Palestine
Data Collection Survey on Tourism Development through Digital Transformation (DX Business Designer)

Work Completion Report

February 2023

Japan International Cooperation Agency (JICA)

World Business Associates Co., Ltd.

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Table of Contents

Glossary

Abbreviation	Original Words (English unless noted)
AHA	Arab Hotel Association
AI	Artificial Intelligence
AR	Augmented Reality
ATGU	Arab Tourist Guide Union
BSP	Billing and Settlement Plan
CBC	Cross Border Cooperation
COVID-19	Coronavirus Disease 2019
DX	Digital Transformation
EU	European Union
ENI	European Neighbourhood Instrument
FAQ	Frequently Asked Questions
FIT	Free Individual Tourist
G	Generation of Mobile Communication System by International Mobile Telecommunications-Advanced
GIZ	Deutsche Gesellschaft für. Internationale Zusammenarbeit (in German)
GDS	Global Distribution System
HLITOA	Holy Land Incoming Tour Operators Association
ICT	Information and Communications Technology
IoT	Internet of Things
IPA	Information-technology Promotion Agency, Japan
JICA	Japan International Cooperation Agency
JTB	Jordan Tourism Board
KPI	Key Performance Indicator
MoTA	Ministry of Tourism and Antiquities
MTIT	Ministry of Telecommunications and Information Technology
NEPTO	Network of Experiential Palestinian Tourism Organization
PCBS	Palestinian Central Bureau of Statistics, State of Palestine
PCIS	Palestinian Communications and Informatics Society
PICTI	Palestine's Information and Communications Technology Incubator
PITA	Palestinian Information Technology Association of Companies
PMS	Property Management Systems
PSTTA	Palestinian Society of Tourist and Travel Agents
SEO	Search Engine Optimization
SME	Small and Medium-sized Enterprise
SNS	Social Networking Service
TIC	Tourist Information Center
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UNWTO	United Nations World Tourism Organization
USAID	United States Agency for International Development

Abbreviation	Original Words (English unless noted)
VR	Virtual Reality
WHO	World Health Organization

Table and Figure

Currency Exchange Rate

In this text, the following currency rates were used.

As of January, 2023

United States of America	1 U.S. Dollar (USD)	-	
Euro (Europe)	1 Euro (EUR)	1.0646 USD	
Palestine	1 Shekel (ILS)	0.2856 USD	*Use Israeli currency.
Jordan	1 Dinar (JOD)	1.4104 USD	

Source: Study Team based on JICA Currency Exchange Rate, January 2023

Chapter 1 Background of the Project and Scope of Work

1-1 Background of Project

Palestine is closely linked to Islam, Christianity, and Judaism, and there are abundant tourism resources, not only religious sites but also historical sites. There are about 60 major tourist attractions, of which 48% are religious sites and 52% are historical and nature-related sites; 80% of visitors visit sacred sites, which means visitors prefer religious sites. According to the Ministry of Tourism and Antiquities (MoTA), 3.5 million travelers visited Palestine in 2019, before the pandemic of Coronavirus Disease 2019(COVID-19), and visitor consumption in the tourism sector reached about 9% of the GDP. 90% of visitors are international visitors, and foreign visitors contribute to the tourism sector in Palestine. Besides tourism sector provided more than 33,000 employment opportunities in 2019. In this context, the Palestinian government has formulated the "Palestinian National Policy Agenda 2017-20222", which states that the government intends to strengthen the tourism sector by promoting Palestinian products and developing tourism to achieve economic independence as a national priority.

Although Palestine has many tourism resources besides religious sites, promotion is insufficient and does not reach its attractiveness to potential visitors. Also, the small consumption of visitors is another issue from the perspective of the increasing tourism economy. Specifically, many travelers visit Palestine while visiting neighboring countries (45% are day-trippers), and the average expenditure per visitor remains low at 207 USD (291 USD in Jordan and 272 USD in Israel[1]). Furthermore, due to the sharp decline in foreign visitors due to COVID-19, according to Palestinian Central Bureau of Statistics, the State of Palestine (PCBS), the GDP contribution rate decreased by approximately 6% from 2019 to 2020. In addition, more than 10,000 workers in the tourism industry have lost their jobs in Bethlehem and Jerusalem during the pandemic.

Under these circumstances, the Japan International Cooperation Agency (JICA) conducted the "Palestine Tourism Digital Transformation (DX) Feasibility Study" from November 2021 to January 2022. The survey identified issues in the Palestinian tourism sector from the tourists' perspective and examined and proposed methods of tourism promotion using digital technology. In the survey, the unsafe image of Palestine and the lack of accessible local information were cited as challenges before visitors' trips. Also, the lack of infrastructure, including transportation and local knowledge, were mentioned as challenges during the traveling. Post-traveling challenges included the lack of utilization of feedback from visitors. For example, there is no mechanism to aggregate tourist experiences and motivate potential visitors to visit Palestine. While there are many challenges in the Palestinian tourism sector, as described above, ranging from security and infrastructure to data utilization, MoTA's action plan 2022 addresses these challenges in collaboration with development partners and the private sector. In particular, MoTA is focusing on using digital technology for tourism promotion to effectively reach out to visitors and potential customers interested in Palestine and the Middle East region on the occasion of recovery slowly from the pandemic. Effective promotion will likely increase visitors' demand and revenue of the tourism industry (including tour operators, hotels, restaurants, etc.), which will drive a resurgence of tourism-related employment opportunities significantly lost by the

[1] Source: Initiative for the Palestinian Economy Tourism(quartetoffice.org)

pandemic.

JICA has already dispatched tourism marketing and promotion experts to the MoTA since September 2021. Due to the above background, the MoTA requested cooperation in strengthening tourism promotion by utilizing digital technology. Furthermore, the MoTA requested JICA to conduct a survey for tourism development through Digital Transformation on this cooperation request, as it required knowledge in the field of DX that could not be covered by the expert mentioned above alone. This study will examine methods of collecting and utilizing tourism data, effective utilization of digital technology, tourism promotion in cooperation with neighboring countries, and make recommendations regarding the human resource development of related organizations. Besides, it is expected to propose the direction of JICA's future cooperation.

1-2 Scope of Work

This work was conducted based on four pillars. The intended content of each item is as follows. The areas surveyed were Ramallah, Jericho, and Bethlehem.

Caption Number 1-2-1 Four Pillars of Scope of Work

Scope	Explanation
(1) Studying on data collection and utilization methods that contribute to the development of tourism promotion strategies.	To develop Palestinian tourism, the digital and real-world need to evolve parallel. In order to realize DX, a data-oriented infrastructure is fundamental. Hence, digitized data assessment should be required to clarify the information assets as; (1) digitized and connected, (2) digitized, (3) available as analog information, and (4) Information is not acquired even in analog. Based on the understanding of resources, tourism promotions and their results are examined for more effective execution.
(2) Verifying the effectiveness and study utilization regarding establishing a digital platform that integrates tourism information. Organizing fundamental elements for developing a roadmap for building the platform.	Data-oriented circumstance supports decision-making through immediate and accurate understanding. Moreover, digital content can deliver information overcoming physical distance and traditional business models. The data come from not only the internal of MoTA but also various aspects of the destination, such as visitor flow and traffic information. Tourism promotions can be planned based on these data, and data should also show the results. Regarding data acquisition and utilization, public-private partnerships and allocating roles are considered. To consider the feasibility and effectivity of the digital platform that will realize the future vision and its roadmap. Besides, explore the possibility of linking with other services worldwide and estimate the impact on Palestine.
(3) Advice on initiatives leading to the "Tourism Corridor" concept.	Palestine does not have an airport, so international passengers must arrive in Tel Aviv or Amman. While arrival points are a constraint, both Israel and Jordan are focusing on tourism

	industries and can use their efforts to their countries' advantage. The survey needs to show the possibility of "Tourism Corridor" linkages, including transportation and digital technology for promotion.
(4) Proposal for enhancement of MoTA's capability and capacity.	In order to promote DX as a sustainable initiative, knowledge and capabilities from multiple perspectives are required, including data literacy and digital media utilization. MoTA and the tourism industry are necessary to catch up with the digital world. Survey the current level of capacity, and recommend measures for the future.

1-3 Period of the Study

This study was conducted through the following timeline.

Caption Number 1-3-1 Period of Study

Process name	Period	Working days
Domestic Preparation Period	Monday, November 14 - Wednesday, December 7, 2022	15 days
1st On-site Study	Thursday, December 8, 2022 - Friday, December 23, 2022	16 days
2nd On-site Study	Saturday, January 14 - Sunday, January 29, 2023	16 days
Domestic Post-Study Period	Monday, January 30 - Tuesday, February 28, 2023	17 days

1-4 Consultant of the Study

The following consultant was engaged for this study,

Caption Number 1-4-1 Consultant of the Study

Name of Consultant	Assignment	Affiliation	Primary Parts of Writing
Yoshiko Maruyama	DX Business Designer	World Business Associates Co., Ltd.	Chapter 1, Chapter 2 2-1, Chapter 3 3-1, Chapter 4 4-1, 4-2, 4-3, 4-4, 4-6, Chapter 5 5-1, Chapter 6 6-1, 6-3, 6-4, Chapter 7, Chapter 10
Hatsuko Koroku	IT Architect	World Business Associates Co., Ltd.	Chapter 2 2-2, Chapter 3 3-2, Chapter 4 4-5, Chapter 5 5-2, Chapter 6 6-2, Chapter 8, Chapter 9

Chapter 2 Tourism and ICT Situation in Palestine

Palestine's tourism and ICT situation are summarized as follows, as a prerequisite to the study.

2-1 Overview of Tourism

2-1-1 Geographical Situation of Palestine

Palestine locates in the Middle East, facing Israel to the west and Jordan to the east.

Caption Number 2-1-1 Geographic Location of Palestine

Source: Google map

2-1-2 Transportation

In Palestine, there is no airport, so visiting West Bank, Palestine should be via Israel or Jordan. Travel from those countries to Palestine is generally by car or bus. Free Individual Tourists (FIT) must use public transportation such as a bus or taxi.

There are two types of bus networks: an inter-city bus connecting major cities, and a shared taxi, a ban-type vehicle connecting major cities to smaller towns. A shared taxi terminal locates near inter-city bus terminals. A shared taxi departs when it is full of passengers and not regulated by the timetable.

A regular-size taxi has two types. One can go through Israel and Palestine (yellow license plates), and the other can drive only within Palestine (white license plates). The white license plates taxi may take much longer detours, even though it looks like a short distance on the map. The relation with Israel causes it.

The Study Team found no ride-hailing apps like Uber and Grab in Palestine. But Uber is available in Israel. Existing taxi operators register with Uber, and users use Uber by payment based on a meter of the regular taxi charge plus Uber margin.

2-1-3 Traveling Restrictions

①. Checkpoints and Safety Information

At the Israeli-Palestinian border, there are Israeli-controlled checkpoints. When an incident happens between Israel and Palestine, Israel conducts stricter border control at the checkpoints. It generally causes longer times to pass through and sometimes closure of checkpoints. This kind of information is not readily available to the general FITs, who may need help addressing it.

②. Israeli Sabbath

There is Shabbat every week in Israel, from sunset on Friday to sundown on Saturday. During this period, the transportation hubs to Palestine are mostly closed, such as the airport train from Tel Aviv International Airport to Jerusalem, the inter-city bus terminal in Jerusalem, and other transportation facilities. Many taxis in Jerusalem are also out of duty, and only a few taxis whose drivers are Arabs are in operation. Therefore, on Saturdays, there are limited ways to get to Palestine from Israel unless they are on a tour.

2-1-4 Major Tourism Resources

Palestine has three well-known World Cultural Heritage sites listed by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

1 Birthplace of Jesus: Church of the Nativity and the Pilgrimage Route, Bethlehem 2 Palestine: Land of Olives and Vines – Cultural Landscape of Southern Jerusalem, Battir 3 Hebron/Al-Khalil Old Town

Among these, the Church of the Nativity in Bethlehem is the most popular tourist site in Palestine, particularly popular for pilgrims, but also attracts general visitors. From the historical point of view, there are many historical buildings and cultures all over Palestine, thanks to the long history of kingdoms and empires of Judaism, Christianity, and Islam.

Palestine has other rich and diverse tourism resources, including beaches along the Jordan River to the Dead Sea or urban attractions in Ramallah.

2-1-5 Key Tourism Statistics

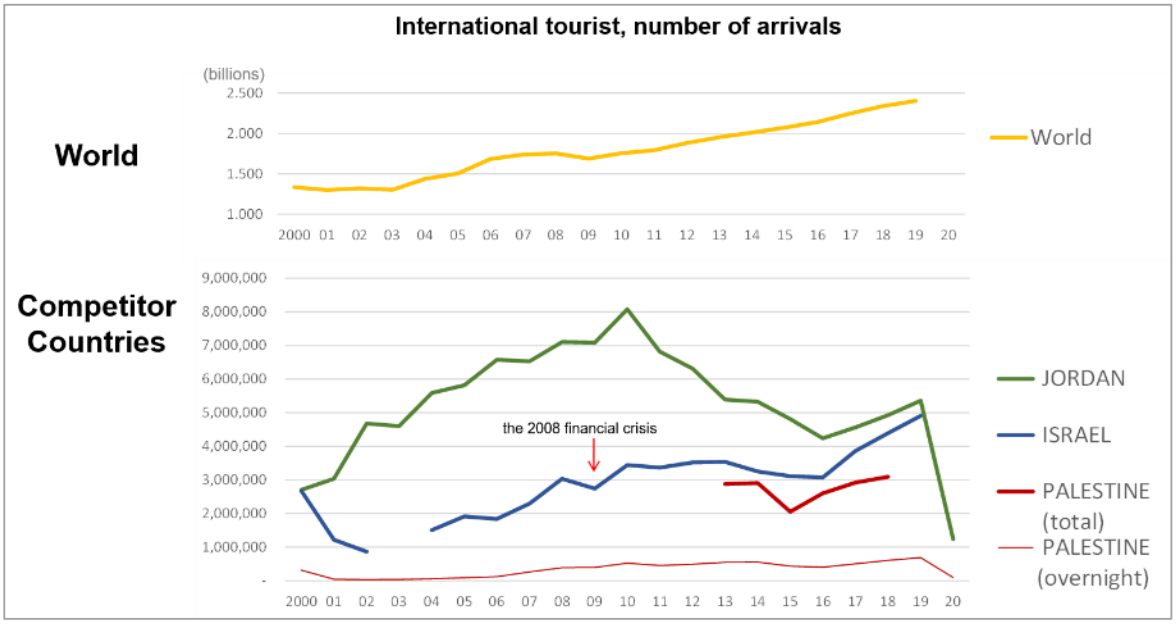
In this part, visitor trends in Palestine are summarized through tourism statistics. For further understanding, Israel and Jordan, neighboring countries, are also reviewed for comparison.

