministry of Culture, Sports and Tourism has proposed the Government solutions to strive to make our country's tourism a spearhead economic sector, including boosting tourism promotion activities and expanding the list of tourism products countries are piloting the application of electronic visas.

To do this, pay attention to the following solutions

Firstly, building and developing a team of scientific and technological intellectuals in the field of tourism. Promote domestic and foreign training for highly qualified and capable researchers and strong research groups in priority fields of technology application in tourism in order to rapidly increase research quality. scientific and technological research and products up to international standards and standards; quickly transfer and apply research results into practice in order to contribute to improving the competitiveness of Vietnam's tourism products.

Second, develop and renew the system of research and technology transfer agencies in the field of tourism. Invest in improving the endogenous scientific and technological capacity for existing Science & Technology units and agencies; invest in consolidating and improving the applied research capacity of the Institute of Tourism Development, focusing on in-depth investment (both in human resources and research equipment) to form a capable research organization and high expertise in the field of tourism on par with other countries in the region. Strengthen coordination between research institutes and universities nationally and internationally in the field of tourism to solve scientific and technological tasks for tourism development. Renovate the organization and management of science and technology in the direction of upholding the autonomy and self-responsibility of organizations and individuals. **Third**, develop a program of technology application and development in the field of tourism, focusing on a number of directions such as:

For management activities

- Focus on developing a number of technology application directions in order to drastically change the level of technology application in tourism management, including:

- Promote digitization of management of the tourism industry, develop e-government towards sustainable tourism, in which the needs of tourists, people and businesses are centered.
- Applying information and communication technology (Internet, building a separate television channel for tourism, advertising on famous TV channels...) in the general tourism promotion activities of the Industry.
- Research and apply geographic information system (GIS) technology and remote sensing technology in tourism resource and environment management and implementation of tourism planning in Vietnam.
- Research, build and step by step application of destination management information system.

For tourism business activities

- Focus on the following key application directions
 - Invest in information technology, including hardware and software, in which, develop and complete a plan to apply information technology in business and marketing, including strengthening human resources of information technology staff on-site information, strengthening the implementation of online marketing and e-commerce tools; Email spam control. At the same time, businesses need to build unique and novel tourism products, ensuring the accuracy and reliability of information, products and services.

In addition, it is necessary to strengthen the management and effective exploitation of social networks and the power of word of mouth advertising; Invest in building a website with a smart phone-friendly interface, increasing the integration of online payment tools to promote retail channels on mobile platforms; Digitize data, enhance exploitation of big data warehouse.

Applying online tourism business models (buying and selling hotel rooms, online tours) to gradually shift to an e-commerce model in tourism (e-tourism) when conditions on travel adequate technology infrastructure and legal corridor. Striving to 2020 to build and fully operate an e-commerce system in tourism according to G2B, B2B and B2C models.

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