①. Number of visitors and overnight stays

According to the United Nations World Tourism Organization (UNWTO), international passengers traveling abroad have consistently increased since the global financial crisis of 2008. It reached a record-high 1.461 billion in 2019 before the COVID-19 pandemic. In all of Palestine, Israel, and Jordan, international passenger trends have increased since 2016.

The number of inbound travelers in Palestine was 3,093,000 in 2018, and the number of overnight stays was 688,000 in 2019. Yet, the number of inbound travelers is not published by PCBS.

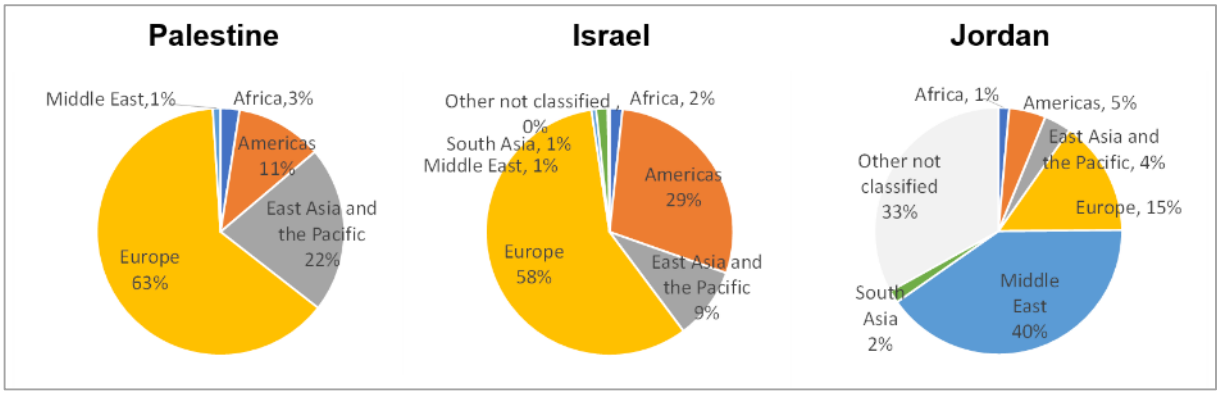
Caption Number 2-1-2 Number of International Tourists



Source: Study Team based on "International tourism, number of arrivals," World Bank (excluding Palestine total),
Compendium of Tourism Statistics, Data 2013-2019, UNWTO (Palestine total)

According to UNWTO statistics, 60% of visitors to Palestine come from Europe, followed by the Asia-Pacific region and the Americas. Very few visitors come from the Middle East region. The reason is assumed that visitors from Middle East countries are practically restricted from entering Palestine because the visitors must pass through Israeli immigration. On the other hand, Jordan has the largest number of visitors from the neighboring Middle East region at 40%, which contrasts with Palestine.

Caption Number 2-1-3 Composition of International Tourists by Origin (Region-base) (2019)



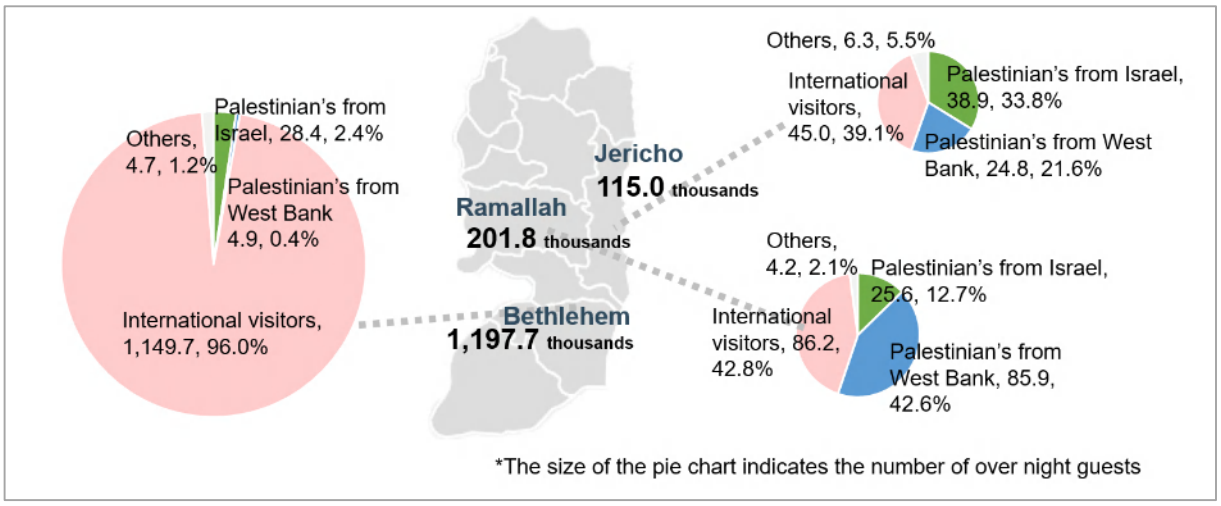
Source: Study Team based on "Compendium of Tourism Statistics, Data 2015-2019, 2021 Edition", UNWTO

②. Local Visitations

Overnight stays data were available for the major Palestinian cities of Bethlehem, Ramallah, and Jericho. Bethlehem has the highest number of overnight stays, and the majority are inbound visitors.

Ramallah has the second largest number, and there are almost equal of inbound visitors and domestic visitors. Jericho has a big portion of Palestinians with Israeli nationality, so-called “Arab 48”. The composition of guests in the three cities has its characteristics.

Caption Number 2-1-4 Composition of Hotel Guests in Three Major Cities (2019)



Source: Study Team based on "Tourism in East Jerusalem 2020s," 2020, International Peace & Cooperation Center

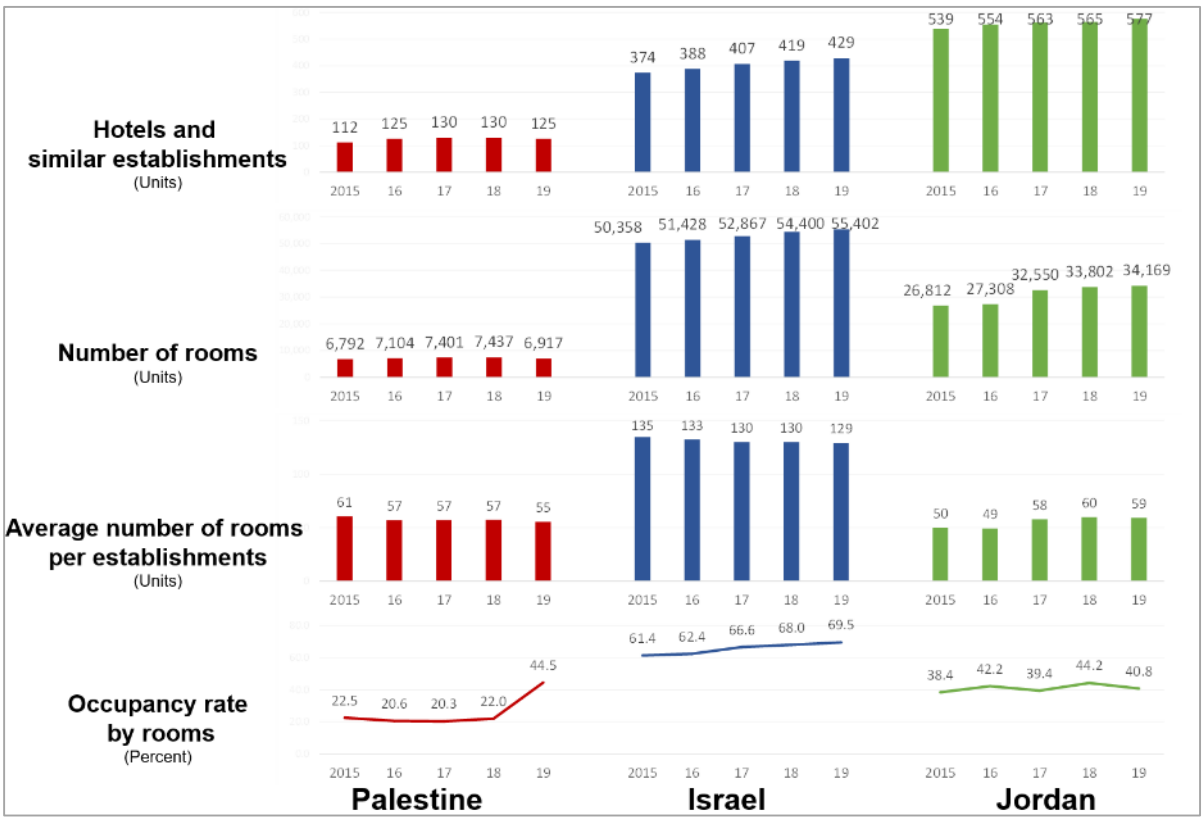
Original Source: "Palestinian Ministry of Tourism and the Arab Hotels Association" 2020

③. Number of Hotels and Rooms, and Occupancy Rate

The number of hotels, rooms, and occupancy rates in Palestine is compared to Israel and Jordan to understand the hospitality industry's characteristics. Palestine has 125 hotels with 6,917 rooms, the smallest in Palestine, Jordan and Israel , likely due to land area. The average size of hotels in Palestine is also smaller among the countries. In addition, the occupancy rate is relatively low, ranging from 20 to 40%.

Caption Number 2-1-5 Number of Hotels, Rooms, and Occupancy rate

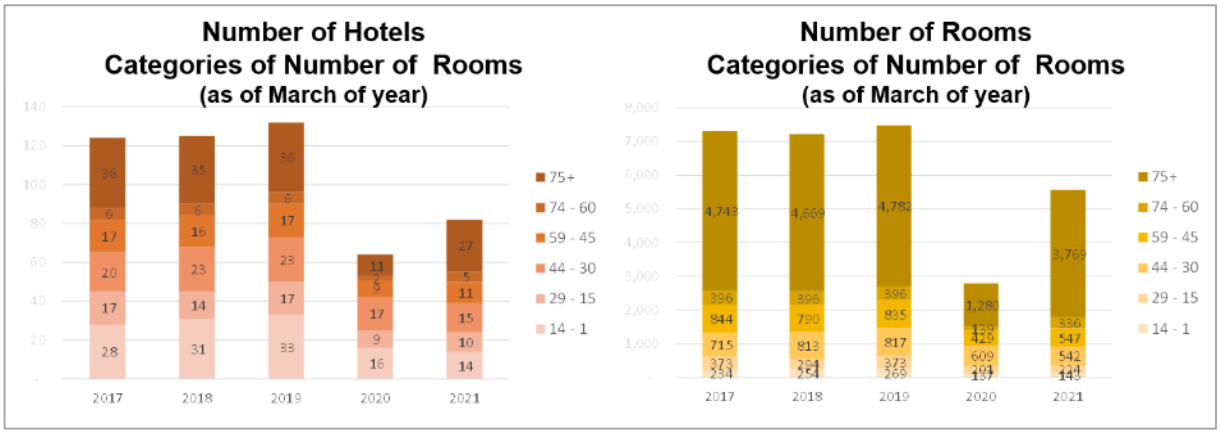
Palestine, Israel, and Jordan



Source: Study Team based on "Compendium of Tourism Statistics, Data 2015-2019, 2021 Edition", UNWTO

The next section provides a breakdown of Palestine's hotel situation. It shows a significant decrease in 2020 due to the COVID-19 pandemic. In 2021, the recovering stage, there were 32 hotels with 60 rooms or more, which share 40% of the total hotels, but they accounted for 73% of the total rooms. Therefore, these relatively large hotels drive the occupancy rate trend.

Caption Number 2-1-6 Composition of hotels and rooms in Palestine

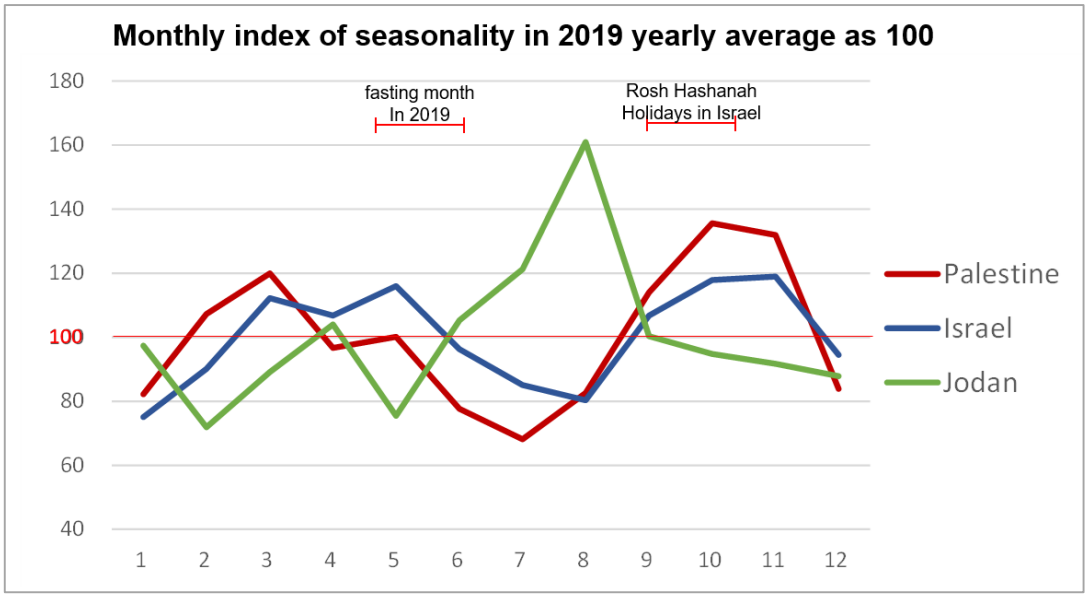


Source: Study Team based on "Hotel Activity in the West Bank Annual Bulletin", PCBS

④. Seasonality

The tourism industry, such as hotels, restaurants, and souvenir shops, is more likely to stabilize its operations when seasonality is minimal. Therefore, tourism marketing should work to moderate seasonality. In Palestine, the peak season is March, October, and November, while the off-season is June-August, December, and January. Compared with Israel and Jordan, this seasonality is similar to Israel, and it can be linked to Israel's tourism situation. In Jordan, on the other hand, summer is the busiest season. Summer is generally a peak season for Europe and U.S. visitors. Hence, a strategic tour between Palestine and Jordan has the potential to complement each other's seasonal fluctuations.

Caption Number 2-1-7 Index of Seasonality (Monthly Index of Annual Average as 100, 2019)



Source: Study Team based on Palestine Number of Overnight Stayers "Main Indicators for Hotel Activity in the West Bank by Month, 2019," PCBS
Visitor Arrivals to Israel in September 2022
Central Bureau of Statistics
Jordan Overnight and Same Day visitors by Month, 2018 -2019" Jordan Society of Tourism & Travel Agents

2-2 Overview of ICT

2-2-1 Computer Usage in Palestine

In the International Telecommunication Union's (ITU) 2017 the ICT Development Index[2], Palestine ranks 123rd out of 174 globally and 14th out of 19 regionally. The ICT Development Index assesses the following 11 indicators.

①Fixed-telephone subscriptions per 100 inhabitants
②Mobile-cellular telephone subscriptions per 100 inhabitants
③International Internet bandwidth (bit/s) per Internet user
④Percentage of households with a computer

[2] Source: The ICT Development Index ITU HP URL https://www.itu.int/en/ITU-D/Statistics/Pages/IDI/default.aspx Date viewed Reviewed on February 7, 2023

⑤Percentage of households with Internet access
⑥Percentage of individuals using the Internet
⑦Fixed-broadband subscriptions per 100 inhabitants
⑧Active mobile-broadband subscriptions per 100 inhabitants
⑨Adult literacy rate
⑩Mean years of schooling rate
⑪Gross enrolment ratio (secondary and tertiary level)

However, the latest survey year for the ICT Development Index was 2017. It was believed that the index was rated lower than other countries because the connection speed in Palestine at that time was the 2nd Generation of Mobile Communication System (2G) and the Internet usage rate was not as high as it is today. The Telecommunications Network speed represents the amount of information (data) transmitted per second. For example, the line speed of each standard is 2G is the Second-generation communication standard. 2G is 64 kbps, 3G is 3.6 Mbps, 4G is 100 Mbps, and 5G is 1 Gbps (gigabits per second). With each generation, larger data sizes can be sent and received per second.

In addition, ITU statistics have not been published since 2017, as there has been a move to add new indicators such as data utilization to take into account technological developments in the ICT industry, but no agreement has been reached, and the ICT Development Index has not been published since 2017.

According to the results of the PCBS “Socioeconomic Situation Survey” in 2018, 37% of Palestinian households own a computer (desktop, laptop, or tablet, 41% in the West Bank and 30% in Gaza). According to the PCBS survey in the first quarter of 2022, in terms of Internet access, 91% of households have at least one member of household can access to the Internet at home (91% in the West Bank and 90% in Gaza, which is almost unchanged). In terms of ICT skills, 81% of individuals aged 18 and above meet the basic skills level. The basic skill level is specific to the ability to perform basic operations such as copying files and folders, using copy and paste tools, and sending e-mail. Another 67% meet the standard skill level. Standard skills specifically the ability to perform standard operations such as installing and configuring software and using formulas in spreadsheets.

2-2-2 The Situation of the ICT Industry in Palestine

According to the survey by PCBS in 2018, the ICT industry in Palestine has 677 registered enterprises and a total of 8,815 employees, representing less than 1% of the working population and 4% of the nominal GDP. The enterprises provide a wide range of services, including telecommunications, program development, consulting, internet services, and digital media. Besides 40% of ICT companies export to international markets.

The reason for the large number of employees in the telecommunications industry is that the Paltel Group, the largest private employer, employs more than 3,000 people. In addition, many ICT engineers in Palestine do not work as an employee but work as freelancers or self-employed. So that it is considered that many ICT engineers are not shown in the statistic.

Caption Number 2-2-1 Number of ICT providers

Classification.	Number of firms	Contribution of Employment
Telecommunications	320	4808
Programs, Consultants	144	1677
E-commerce, Outsourcing	117	1327
Video, Music, Publishing, Media	96	1003
Total amount	677	8815

Source: Study Team based on "State of the ICT Sector," 2018, Palestine PCBS

Most Palestinian computer hardware companies import directly from international suppliers. However, telecommunications equipment, telecommunications support equipment, equipment with telecommunications capabilities such as medical equipment, robotics, and machine learning. Those are listed as "dual use" products and are subject to import restrictions as the embargoed goods in Israel to prevent their possible diversion to weapons or weapons development. The "World Bank Calls for Reform to the Dual Use Goods System to Revive a Stagnant Palestinian Economy[3] " notes that dual-use products are hurting the Palestinian ICT industry. Restrictions on telecommunications equipment, telecommunications support equipment, and equipment with telecommunications functions, which limit imports to modern manufacturing production lines, spare parts, medical equipment, and consumer electronics, hinder the development of the Palestinian ICT industry and create a large technology gap with neighboring countries, according to the report.

While there are import restrictions, the ICT industry in Palestine was expected to grow significantly in 2008, when Cisco, a U.S. company, invested 15 million USD over three years to develop capacities. The investment stimulated significant growth through capacity development, start-ups, and incubation support. This was an opportunity not only for Cisco development but also for contract development by multinational companies. Some software companies provide outsourcing and project development for regional companies and international companies; some multinationals, such as Apple and Microsoft, have established some of their research and development centers in Palestine.

2-2-3 Telecommunications Network in Palestine

In terms of mobile network development, as of January 2023, Palestinian line speeds is limited to 2G in Gaza and 3G in the West Bank. The reason for the delay in development is due to Israeli restrictions on the import of ICT equipment and unallocated frequencies. In the West Bank, 3G service was launched in 2018; on July 15, 2022, U.S. President Biden stated that 4G networks would be available in the West Bank and Gaza Strip by the end of 2023. Strengthening the Palestinian digital economy will require a sustainable political solution with the Israeli government to remove the current line speed restrictions.

In terms of network service providers, the fixed broadband market is dominated by Paltel. The mobile market is served by Jawwal (a subsidiary of Paltel) and Ooredoo.

[3] Source: World Bank HP "World Bank Calls for Reform to the Dual Use Goods System to Revive a Stagnant Palestinian Economy" URL https://www.worldbank.org/en/news/ press-release/2019/04/17/world-bank-calls-for-reform-to-the-dual-use-goods-system-to-revive-a-stagnant-palestinian-economy/ Reviewed on February 17, 2023

According to, a ranking by Speedtest Global Index[4], which internationally surveys fixed broadband and mobile speeds globally., Palestine's fixed broadband speed in January 2023 was ranked 72nd, with 54.92 Mbps download, 37.24 Mbps upload, and latency (response time) of 5 Ms. These figures have improved significantly over the past year: in January 2022, fixed broadband speeds were 14.29 Mbps for downloads and 4.25 Mbps for uploads.

In terms of mobile speeds, Palestine is not measured in the Speedtest Global Index. According to Opensignal[5], which analyzes and publishes mobile usability, the average download speed for mobile phone users in Palestine is 3.5 Mbps. The higher the number, the more convenient the download speed. In contrast, the mobile download speed on mobile in Israel is 30.06 Mbps. Comparing the situation in Palestine and Israel, for example, when a visitor downloads a 30 MB file, it takes 1 second in Israel, but about 10 seconds in Palestine. To moderate this limitation, it is necessary to lighten a file size to make it easier for visitors to download files and view websites on their mobile phones. The page size of the Travel Palestine, the official webpage of MoTA, is about 50KB per page, even for pages with many photos. At this level, there looks less problem viewing the site with a mobile phone even in the Palestinian environment.

When developing mobile applications, it will be necessary to work on reducing the download time by reducing the file size and decreasing the number of pages moves and scrolls. High-performance PCs equipped with graphics cards must also be used to efficiently perform editing tasks that reduce the file size of images and videos to be displayed in mobile applications. Complimentary wifi should also be introduced to increase the visitors' convenience at destinations.

Caption Number 2-2-2 Line Speed (Palestine, Israel, Jordan)

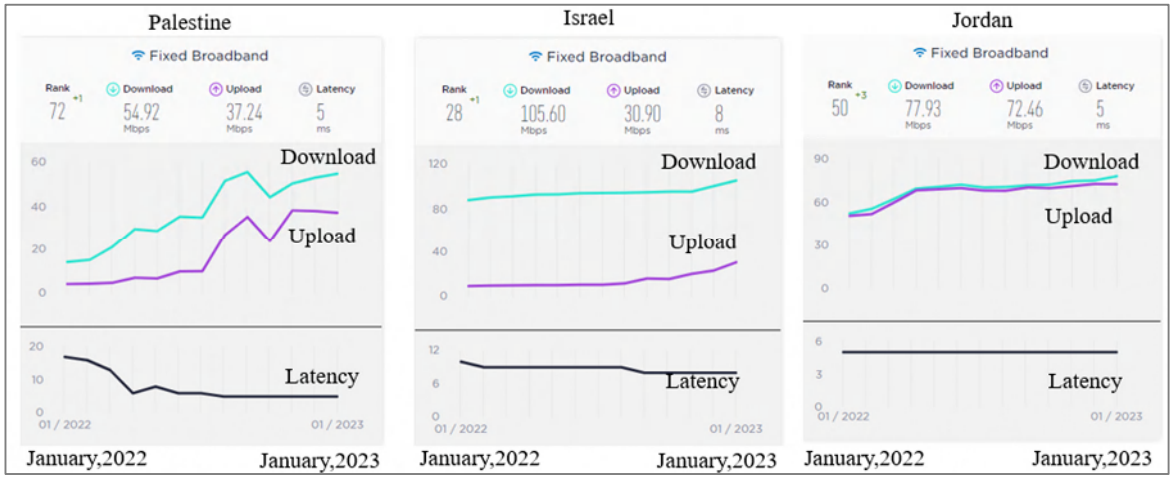
Country	Fixed broadband speed				Mobile Speed Download
	World ranking	Download	Upload	Latency	
Palestine	72nd	54.92Mbps	37.24Mbps	5Ms	3.5Mbps
Israel	28th	105.60Mbps	30.90Mbps	8Ms	30.06Mbps
Jordan	50th	77.93Mbps	72.46 Mbps	5Ms	19.52Mbps

Source: Study Team based on Speedtest Global Index

[4] Source: Speedtest Global Index: URL https://www.speedtest.net/global-index View date Reviewed on February 18, 2023

[5] Source: Opensignal https://www.opensignal.com/reports/2022/06/palestine/mobile-network-experience#:~:text=Palestinian%20users%20enjoy%20 the%20fastest,and%203.3%20Mbps%20on%20Jawwal. Reviewed on February 18, 2023

Caption Number 2-2-3 Fixed Broadband Speeds



Source: Study Team based on Speedtest Global Index

Chapter 3 Aid by Donors and International Organization

3-1 Overview of Japan's Cooperation with Palestine

3-1-1 Country Assistance Policy

"The Country Assistance Policy for the Palestine (2017)" by the Ministry of Foreign Affairs of Japan mentions Japan consistently supports a " two-state solution," which is to coexist and prosper between Israel and a future independent Palestine. Three pillars have been adopted to contribute to peace in the Middle East.

(i) Political outreach to the parties concerned
(ii) Palestinian support for future nation building and human resource development
(iii) Trust building between Israeli and Palestinian parties

In the Policy, the primary goal is set as "Peacebuilding through the promotion of economic and social self-reliance," and the following three items have been set as medium-level goals.

(1) Stabilizing and improving civilian life based on human security
(2) Strengthening the financial fundamentals and improving the quality of public administration
(3) Support for economic independence

Tourism is positioned as one of the areas for strengthening the private sector as "(3) Support for economic independence" The Japanese government supports agricultural development, SME promotion, tourism promotion, and the electricity and water sectors, as well as support for the Jericho Agro-Industrial Park, a flagship project.

3-1-2 Tourism Corridor

The Japanese government proposed the "Corridor for Peace and Prosperity" in 2006. This is a mid- to long-term initiative to promote socioeconomic development in the Jordan Valley and economic independence for Palestine through regional cooperation among Japan, Palestine, Israel, and Jordan.

Based on this concept, the "Tourism Corridor" is planned to revitalize the local economy and promote cooperation in the tourism field. Japan has been playing a role in promoting tourism for abundant tourism resources in Palestine, Israel, and Jordan. Based on this concept, Japan has so far supported a tourism project such as “Sustainable Tourism Development in Jericho through Public Private Partnership”, “Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho”

3-1-3 Prior Projects Related to Tourism

JICA has conducted several tourism projects in Palestine. Besides, a specialist for "Tourism Marketing and Promotion" has been assigned to the Marketing Department of the MoTA since September 2021.

Caption Number 3-1-1 Major Prior Projects in the Tourism Sector in Palestine

Project Name	Period
Sustainable Tourism Development in Jericho through Public Private Partnership	2009-2012
Sustainable Tourism Development through Public Private Partnership - Phase 2	2013-2016
Construction of the Protective Shelter and the Presentation of the Great Bath at Hisham's Palace, Jericho	2016 (completed in 2021)
Capacity Development for Sustainable Tourism Development through Public Private Partnership	2017-2019

Source: Study Team based on JICA data

3-2 Cooperation with Donors and International Organizations on Palestinian Tourism and ICT sectors

3-2-1 World Bank

In the tourism sector, the World Bank supports “Palestinian Heritage Trail: Increased Economic Opportunities and Improved Livelihood for Fragile Communities[6]”.

In the ICT sector, the World Bank conducted a baseline study, “Palestinian Digital Economy Assessment[7]” in 2021. Its purpose is to assess the development of the digital economy in Palestine, identify opportunities for growth and inform international aid donors.

The study concluded that the potential of the digital economy is not being fully realized in Palestine. The report cites Israeli government regulations, an inadequate regulatory environment and capacity constraints, and Socio-economic factors (due to external pressures and internal constraints) as barriers.

Besides, the World Bank is implementing project such as "Digital West Bank and Gaza[8] " and "Building the Foundations of a Digital Economy, Strengthening Resilience, and Supporting Governance DPG[9] ". These projects include comprehensive development in areas such as e-government strategy development, e-government procurement systems, ICT regulatory authorities’ establishment, data governance, and high-speed broadband support. The project notes that there are currently no regulations or laws in Palestine allowing for data sharing between ministries or between the government and local governments. Therefore, the World Bank is supporting the project from the basic environmental development stage, including the establishing of the laws and training of staff.

3-2-2 United Nations Development Programme (UNDP)

UNDP conducts assistance in both the tourism and ICT sector.

In the tourism sector, UNDP supports the development of local products to strengthen the tourism value chain, called the "House of Craft." This initiative aims to sell made-in-Palestine products to international markets through online marketing or other channels. In the initiative, UNDP identifies potential competitive products and exports to affluent markets such as New York and Japan.

UNDP is planning a project to attract investment in tourism. This project aims to provide a new alternative tourism and benefits destinations through the tourism economy. This project is a collaboration between MoTA, the Ministry of Culture, and the Prime Minister's Office.

In the field of ICT, there is a project to digitize 80,000 pieces of archaeology information and material held by MoTA and utilize their contents. This digitization is expected to be utilized through collaboration between

[6] Source: World Bank HP Project URL https://projects.worldbank.org/en/projects-operations/project-detail/P170706 Reviewed on February 16, 2023

[7] Source: World Bank HP "Palestinian Digital Economy Assessment URL https://openknowledge.worldbank.org/handle/10986/36770 Reviewed on February 16, 2023

[8] Source: World Bank HP Project URL https://projects.worldbank.org/en/projects-operations/project-detail/P174355 Reviewed on February 16, 2023

[9] Source: World Bank HP Project URL https://projects.worldbank.org/en/projects-operations/project-detail/P174975 Reviewed on February 16, 2023

the tourism and ICT industries.

In the field of ICT, UNDP implements e-government projects under the brand name “Digital Palestine,” in which the Council of Ministers is in charge. The project is improving systems, hardware, and communications. e-government, and it is promoted in cooperation with inter-ministries and donors. The Estonian government is also cooperating.

3-2-3 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

GIZ is implementing the " East Jerusalem Tourism Development Programme" in the tourism sector, which includes the ICT aspect.

This programme follows a holistic strict bottom-up approach; it builds upon the active engagement of tourism businesses, associations, and workers. A major factor involves harnessing East Jerusalemite Palestinians' creative, entrepreneurial, and innovative potential to contribute and develop new ideas and visions of Palestinian identity and the image of East Jerusalem as a city travel destination for locals and international visitors.

This program also includes ICT support for tourism businesses. Specifically, the program supports the digitalization of the tourism value chain and improves digital marketing and sales capacity. The programme also aims to strengthen the competitiveness of tourism destinations by introducing a technical Destination Management Organization (tDMO) mechanism.

A tDMO is the digitization of the tourism process by several components, such as East Jerusalem tourism portfolio management (TPM) and technical Tourism Information Support Services (tTISS). The mechanism digitally aggregates marketing, tourism product, and visitors and facilitates access to information. The "Destination Palestine Media Library," an archiving system for digital content such as photos and videos, was launched in December 2022. The system is provided to a private content management system through an API connection which is the connection between two or more applications that lets those systems exchange data.

GIZ implemented another ICT-related aid, “Jahzeen[10]”, a mitigating COVID-19 measure launched in June 2021 as part of a private sector development program. “Jahzeen” means "preparation" in Arabic. Jahzeen developed COVID-19 quarantine guidelines and protocols tailored to Palestinian conditions, primarily establishing an e-learning platform. Jahzeen provided online training and financial support for the unemployed. The operational guideline and subsidies to rehire unemployed workers for tourism businesses. The services are provided jointly with the MoTA and with the cooperation of the major tourism associations.

3-2-4 United States Agency for International Development (USAID)

USAID is implementing the “Small and Medium Enterprise Assistance for Recovery and Transition (SMART)”, which is a project for Small and Medium-sized Enterprises (SMEs)s in all sectors. SMART aims to help Palestinian businesses recover and grow from the impacts of the COVID-19 pandemic. SMEs apply to SMART, and when it is approved, SMEs can earn grants, technical assistance, and market access

[10] Source: Jahzeen HP URL https://jahzeen.ps/ Reviewed on February 16, 2023

opportunities. The project period is 2021-2025, and its budget is 40 million USD. The hotel industry mainly provides renovation and upgrading of machinery, equipment and furniture.

3-2-5 European Neighbourhood Instrument (ENI)

ENI is a program based on the European Union (EU)'s “European Neighbourhood Policy” and provides financial assistance to 16 countries in close. ENI has several multilateral cooperation initiatives, and Cross Border Cooperation (CBC) is one of them.

The “Mediterranean Sea Basin Programme” is one of the CBC initiatives and is a multilateral joint project that will receive a 90% subsidy from the EU. EU evaluates according to EU policies such as sustainable tourism and so on. In Palestine, two projects are approved and contain the tourism and ICT sectors.

“Cultural Routes for Sustainable Social and economic Development in Mediterranean (CROSSDEV[11])” is a joint project with Palestine, Italy, Jordan, and Lebanon to establish cultural tourism routes. The budget of the project is 2.5 million EUR. Palestine Heritage Trail is the project operator in Palestine.

Another project is “Mediterranean as an innovative, integral and unique destination for Slow Tourism initiatives (Med Pearls[12])”. Med Pearls is a joint project of six countries; Palestine, Spain, Egypt, Greece, Jordan, and Italy. The project aims to create a unique and integral experience through slow tourism, inviting visitors to discover sustainable and responsible new destinations while directly contacting local communities. The budget of the project is 3 million EUR. Palestinian Information Technology Association of Companies (PITA), an industry association of ICT companies, is in charge of the secretariat and coordinated two companies in Palestine.

3-2-6 UNESCO

UNESCO, in cooperation with MoTA, provided a virtual museum as the "Local Development through the Rehabilitation and Revitalization of the Historic Environment in Palestine[13] " in 2021. The Swedish International Development Cooperation Agency (SIDA) funded the project.

The Virtual Museum was established for students during remote education due to COVID-19 to provide reliable science at home. The Virtual Museum platform is available in Arabic, and students can use it via a website and a mobile phone app.

[11] Source: ENI CBC HP URL https://www.enicbcmed.eu/projects/crossdev Reviewed on February 16, 2023
[12] Source: ENI CBC HP URL https://www.enicbcmed.eu/projects/med-pearls Reviewed on February 16, 2023
[13] Source: UNESCO HP URL https://virtualmuseum.tourism.ps/ Reviewed on February 16, 2023

Chapter 4 Public Sector

4-1 Palestine Authority Policy

4-1-1 National Policy Agenda

Palestine Authority developed “National Policy Agenda 2017-2022 - Putting Citizens First[14]” as a five-year plan in 2016. The National Policy Agenda includes three pillars: the Path to Independence, Government Reform, and Sustainable Development. It then addresses a total of 10 National Policy Agendas under each pillar.

4-1-2 National Development Plan

The “National Development Plan: Resilience, Disengagement, and Cluster Development toward Independence (2021-2023)[15]”, is developed by the Prime Minister's Office. It sets cluster development as a new development paradigm, and aims disengagement from occupation. The structure of the National Development Plan is based on the three pillars of the National Policy Agenda and ten national priorities. The National priorities are 33 measures newly re-organized from the National Policy Agenda.

4-2 MoTA

4-2-1 Tourism Sector Strategy

The MoTA has developed the "Sectoral Strategy for Tourism and Antiquities 2021-2023". The sector strategy has the cluster development perspective because it is based on the National Policy Agenda and the National Development Plan.

The Introduction of the strategy mentions the tourism challenges, such as mostly centered around one-day tourism. It emphasizes and stresses the need to change this trend by developing a comprehensive and diverse infrastructure and arts and cultural events to extend the tourists' stay in Palestine. It also stresses the necessity of improving the tourism GDP.

Besides, MoTA selected five “Strategic Results Frameworks,” which set each result and its Key Performance Indicator (KPI).

4-2-2 Organization of MoTA

①. Role

In the "Sectoral Strategy for Tourism and Antiquities 2021-2023", The role of MoTA is defined as follows.

- Preserving and protecting cultural heritage, implementing restoration projects and equipping sites in all governorates from North to South of the country, in cooperation with several Arab governments and international organizations.
- Developing the tourism infrastructure.
- Training and development of human competencies working in tourism.
- Encouraging national and foreign investment.

[14] Source: United Nations Economic and Social Commission for Western Asia HP URLhttps://andp.unescwa.org/plans/1216 Reviewed on February 7, 2023

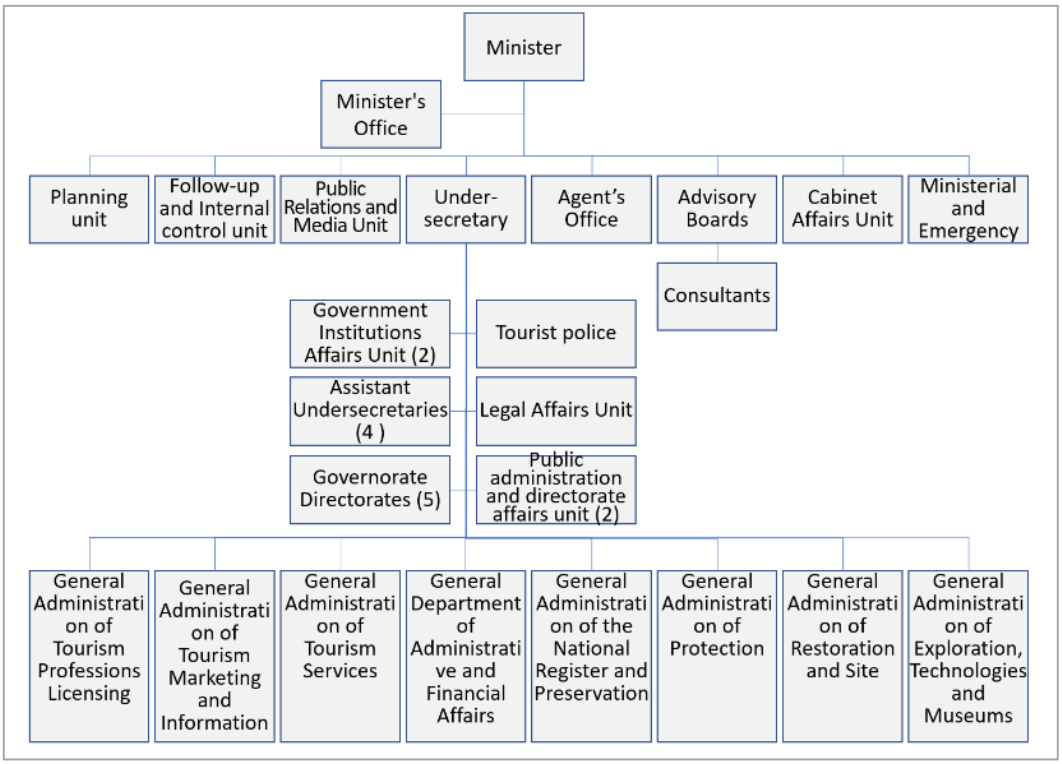
[15] Source: United Nations Economic and Social Commission for Western Asia HP URL https://andp.unescwa.org/plans/1293 Reviewed on February 7, 2023

- Organizing and monitoring the work of tourism institutions and facilities according to the laws and regulations stipulated in the Temporary Tourism Law No. 45/1965.
- Organizing and monitoring the work of institutions involved in the cultural heritage sector according to the laws and the regulations stipulated in the Antiquities Law.
- Developing, promoting and marketing the tourism offering in international markets.

②. Organization Chart

The headquarters of MoTA is in Bethlehem. However, Ramallah also serves a partial function. In addition, MoTA has general directorates in each of the 10 governorates. According to interviews in this study, the number of MoTA staff is about 160.

Caption Number 4-2-1 Organization Chart of MoTA



Source: Study Team based on MoTA HP [16]

③. ICT Related Activities in Tourism Promotion

The Marketing Department, which is closely related to this study, has 10 staff members. The marketing department also has a marketing expert from JICA.

Currently, the Marketing Department implements ICT and digitalization, and its particular activities are explained in the following sections.

[16] Source: MoTA HP URL https://tourism.ps/wp-content/uploads/2021/08/%D8%A7%D9%84%D9%87%D9%8A%D9%83%D9%84-%D8%A7%D9%84%D8%AA%D9%86%D8%B8%D9%8 A%D9%85%D9%8A.pdf
Reviewed on February 10, 2023 Organization chart posted on the HP was in Arabic and the Study Team translated into English by translation software.

④. Websites, Social Networking Service (SNS)

MoTA has three official websites. The Travel Palestine provides information for visitors by English and Arabic. Apart from this, MoTA has two other websites, but the roles of these two websites are not clear.

Caption Number 4-2-2 Official Websites of MoTA

Name of web site	Contents	URL	Language
Travel Palestine	Tourist Information for Visitors	https://www.travelpalestine.ps/	English/Arabic
MoTA	Information on the organization of the Ministry	https://tourism.ps/	Arabic
MoTA	Activity News	https://www.mota.ps/arabic/	Arabic

Source: Study Team based on MoTA HP

Regarding Social Networking Services (SNS), MoTA operates official sites on YouTube, Facebook, Twitter, and Instagram. 11,000 people follow Facebook as of February 2023.

Three marketing department members are responsible for operating Travel Palestine and SNS. They create articles, photos, and videos, which are managed in the media archive. Travel Palestine and SNS are updated through Contents Management System (CMS), which Intertec develops.

Update contents are discussed and planned at a team meeting every week. The frequency of updating contents was few until about a year before. However, almost daily updates are conducted based on regular weekly meetings during the survey because of additional personnel. "SNS policy" is established for SNS posts to clarify the rules to post content due to two-way communication.

Caption Number 4-2-3 MoTA's Major Digital Media Promotions

Media	URL	Language
Facebook	https://www.facebook.com/travelpalestine/	English (language)
Youtube	https://www.youtube.com/channel/UCTM5GPKIW7INxZgnpoCNQGA	English (language)
Twitter	(Travel Palestine's website indicates a service, but the link is broken.)	-
Instragram	https://www.instagram.com/travelpalestine.ps/	English (language)

Source: Study Team based on Travel Palestine HP and other sources.

Facebook is analyzed through web traffic data. On the other hand, in Travel Palestine, web analysis tools such as Google Analytics is not utilized to understand web traffic, user's location and demographics, bounce rate, and exit rate, nor does it address Search Engine Optimization (SEO). Google Analytics is a web analysis tool that can be used free of charge, and training on how to use it was provided as part of JICA's earlier project, "Capacity Building Support for Sustainable Tourism Development in Palestine through Public-Private Partnership".

⑤. Tourism Information Center (TIC)

The MoTA has six TICs throughout Palestine, which are operated in cooperation with local governments. MoTA mainly provides information staff, maps, and other materials, while local governments provide TIC buildings and information staff. MoTA and local governments share the responsibilities according to local conditions.

Caption Number 4-2-4 Cities where TICs are located

Number	TIC Located Cities	Remarks
1	Bethlehem	
2	Ramallah	
3	Al Bireh	
4	Jericho	
5	Jenin	
6	Hebron	Temporarily closed due to relocation (as of January 2023)
7	Nablus	Temporarily closed due to relocation (as of January 2023)
8	Tulkarm	Specialized for domestic visitors

Source: Study Team based on interviews conducted at MoTA.

The head of TIC is in charge of six TICs' operations. The Study Team interviewed the head and visited on-site TICs in Bethlehem, Ramallah, and Jericho to observe the status of their facilities and staff services; the results are as follows.

- Collection of information on TIC users

The TIC began to digitize visitor data in April 2022. Before this operation, MoTA headquarters had to manually retype numbers reported from TICs by fax or other methods. In the new procedure, TIC staff input the data directly into Google Forms app, a free online application. It is not only saved labor but also provides fundamentals to visualize TIC trends by graphs with the automatic function. The terminal of entry data is the staff member's personal mobile phone. The visitors' attributes which TICs collect visitors are nationality, gender, generation, and query at the front desks.

The visitor data is insufficient to analyze because the new operations have been less than one year, and data analysis will be prepared after enough accumulation.

- Database of Tourism Information

The head of TIC plans to centralize the TIC information, such as tourist attractions, hotels, restaurants, etc. This database will enhance the convenience of TIC staff but will also help provide information on Travel Palestine in the future.

- TIC Operation Hours

Because the reception staff of TICs is MoTA or municipality officers, the operation hour of TIC is from 8:00 am to 3:00 pm. This is recognized as a challenge because it does not meet visitors' needs. In Bethlehem, during the peak season before Christmas, the operation hour is temporarily extended until 7 pm for a limited period.

Conversely, TIC opens during the off-season with few visitors. From this aspect, TIC may have a way to

improve efficiency.

- TIC in Bethlehem

The TIC in Bethlehem is located close to the Church of the Nativity, the most popular tourist attraction. TIC is allocated on the first floor of the Peace Center, owned by the City of Bethlehem. There is no prominent TIC signage, so visitors are hard to recognize. Moreover, may need clarification due to the same counter of the Peace Center's information desk staying at the same place. The equipment of TIC staff, such as PC, is out of order.

- TIC in Ramallah

The TIC in Ramallah is located behind the Ramallah City Hall. Ramallah and Al Bireh are adjacent, and from a visitors' point of view, the two cities are considered one destination. However, since the municipalities are different, TICs have been established in both Ramallah and Al Bireh, and information staff rotates daily basis. Therefore, when visitors access the TIC, it may be closed. The TIC in Al Bireh is located near the bus terminal in Ramallah.

The City of Ramallah provides the TIC building, but it is old and needs renovation. In addition, the current building is located far from the old town, where visitors prefer to visit. This means it should consider an appropriate location for visitors' convenience. There is a large screen, but not working. In the past, the TIC hoped to adopt digital signage through JICA's project, but it could not happen.

- TIC in Jericho

The TIC in Jericho is located right next to Jericho City Hall. The location is city center and convenient for visitors. The building will be renovated in 2022 with prominent and visible signage. The TIC surveys visitors' demographics and analyzes the trend. According to the result, Jericho has a large share of domestic visitors, and international visitors are mostly backpackers who travel across the Jordan border.

In order to respond to inquiries by visitors, TIC staff ask local chambers of commerce or other organizations to update information on openings and closings of hotels, restaurants, and tourist attractions. The TIC also provides free wifi for the TIC for convenience of visitors; visitors can search for information on their mobile phones. The Jericho map is prepared for visitors, but it was created as part of a previous project and has not been updated for about ten years. A TIC staff member has studied in Japan under the JICA program.

⑥. QR Code Project

The QR Code Project is a service to post QR codes at tourist attractions in Palestine, allowing visitors to access the site's explanation on their own mobile phones. The project plans to target 300 sites, launching the service by March 2023. The project aims to provide visitors proper understanding of Palestine, especially for FITs who travel without guides. The project is aware that visitors come to Palestine from the Israel area and sometimes misidentify the site as in Israel. At the first stage of the launch, the service is available only in Arabic, but MoTA willy aims to provide it in English in the future.

The project is ongoing for the creation of the description and the design of the notice's signage of the site. The QR Code Project uses branding with orange ar and logo so that visitors can notice the sequence of the theme. The remaining work for launch is creating the web page linked to the sites and their QR codes.

Because 300 sites are a considerable number, content updates by CMS should be prepared well. At the survey, access data acquisition is not planned, such as accessed locations and access times.

⑦. Other Activities

- Overseas Tourism Exhibitions

The Marketing Department participates in almost 10 international exhibitions per year. In the case of the Dubai World Expo, ICT-based exhibits include a VR display of Hisham Palace was presented. In other exhibition, interactive screens are utilized for displaying information.

- Implementation of monitoring tours

MoTA conducted a familiarization tour to Bethlehem in November 2022. The participants were Japanese expatriates residing in Israel. The survey after the tour revealed that safety was one issue that needed to be addressed. Even though they live in a neighboring place, they had little experience crossing checkpoints on the border and were afraid to travel across the border.

4-2-3 ICT Department

①. Role and Operations

MoTA has an ICT department, which will report directly to the deputy minister in a reorganization scheduled for 2023. The head of the department is based in Bethlehem, and two of the person's subordinates have their offices in Ramallah.

The ICT department's work is diverse: promoting ICT at MoTA, including security and paperless operations; providing help desk services for MoTA staff; and improving MoTA's operations.

②. Initiatives to Support Tourism-Related Business

The ICT department develops business registration applications for the convenience of tourism operators and provides announcements for visitors by ICT technology.

- Business Registration Application Development

Hotels, guides, and other tourism businesses must register in Palestine to MoTA. The registration needs a yearly renewal, and the fee costs 120 USD. In the past of this procedure, tourism businesses were required to visit MoTA and fill out a form manually. The new application allows this procedure to be completed online. The system was developed in-house by the head of the ICT department.

At the time of the survey, the pilot app is unveiled, and the timing of the full launch is unknown.

- Mitigate waiting time for the Church of the Nativity

The Church of the Nativity, located in Bethlehem, is the most popular tourist attraction in Palestine, not only for pilgrimage visitors but also for general visitors who want to see UNESCO World Cultural Heritage Site. However, when visitors are concentrated, the entrance to the church is subject to long lines and long waiting times. The long waiting time brings an enormous burden and dissatisfaction to visitors because they must wait while standing, losing a business opportunity for local business. Also, if there were no waiting time, the visitors could spend meaningful time in souvenir shops or restaurants in Bethlehem, which drives consumption. The mitigation of waiting time has been considered several times but has yet to be realized.

4-2-4 Planning Department

①. Role and Operations

The Planning Department locates in Ramallah and has four officials. Within MoTA, the Planning Department handles data that relates to tourism statistics.

②. Tourism Data

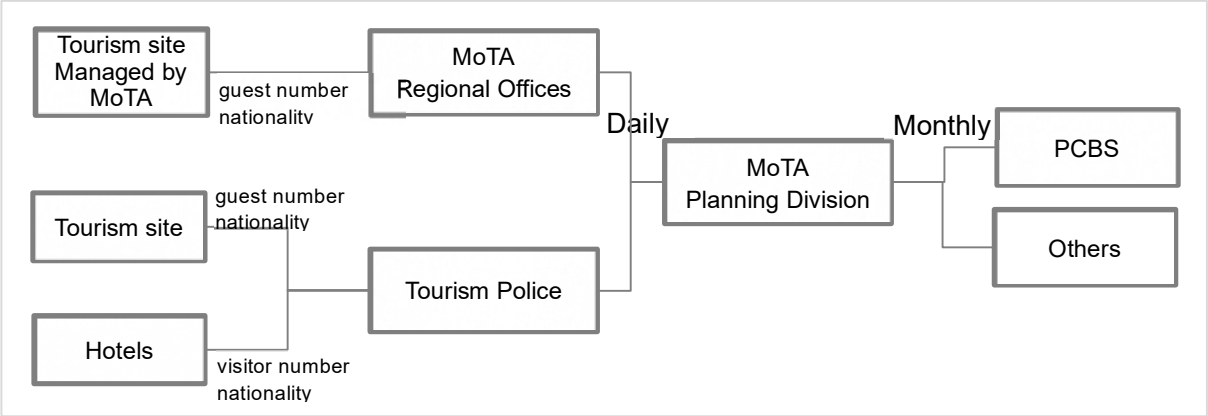
MoTA is responsible for compiling some of the primary data for tourism statistics. The part of the data for which we are responsible is the number of visitors (number of arrivals) and the number of overnight stays.

In actual operation, tourist attractions under the government's jurisdiction, such as the Hisham Palace in Jericho, record visitors' numbers and nationality at the entrance. These numbers are reported to the Jericho office of MoTA and finally compiled by the Ministry's planning department.

The Tourism Police count the number of guests at the hotel.

The guest data is combined and reported monthly to PCBS. All data collection and compilation are conducted manually. The data is reported in the following flow.

Caption Number 4-2-5 Reporting Flow of Tourism Statistics Data



Source: Study Team based on interviews

③. Collection of Hotel Guest Data

A project is underway to digitize the current manual collection of hotel guest data and improve efficiency by introducing a system. The implementing entities are MoTA, the Tourism Police, and PCBS, and those related to data acquisition are collaborating.

This project was conceived and partially started in 2019 but was suspended due to the COVID-19 pandemic, and it was re-started in 2021. MoTA, the Tourism Police, and PCBS discuss the system requirements in a consultation once or twice a month.

The ICT department of PCBS oversees system development, and the system is developed in-house.

The data entry interface is almost complete at the survey, and the project discusses operational procedures. In 2023, it is planned to execute a pilot launch at several hotels to identify issues.

The system is intended to acquire data on hotel guests but also plans to include integrating data on the visitor data of tourist attractions.

4-3 Tourism Police

4-3-1 Organization

The Tourist Police is part of the Palestinian Police Authority. According to the survey, the Police Authority has a technical agreement with the MoTA to take charge of security and other tasks that the MoTA cannot handle.

The Tourism Police are in charge of three duties: security of archaeological sites, tourism security, and security of the natural environment. Security of the natural environment has been a new duty since 2018 and covers protecting nature, including overseeing ecotourism.

Due to the feature of the work, the Tourism Police work closely with the MoTA and local governments, and the ministerial and general director levels hold regular meetings twice a year.

4-3-2 Collection of Visitor and Overnight Guest Data

①. Background of Capturing Data of Visitor and Overnight Guest

The Tourism Police report the visitor and guest numbers to the MoTA, which is the primary for tourism statistics. This duty was originally conducted for security purposes, but the same data is utilized as primary data for tourism statistics for MoTA and PCBS.

The reason the Tourism Police obtain visitor and guest data is that the Palestinian government does not have an immigration control function, and therefore the Tourism Police owes the alternative methods. The Tourism Police also requires the nationality of visitors and guests, with high information security.

②. Operation of Collection

The Tourism Police conduct security and count visitors at the following sites; Bethlehem (2 sites, including the Church of the Nativity), Jericho (5 sites), and Hebron (1 site), according to the interview. Other tourist attractions are reported to the Tourism Police by the facility managers. The Tourism Police report the data to MoTA monthly.

The counting duty of the Tourism Police officer in a tourist attraction is; if visitors are in groups, the tour operator verbally reports the number of visitors and their nationalities; in the case of FITs, the officer asks visitors their nationality. The officer uses a handy counter and rewrites accumulated numbers in Excel format, which is a heavy workload. Regarding the hotel guests, hotels report to the Tourism Police the nationality and number of guests.

4-3-3 Recognition of Challenges for Data Collection

The Tourism Police recognize several challenges in the development of the guest data collection system being jointly implemented by MoTA, the Tourism Police, and PCBS, as well as in the handling of the collected information.

①. Purpose of the Hotel Guest Data Collection System and Access Authority

In developing the Hotel Guest Data Collection System, MoTA and PCBS only need the nationality and number of visitors for statistical purposes. However, the Tourism Police need to know the privacy information

of guests in case the International Criminal Police Organization (ICPO) inquiries about suspects. Therefore, the Tourism Police must strictly separate the system's access to store all private information.

②. Understanding the Unique Number of Visitors in Palestine

Currently, the number of visitors is counted at several tourist attractions, and simply summing up the numbers is not equal to the unique visitor number in Palestine. The Tourism Police would like to grasp the numbers without such duplication in any way, but it is a massive challenge due to a lack of fundamental knowledge of tourism statistics. Currently, the Tourism Police are considering the idea of tour registration with numbering in advance, and tour operators declare the tour number to the Tourism Police officer at the tourism site. This procedure helps to remove the duplication and may reach the unique visitor number. If the registration includes nationality and other visitors' private information, all counting procedure at tourist attractions and hotels will be simplified.

4-4 PCBS

4-4-1 Organization Overview

PCBS is the Palestinian National Bureau of Statistics responsible for creating and publishing Palestinian statistics, such as population and industry, per the General Statistics Law (2000).

The tourism statistics are maintained by assigning specialized staff to the tourism sector. PCBS publishes Tourism statistics on the website. PCBS also reports the fundamental data and the Tourism Satellite Account (TSA) to the United Nations World Tourism Organization (UNWTO). The data is published in the Compendium of Tourism Statistics, issued annually. TSA is the UNWTO's standard for estimating the economic and employment impact of the tourism industry, which method was standardized internationally in 2008.

4-4-2 Tourism Statistics

There are three main areas of tourism statistics by the PCBS. These are domestic travelers, international travelers (inbound travelers), and hotel business trends.

①. Statistics on Domestic Visitors

The PCBS researches and prepare the number of visitors by Palestinian residents travel domestically, and the consumption for the travel.

②. Statistics on International Travelers (Inbound Travelers)

PCBS research the number of international travelers, their nationalities (by region base), the number of visitors by visiting area in Palestine, and the number of overnight stays. Statistics are calculated monthly and published once a year.

The number of visitors by local area is published by integrating the governorates into four regional areas. Original data by MoTA and the Tourism Police are based in each governorate and are not published.

The number of visitors does not disaggregate to group or FIT due to no investigation. The Arab 48 are counted as international travelers statistically.

③. Statistics on hotel operators

The statistics are regarding the number of hotel operators, rooms, occupancy rate, and employees. Statistics are prepared monthly and published once a year.

④. Recognition of Challenges for Tourism Statistics

Tourism statistics are an essential requirement for data-oriented decision-making. However, due to the Palestinian situation, PCBS is facing challenges in obtaining appropriate data for the statistics. JICA's prior project, "Capacity Development for Sustainable Tourism Development through Public Private Partnership" included the tourism statistics lecture, in which PCBS participated. However, according to the interview, the knowledge was not applied because the curriculum did not match Palestinian conditions. It indicates that training and technology transfer requires modification to Palestinian conditions as below.

- Lack of data on arrivals and departures due to constraints of immigration

Since the Palestinian government does not have immigration data, PCBS can not obtain international travelers' data. However, PCBS is aware a similar situation is happening in the member state of the Schengen Agreement of the EU, and there should be some method to address the challenge. PCBS also has information on Oman, which has adopted estimates of the international traveler number using mobile roaming data. However, these examples have yet to be explored and examined for feasibility.

- Accuracy of Data

The operation of ascertaining the number of overnight guests is based on a voluntary report by hotels, then the Tourism Police compiles. However, some hotels may intentionally declare fewer guests to avoid taxation by concealing their income. Therefore, PCBS recognizes that the accuracy of the data may not be ensured.

4-5 MTIT

4-5-1 ICT Sector Strategy

MTIT has developed the "Sectoral strategy for communications and information technology 2021-2023[17]".

There are five strategic pillars in the vision for the ICT sector: “infrastructure development”, “legal and regulatory development”, “e-service provision”, “digital industry development” and “human resources development”, each of which is presented as a strategic results framework with KPIs.

The foreword to the ICT sector strategy states that the ICT sector is the most important sector for achieving inclusive and sustainable development, improving the living conditions of citizens, and facilitating access to information sources and access to vital services such as health, education, and work.

First, political challenges include the deployment of 4G and 5G of Mobile Communication System. Besides, the long-term threat by Israel should be overcome. Technical challenges include the difficulty of keeping up with the pace of industry development and the acquisition of technical expertise. Financial

[17] Source: MTIT HP URL
https://www.palgov.ps/files/server/%D8%A7%D9%84%D8%A7%D8%AA%D8%B5%D8%A7%D9%84%D8%A7%D8%AA%20%D9%88%D8%AA%D9%83%D9%86%D9%88%D9%84%D9%88%D8%AC%D9%8A%D8%A7%20%D8%A7%D9%84%D9%85%D8%B9%D9%84%D9%88%D9%85%D8%A7%D8%AA.pdf (Arabic) Reviewed on February 16, 2023

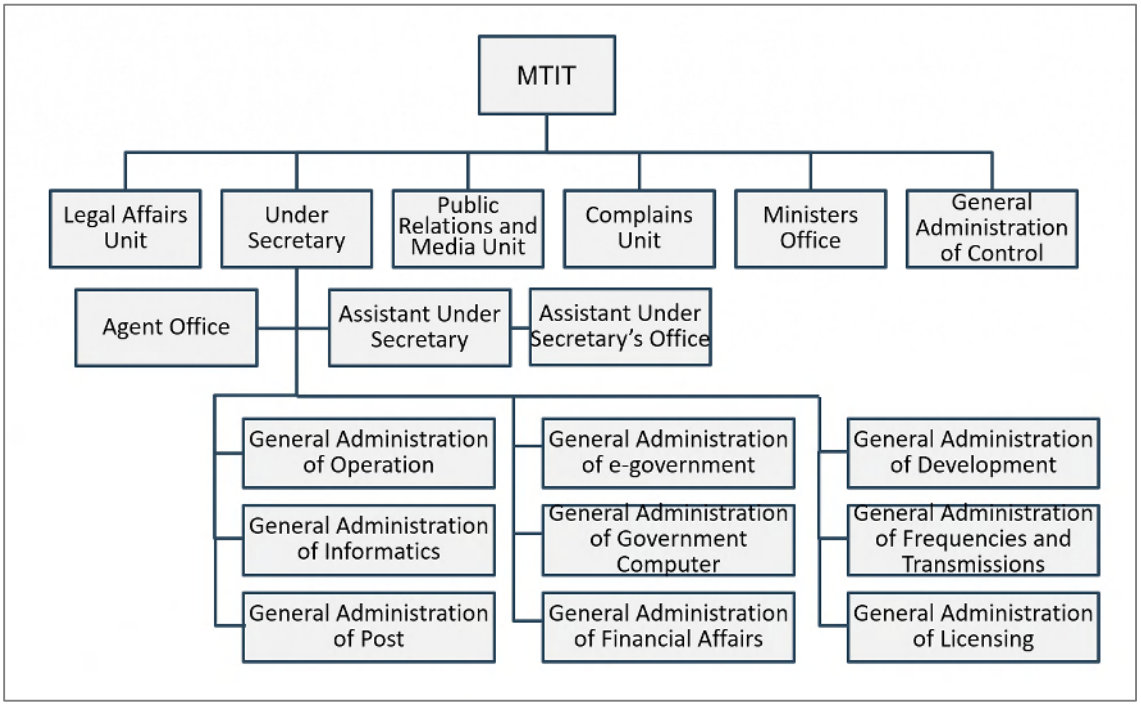
challenges include the lack of financial resources to deal with the rapid development of communications and information technology.

The crisis the ICT sector faced by COVID-19 also touched upon the vulnerability of the telecommunications and Internet infrastructure and the need to address the growing need for remote access for work, education, and other purposes becoming apparent.

①. Organization of MTIT

MTIT has three divisions: Information, Telecommunications, and Postal services, as shown in the organization chart. The MTIT has 500 employees. The General Administration of Informatics is responsible for planning, research, and security related to information systems.

Caption Number 4-5-1 MTIT Organization Chart



Source: Study Team based on MTIT HP [18]

②. Policy on DX

MTIT has organized the DX Supreme Committee based on the ICT Sector Strategy. As the sub-strategy of the ICT Sector Strategy, it has also developed a "Strategic Framework for Government Smart Digital Transformation" which for the period 2022-2024. The framework identifies DX as one of its key priorities, as a policy that directly contributes to improving efficiency and enhancing citizens' well-being. It plans to launch 17 services for citizens between the end of December 2022 and December 2029.

The framework also proposes concrete measures to strengthen infrastructure and information security, develop IT governance, provide high-quality services in line with international standards, develop human

[18]Source: MTIT HP URLhttps://www.mtit.gov.ps/index.php/c_home/chart Reviewed on February 10, 2023 Organization chart posted on the HP was in Arabic and the Study Team translated into English by translation software.

resource capacity, comprehensively DX administrative business systems, integrate data, and contribute to promoting digital culture in society.

In the human resource capacity building field, the framework lists training for officers of ministries, strengthening the capacity of government professionals in the field of information technology and attracting specialized cadres, conducting training on new management skills, promoting digital culture in schools and universities, and involving civil society organizations in community activities to promote digital culture.

4-5-2 Legislation Needed to Promote Tourism DX

The legal environment is an essential factor to in improving Tourism DX.

The "World Bank's Palestinian Digital Economy Assessment[19]" identifies the weakness of the legal framework as a constraint due to inadequate regulations and capacity issues. It states the incomplete legal and regulatory framework lacks elements such as laws on access to information, protection of personal data, cybersecurity, digital signatures, and certificates. Specifically, as regards the lack of laws on access to information and data governance, the report states that there is no generally applicable law regulating the collection and processing of personal data and personally identifiable information and that the right to access, rectify, and destroy information should be provided incidentally. In addition, no law on access to information has been enacted, and there is currently no legal protection for the right of access to information and transparency of public information. An intellectual property law to clarify the use of non-personal data in e-commerce is also lacking. The report notes that intellectual property and copyright laws exist but have not been updated since 1953.

The MTIT's ICT Sector Strategy also indicates that the legal development needs to be completed by 2023. Legal regulations need to be considered and addressed when promoting Tourism DX in the future.

4-5-3 MITI's Certification Program for Government ICT Engineers

MTIT has launched a certification program for ministrial IT personnel starting in July 2022[20] . The program combines training and certification for officers specializing in the field of information technology, and the curriculum is four hours per day for three days. The training content includes instruction in programming languages and databases, government policies in software development policies, and the government technology infrastructure. At the time of the survey, the program had 41 participants from 13 ministries.

4-5-4 Efforts to Realize DX Idea of Government Operations by MTIT

MTIT conducts an idea contest as an initiative to identify problems that need to be addressed through DX[21]. Specifically, 72 people participated in the contest, which sought innovative ideas from young people to

[19]Source: World Bank HP "Palestinian Digital Economy Assessment
URL https://openknowledge.worldbank.org/handle/10986/36770 Reviewed on February 16, 2023
[20] Source: MTIT HP https://www.mtit.gov.ps/index.php/c_home/showNew/2448 (Arabic) Reviewed on February 18, 2023
[21] Source: MTIT HP URL https://www.mtit.gov.ps/index.php/c_home/showNew/2466 (Arabic)
Reviewed on February 18, 2023

support the digital transformation of government operations. In addition to MTIT, private companies, and business incubators are collaborating. A postal code project in the southern administrative region was selected as the best idea and is expected to complete its development.

4-5-5 Cooperation between MTIT and MoTA

MTIT is implementing joint initiatives with MoTA regarding the tourism sector: in December 2022, MoTA and MTIT announced their collaboration to notify roaming information when visitors enter Palestine. Roaming means that even if a visitor has a contract with a service provider abroad, the visitor can use the Palestine service if the Palestine provider have an agreement with the oversea provider. Specifically, roaming is initiated when the visitor enters Palestine, and a notification is sent to the visitor's mobile phone via a short message.

The content of the notification includes promotion for visitors; Visit Palestine, MoTA's official website with a welcome message. This cooperation will help to make visitors aware that they have entered the Palestinian territories and guide them to hotels, traditional crafts, etc. during their visitation.

4-6 Local Government

The Study Team conducted interviews in two regions, Ramallah and Jericho, regarding tourism in the local municipalities.

4-6-1 Ramallah

①. Geographical Overview and Major Tourism Resources

Ramallah is a city located approximately 10 km north of Jerusalem. Most of the Palestinian Ministry’s headquarters are located and practically capital functions. The city's topography comprises modern offices, shopping buildings, the Old City, and the surrounding residential areas. Significant tourism resources include the Mausoleum with the museum of Yasser Arafat, the first president of the Palestinian Authority.

Due to the characteristics of the city, there are few large groups of visitors and a high percentage of business visitors.

②. Tourism Initiatives

The City of Ramallah has a tourism department and a wide range of tourism initiatives.

The municipality operates TIC jointly with MoTA. Because it is a member of the International Greeter Association based in Europe, Ramallah invited a tourism expert from the Netherlands to develop a tourism strategy. Ramallah City develops tourism from the destination management perspective through these technology transfers. Tourism development is not limited to traditional marketing and promotion. Still, destination management is an activity that aligns various stakeholders in a destination toward a common goal and plan. And it is required to manage and coordinate multiple activities under an appropriate governance structure. To ensure accountability and governance, targets and data-based evaluations are necessary.

Ramallah City is a hub for tourism-related businesses and tries to maximize the community's economic benefits.

Regarding data utilization, the achievements of measures are shared at local committees comprising public and private stakeholders in the tourism sector. In order to share the results as quickly as possible, a mechanism was established to receive the hotel guest data directly from the Tourism Police. However, the reporting channel was suspended after the COVID-19 pandemic.

ICT-based initiatives include "Virtual Ramallah" on the official website, which a 360-degree video of 100 sites of Ramallah, and the municipality provide a mobile app for tourism promotion.

4-6-2 Jericho

①. Geographical Overview and Major Tourism Resources

Jericho is located approximately 20 km northwest of Jerusalem. Facing the Jordan River and the Dead Sea, agriculture is flourishing in Jericho due to its climatic conditions, with 250 m below sea level and higher temperatures than other areas, as well as flat land on the coast. The King Hussein Bridge is just beside Jericho, the border control of Jordan by land transportation. The share of domestic visitors is high because of flourishing agriculture, horticultural crops, and many vacation houses along the Jordan River and the Dead Sea. Thanks to the domestic visitors, Jericho only experienced a decrease of about 50% even during the COVID-19 outbreak period, while Jerusalem decreased by about 90%.

Another distinguishing feature of Jericho is hosting Business events. Many large hotels host business events and meetings from September to May.

There is a mixture of Muslim, Christian, and Jewish heritage, including Hisham Palace, a ropeway on the terrace cliffs, beaches along the shores of the Dead Sea, and other diverse tourist resources.

②. Tourism Initiatives

In Jericho, the local office of MoTA and the governorate are closely related and execute initiatives. At the previous JICA project, craft studios developed jewelry by the famous mosaic artisan. There are also some festivals for agricultural products, which bring the advantage of competitiveness.

In recent years, an increasing number of owners have been renting out villas on the shores of the Dead Sea to tourists as rental villas (short-term rentals). There are approximately 2,600 of them in Jericho, and the number is expected to be around 3,500 in the surrounding. To address the emerging situation, rental villas must register to the MoTA starting April 2023. MoTA will inspect the facilities for registration and renewal. The registration fee is 1,000 USD per year.

Chapter 5 Private Sector and Industry Associations

5-1 Tourism Businesses

The Study Team conducted interviews with five organizations explicitly identified in "Sectoral Strategy for Tourism and Antiquities 2021-2023" as representing its industries. Their characteristics and challenges are described below.

5-1-1 Arab Hotel Association (AHA)

①. Organization Overview

The AHA is a Jerusalem-based non-profit organization founded in 1962. At the time of the survey, there are approximately 120 hotels in Palestine, of which 100 are members. The secretariat has an office in MoTA's Bethlehem headquarters.

②. Issues in Tourism activities

AHA focuses some challenges and occupancy rate is one of them.

First, the occupancy rate is a significant gap in seasonality; the off-season in summer is June and July, and winter is in December and January. AHA conducted sales promotions, but it didn't work efficiently.

Second, the tourism statistics' occupancy rate indicates a large discrepancy from the actual situation. The occupancy rate published by PCBS is in the 30% range even before the COVID-19 pandemic, but AHA insists it is over 70%. Due to this gap in the statistical data, there was a case that a bank declined a loan for a hotel investment.

Regarding guest data, the hotel industry recognizes the list of guest names is sufficient, and there is no need for passport data when they are tour members.

5-1-2 Holy Land Incoming Tour Operators Association (HLITOA)

①. Organization Overview

HLITOA is an association of tour operators. HLITOA has approximately 60 member companies, of which 50 are active. HLITOA recognizes that the member companies handle about a quarter of all visitors to Palestine.

②. Issues in Tourism activities

HLITOA feels the number of traditional group pilgrimages is gradually declining, and it is a significant threat to the industry. HLITOA analyzes the background as visitors can easily access travel information and booking by internet.

Regarding pilgrimage groups, HLITOA approaches mainly churches such as in Poland and Armenia. These groups prefer low prices, and hotels and meals can be modest, which is not profitable for the industry.

On the other hand, FITs are increasing. HLITOA is currently developing a website to attract FITs, and it will introduce tourist attractions in Palestine with excellent photos and videos. Besides, it is envisioned that tour guides will be presented and visitors can make a booking.

HLITOA also participates in overseas exhibitions (business meetings), such as the CMT[22] in Germany, which targets families. In addition, while the MoTA cannot collaborate with Israel on promotion at exhibitions due to political reasons, private companies can simultaneously demonstrate Israel in their presentations.

5-1-3 Palestine Association of Travel Agents (PSTTA)

①. Organization Overview

PSTTA is an association of travel agencies established in 2009. As a travel agency, it handles both inbound travel (from abroad to Palestine) and outbound travel (from Palestine to abroad). It has 100 members, of which only 50 are registered as travel agencies to MOTA.

Many companies are family-owned, family-operated, and have other concurrent businesses.

②. Issues in Tourism activities

PSTTA has faced the challenge of implementing an international travel and airline ticket reservation system for its business operations. The Global Distribution System (GDS) is a computerized travel reservation and ticketing system. The Billing and Settlement Plan (BSP) is a centralized settlement balance system between travel agents and airlines, usually installed once per country. The cost for investment is estimated at 4,000-5,000 USD per company, and it is a disincentive.

5-1-4 Arab Guide Union (AGU)

①. Organization Overview

The AGU is an association of tourist guides. In Palestine, tourist guides must pass a guiding exam before working. They must also register their business with the MoTA. A guide can renew their qualification by attending a one-day training course once a year and must pay a registration fee annually.

There are 600 guides, of which 300 register with MoTA. If a guide works in Israel, the person must register with the Israeli government. But only 50 can register with both Israel and Palestine; the quota of 50 is practically fixed by the Israeli government and will stay the same.

②. Issues in Tourism activities

The challenge of AGU is that the channel for assigning guides is rigid, and the practical guide fee is cheap. The assignment of Israeli tour operators is managed by souvenir shops, which take a margin, and a guide cannot deal directly with the tour operator. The guides are mostly self-employed business, and their negotiation power is not strong. Despite this situation, Spanish-interpretation guides could win direct contracts with the tour operator because their numbers are large by high demand. However, guides of other languages must refrain from negotiating for fear of losing their jobs. As a result, the guide fee remains low.

AGU doesn't have a website because there are not enough resources to create it. If AGU can make it happen,

[22] CMT is a tourism exhibition which hold in Stuttgart, Germany. CMT focuses on the family type of tourism.
Source: CMT HP URL https://www.messe-stuttgart.de/cmt/en Reviewed on February 18, 2023

it would be possible to introduce the guides on a web page that allows direct booking by tour operators and visitors.

5-1-5 Network of Palestine Experiential Tourism Associations (NEPTO)

①. Organization Overview

NEPTO is a non-profit organization providing local experiences as tourism products. NEPTO is developing community-based tourism in rural area with heritage sites, local festivals, local products, wildlife, and architecture, collaborating with local communities, authorities, and local business owners.

②. Issues in Tourism activities

NEPTO believes that the problem in the Palestinian tourism sector is the need for more investment in local areas as the context of tourism development. A representative destination of Palestine, such as Bethlehem and the Church of the Nativity, faces price competition, so they are not enough to create economic benefits locally. On the other hand, local culture and customs are the elements that differentiate Palestine from neighboring countries such as Israel and Jordan. They are more promising for tourism development.

5-1-6 Other tourism-related organizations

①. Palestine Heritage Trail

Palestine Heritage Trail is a non-profit organization developing a 500-km-long trail of archaeological sites from Jenin in northern Palestine to Hebron in the south. The official website is multilingual (Arabic, English, and French) and provides map information of the trail and information on lodging or other accommodations. Palestine Heritage Trail believes that the trail is a way to preserve tangible and intangible traditions, culture, flora, and fauna by tracing the sites in rural areas. Visitors hike on foot, thereby creating a consumption in the destinations.

The web page provides trail maps in GPX[23] format for offline usage of the trails without mobile signal coverage, for which Intertec created the web framework. Palestine Heritage Trail has the vision to offer future VR experiences at the Interpretation Center.

Although most of the funding for activities is provided by international organizations and donors, Palestine Heritage Trail considers it only to cover initial costs and a challenge to come up with the operational costs, such as updating web content.

②. This Week Palestine

This Week Palestine is an English-language magazine on Palestine published by a private company. The magazine is A5 half-size, distributed and placed in major hotels in Palestine, etc. It was published twice a month when it was first published in 1998, but it is now published once a month. At the time of its launch, little English information on Palestine existed. The editor decided to publish the magazine to convey

[23] GPX, or GPS Exchange Format, can describe waypoints, tracks, and routes on a Geographic Information System (GIS); one of them is map data.

Palestine's appeal accurately. In particular, the editor believes it is essential to grasp the Palestine image from abroad and then explain the real lives of the residents and how they are settling down in a narrative to dispel that negative image. The magazine's editorial policy focuses on culture, economy, sports, and tourism information. The magazine's business model is based on the private scheme of advertising revenue.

③. Visit Palestine

Visit Palestine is a private business website promoting Palestine and established a private tourist information center under the Visit Palestine brand, located in Bethlehem. However, due to COVID-19, the updating of the website has been suspended, and the tourist information center is closed at the time of the survey. Visit Palestine is led by a tour operator company. The person is the former president of HLITOA, and has previously served as a consultant for MoTA and donors.

Visit Palestine aims to propose itineraries and destinations which have yet to be presented. Specifically, it aims to market in conjunction with Jordan and Israel due to visitors visiting not only Palestine and to provide information on alternative tourism or eco-tourism rather than conventional pilgrimage tours.

The current Visit Palestine web page has improved; the current pages are the third generation. Tours on Visit Palestine are tailored to FIT behavior, and visitors can book several months in advance.

The update of the web page is suspended due to COVID-19. When the pages were active, Visit Palestine analyzed web transaction data through Google Analytics and addressed SEO measures. In addition, following the SNS trend, Visit Palestine also utilizes social networking services for information dissemination. The business model of the site is based on private sponsorships.

Visit Palestine sold handicrafts from Palestinian and Jordanian refugee camps on consignment in the tourist information center.

5-2 ICT-Related Businesses

5-2-1 industry Association

PITA is a Palestinian industry association of information, communication, technology, and start-up companies, established in 1999. With 200 member companies, PITA has a proven track record in managing international cooperation projects from donors as a secretariat.

①. UNDP Agricultural ICT Project

Served as the secretariat for a project to link agriculture and ICT, organizing a steering committee composed of ministries, agencies, and consultants. PITA learned a lessons from the project on how to promote partners' understanding; PITA created a gap analysis report between the current situation and what they want to achieve. Also, involving ministries as the core positions is critical to the success of the project.

②. ENI CBC MED Tourism Technology Project

PITA serves as the secretariat of Palestine for ENI CBC MED's tourism projects, coordinating two companies in the territory. MUFKER, a female start-up, is one of the companies, that conducts a project which promote not well known as a destination, such as Jenin. MUFKER has developed a map app and linked it to local information to introduce cultural and historical aspects through games, songs, and videos. Through

this project, PITA has had the opportunity to learn about international tourism initiatives in Spain and to gain knowledge about the tourism industry.

5-2-2 Tourism-related Initiatives in The ICT Industry

①. VR/AR/Projection Mapping

In Palestine, some companies use virtual reality (VR), augmented reality (AR), and projection mapping technologies for tourism.

Intertech has been developing websites and digital media for the public and private sectors since Palestine in 1996; it is the year the internet started in Palestine. Recently, Intertech has used VR technology to create content for the restoration of Dar Al-Consul DAC[24], located in the heart of Jerusalem's Old City. Intertech also developed an app called Groundskeeper for the Digital Village[25] by PYALARA, a non-profit organization that provides education for young people. The app introduces a 3-km walking trail with map data which introduces restaurants and other nearby tourist attractions. Intertech is also responsible for the official website of MoTA, Travel Palestine, Ramallah Municipality, etc.

AD3, Inc. is originally an architectural firm. It uses 3D CAD technology for design building and applies that technology to produce VR, AR, and projection mapping content. AD3, Inc. provides projection mapping exhibits for the Palestine Museum and the PYALARA Digital Village. The company also offers courses at Birzeit University and hosts interns from the university.

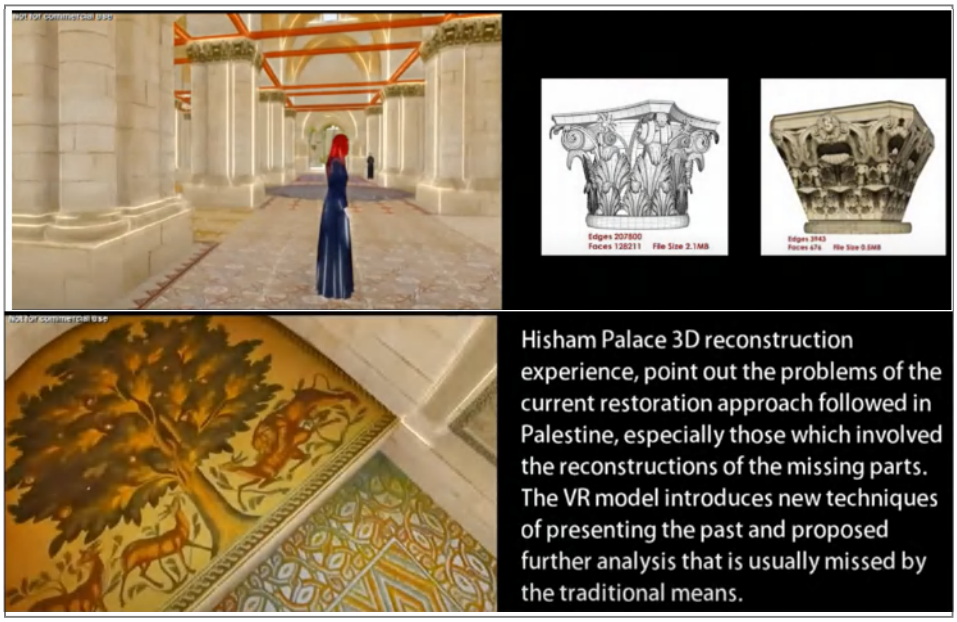
Caption Number 5-2-1 Example of Projection Mapping (PYALARA Digital Village Exhibit)

Source: Study Team

There are also examples of the use of VR being used in universities. In a project supported by the World Bank, Ramzi Hassan, associate professor of the Norwegian University of Life Sciences collaborated with Birzeit University to recreate the Hisham Palace in VR. The project description is available on Youtube.

[24] Source: Dar Al-Consul HP URL https://bcite.org/DAC/operation-vision.php Reviewed on February 19, 2023
[25] Source: PYALARA HP URL https://pyalara.org/en Reviewed on February 19, 2023

Caption Number 5-2-2 Explanation of The Restoration of Hisham Palace by VR



Source: Study Team based on Youtube [26]

②. Hotel Management System

Cool Easy Systems is a company that develops and provides Property Management Systems (PMS). The founder is a graduate of the hotel management department of Bethlehem University. Therefore, the founder knows PMS well and developed the original system suitable for the Palestinian hotel situation. The Cool Easy Systems product is currently installed in many of the 50+ room hotels in Palestine. The success factors were the system was tailored to Palestinian practical situations, and the price was affordable for Palestinian hotels. It is a successful case of cooperation between tourism and ICT businesses.

5-2-3 Incubation Initiatives

There are many initiatives, accelerators, and incubators in Palestine. They not only help young entrepreneurs realize their ideas and bring them to the market but also help professionals to develop their skills.

Palestine's Information and Communications Technology Incubator (PICTI[27]) is the first non-profit ICT incubator in Palestine, established in 2004. PICTI has organized a Technology Entrepreneurship Forum and has successfully seeded ventures for potential funding from institutional investors. Through training and coaching, mentoring, technical support, and seat funding, PICTI has supported more than 100 freelance engineers and helped 600 startups. PICTI currently has the support of more than 70 partners, 40 projects, and 70 different types of services under the program. PICTI also has a long-term strategic partnership with a local university to collaborate with industry and academia.

[26] Source: 3D Hisham Palace Youtube URL https://www.youtube.com/watch?v=caZTi-ULFLs Reviewed on February 19, 2023

[27] Source: PICTI HP URL https://www.picti.ps/ Reviewed on February 19, 2023

Several incubation facilities have also been identified.

First, the Palestine Techno Park (PTP) is a non-profit startup incubator to create jobs, with the support of Birzeit University and India, established in 2016. PTP also hosts workshops and hackathons.

The AR/VR Innovation Lab is established inside of the PTP facility. This is a dedicated space for the exploration of cutting-edge immersive technologies, workshops, and training programs. It also has long-term partnerships with four universities: Birzeit University (Birzeit), An-Najah National University (Nablus), Al-Quds University (Abu Dis), and Palestine Polytechnic University (Hebron). Over 30 engineers are studying there, and more than 10 projects and 3 start-ups are participating.

PHOENIX - Tourism Innovation Hub, an organization housed in PTP. It hosted the first digital tourism hackathon in Palestine in June 2022. 67 people participated in the hackathon, and the winners received 10,000 USD worth support to continue working towards the completion of their ideas.

The Rawabi Tech Hub[28] is located in Rawabi City and was established in 2017. Rawabi City was the first planned city built by Palestinians. It provides offices for Palestinian ICT entrepreneurs where they can collaborate. Rawabi City's economic strategy aims to create 5,000 new permanent jobs in the city, encourage entrepreneurship and support the expansion of local businesses. Several ICT companies have moved in Rawabi, and one of the tenants, Asal, has won outsourcing contracts from multinationals such as Microsoft.

5-2-4 Involving the ICT Sector in Tourism DX

To advance Tourism DX, a bridge person is needed who understands both the challenges of the tourism industry and the technologies that the ICT sector can offer. PITA, Intertech, and PHOENIX - Tourism Innovation Hub are some of the organizations that could serve as bridge persons. These entities are considered to have the capacity to take on the secretariat function of operating the actual project under a project owner such as MoTA.

MoTA can provide opportunity to showcase the ICT technologies available in the tourism industry. MoTA can also create opportunities for the ICT sector to share the challenges faced by the tourism industry; there is a possibility that both industries can work together to address Tourism DX. Many tourism businesses often do not understand the need to invest in ICT due to the small size of their operations and limited resources. Therefore, it is necessary to create empathy by providing information on the feasibility of ICT. In addition, sharing with tourism sector the technological trends and other information that MoTA is unable to grasp in cooperation with the private sector can lead to public-privarte partnerships for tourism DX.

In Palestine, many ICT companies are experienced in developing websites and mobile applications as tools for Tourism DX. The level of development is high enough to implement efficiently. Incubation facilities provide opportunities to learn cutting-edge technologies, such as VR/AR, that benefit tourism through workshops. Similar efforts can be made to improve the ICT industry's skills in machine learning, image analysis, the Internet of Things (IoT), and data science.

In addition, the system can be co-developed with remote locations via the Internet. Monster Labs in Japan implemented the JICA project, "Research Project on Software Development Business for Economic

[28] Source: Rawabi Tech Hub HP URL https://www.rawabi.ps/en/rawabi-tech-hub Reviewed on February 19, 2023

Independence through Employment and Human Resource Development for Refugees in Jordan and the Palestinian Territories (SDGs Business)" (June 2018 - June 2022). The company takes advantage of the project to employ ICT engineers in the Gaza Strip and create an environment to work online with Japan. Monster Labs has experience in developing mobile apps for tourism. If a system for tourism DX is developed in Palestine, Monster Labs could manage the system development project in Japan and work with ICT engineers and ICT companies in Palestine to implement the system development using the internet environment.

Chapter 6 Academic Sector, Public-Private Partnerships, and Neighboring Countries

6-1 Educational and Research Institutions in Tourism Sector

6-1-1 Organization

Tourism education in university is offered at Bethlehem University. Bethlehem University is a private, four-year university founded in 1973. Institute of Hotel Management and Tourism has about 100 students.

The curriculum covers all hotel management and operation aspects, including management and practical training in reception and restaurant operations. The Institute of Hotel Management and Tourism is a member of the International Hotel Association and the European Hotel School Directors.

Bethlehem University does not have any researchers in tourism statistics or destination management.

6-1-2 Recognition of Issues Related to ICT in the Tourism Sector

①. Hotel Business Management System

Bethlehem University educates students with practical courses that prepare graduates for hotel employees, including learning to operate a PMS. Bethlehem University has provided education using OPERA, a top-rated product in the United States and other countries. However, the licensing fee of OPERA is expensive, and it is not affordable to use in small hotels in Palestine.

In this contrast, Cool Easy Systems, a Palestinian domestic company, donated its own developed PMS to the university; Cool Easy Systems is a widely used system in Palestine, and university students can train more useful in practice.

②. Unavailability and Unreliability of Statistical Data

In hotel management, trends among peers in the tourism area are an essential factor in business decisions. However, not enough data has been obtained in Palestine. In the U.S., there is a data service like STR, which provides hotel data, and available with purchase. But similar services do not exist in Palestine, and it is hard to educate hotel management.

In addition, students sometimes face difficulties in studying about destinations, such as few statistics or statistics data differing among multiple sources.

6-2 ICT Education and Research Institutions

All 14 universities in the West Bank and Gaza Strip have IT-related faculties, with more than 1,500 graduates each year. In addition, English is the language of instruction in all science and technology courses in Palestinian universities.

The following Palestinian universities are highly rated in terms of the number of papers, etc. Barzeit University (Barzeit), An-Najah National University (Nablus), Islamic University of Gaza (Gaza), Al-Quds University (Abu Dis), Hebron University (Hebron), and Palestine Polytechnic University (Hebron).

In addition, two universities, Barzeit University (Barzeit) and Islamic University of Gaza (Gaza), are highly ranked in the field of artificial intelligence (AI).

While a college education is well-rounded, only 10% of technical graduates can find employment in leading companies. As a result, many engineers work as freelancers or self-employed. Freelance engineers often contract with the company and work remotely using digital platforms.

MTIT is planning to study the gap between the skill level of information technology graduates and the needs of the labor market requirement and to consider appropriate training.

PITA also provides recruiting assistance and training to unemployed graduates. The targeted skills include data science, AI, machine learning, databases, customer relationship management systems (CRM), and information security. The goal is to help the graduates upgrade their skills to obtain local and international jobs.

6-2-1 Academic Society

The Palestinian Communications and Informatics Society (PCIS) is an academic society established in 2004. PCIS catalyzes scientific and technological advancement and economic and social development in Palestine.

Many universities are also studying VR, AR, and AI, and students are learning these technologies. Due to the small budget, the products are not yet ready at a service level, although students are working on advanced technologies.

Bethlehem University has developed a mobile phone app for the Church of the Nativity in tourism. The app provides a tour of the church in the past and present by VR. The Islamic University of Gaza has also created a VR that makes visitors experience the Gaza Strip wearing a head-mounted display; generally, visitors are restricted from visiting the Gaza Strip. The university believes that collaborating with industry is an effective way to help students to learn skills that can be used in the real world, and students were highly motivated to work collaboratively on Tourism DX project.

6-2-2 Non-University Education

The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) [29]has the "Information and Communication Technology for Education (ICT4E) Strategy". This initiative serves over 540,000 Palestine refugee students and approximately 20,000 educational staff in over 700 schools in Palestine, Jordan, Syria, and Lebanon. MTIT also developed the UNRWA digital learning platform in partnership with the Ministry of Education (Ministry of Education) in 2021 and partnered with Microsoft in December 2021 to develop a Learning Management System (LMS) based on Microsoft Teams.

6-3 Status of Public-Private Partnerships

6-3-1 Public-Private Partnerships Organization

The MoTA and the private sector have mutual communication and exchange information at meetings and other occasions. Still, the Study Team could not find information about the Public Private Partnership

[29] Source: UNRWA HP https://www.unrwa.org/newsroom/press-releases/unrwa-launches-its-ict-education-ict4e-strategy Reviewed on February 19, 2023

organization.

On the other hand, several interviewees mentioned that there had been a plan to establish a tourism board with both MoTA and private sector participation about ten years ago. There had been an effort to realize such a board, but it failed because registration as a legal entity was not approved.

6-3-2 Roles of the Public and Private Sectors

The Study Team elicited several perspectives on the roles of the public and private sectors.

Visitors to West Bank, Palestine must enter via Israel or Jordan. Therefore, from the perspective of tourism promotion, it is a prerequisite to collaborate with Israel and Jordan. However, due to the political issues between Palestine and Israel, it is quite difficult for MoTA to collaborate with the Israeli side.

From another aspect, the MoTA's promotion needs to meet in a manner of religious and political context. But the private sector has some freedom, compared to the public sector. . When the private sector participates in overseas exhibitions, they can demonstrate information with Israel and Jordan and use expressions that match their targets.

There are possibilities that the public and private sectors can work in a complementary way.

6-4 Status of Tourism Promotion in Neighboring Countries

6-4-1 Jordan

①. Tourism Authority and Strategies

In Jordan, the Ministry of Tourism and Antiquities (Jordan MoTA) is responsible for tourism. In 2021, Jordan MoTA announced the "Jordan National Tourism Strategy 2021 - 2025". The tourism strategy aims to gradually recover from the COVID-19 impact and strengthen its international competitiveness, for which five strategic objectives have been set. The first goal, tourism product development, is positioned as revenue growth and will support and elements such as "culture and heritage," "wellbeing," "MICE[30]," and "for domestic use."

②. Public-Private Partnership

In Jordan, the Jordan Tourism Board (JTB) is a public-private partnership established in 1998 to conduct marketing activities. The JTB has taken over the tourism promotion duty previously carried out by the Jordanian government. The JTB is responsible for branding, positioning, and promoting Jordan's tourism products as the destination of choice in the international market. The Board of Directors comprises 13 members, with the Jordan MoTA as Chairman and representatives of the public and private sectors elected to serve on the Board. Both the public and private sector fund JTB and support the activities.

③. Digital-Based Sales Promotion

In Jordan, JTB is conducting international sales promotion under the brand name "Visit Jordan," and information is also being disseminated through SNS. The following table shows the major digital media

[30] “MICE” stands for Meetings, Incentives, Conferences and Exhibitions.

promotion activities.

Caption Number 6-4-1 Jordan's Major Digital Media Promotions

Media	URL	Language
Jordan MoTA official website	https://www.mota.gov.jo/Default/EN	English/Arabic
Facebook	https://www.facebook.com/jordantourismboardnews/	Arabic
Youtube	https://www.youtube.com/channel/UCFdhD04-gMA33Yf7y99n10w	English
Twitter	https://twitter.com/VisitJordan	English
Instragram	https://www.instagram.com/visitjordan/	English

Source: Study Team based on Jordan MoTA HP, JTB HP, etc.

④. Jordan Pass

The "Jordan Pass" is a tourism package offered by the Jordan MoTA. The package includes more than 40 sites besides the Petra Ruins, a significant tourist attraction in Jordan. Jordan Pass is available to foreign visitors of non-Arab nationalities and can be purchased regardless of the number of stays. Still, if visitors stay at least three nights, the Jordan visa fee (40 JOD) is waived as a benefit.

There are three types of prices depending on the number of days visitors stay at the Petra Ruins. The entrance fee for the Petra Ruins is 50 JOD when a visitor stays overnight in Jordan and 90 JOD without an overnight.

The condition of the Jordan Pass encourages visitors to stay longer and brings economic benefits to the hotels and local communities.

The Jordan Pass is not only a measure that enhances visitors' convenience but also extends their stay in Jordan following the Tourism Strategy.

Caption Number 6-4-2 Jordan Pass Benefits and Fee Structure

Jordan Pass Types	Benefit		Charge
	Basic Privileges	Entrance to Petra	
Jordan Wanderer	・ Admission to more than 40 tourist facilities ・ Free Digital Map ・ Exemption from visa fee for 3 nights or more	1 day	70 JOD
Jordan Explore		2 days	75 JOD
Jordan Expert		3 days	80 JOD

Source: Study Team based on Jordan Pass HP [31]

6-4-2 Israel

①. Tourism Authorities

The Ministry of Tourism is responsible for tourism in the Israeli government. The latest information[32] on the role and goals, as of June 2021, the Ministry aims to increase the scope of economic activity in Israel.

[31] Source: Jordan Pass HP URL https://www.jordanpass.jo/Contents/Prices.aspx Reviewed on February 7, 2023

[32] Source: Israel Ministry of Tourism HP URL https://www.gov.il/en/departments/about/about Reviewed on February 13, 2023

The ministry is involved in developing public tourism infrastructures. The ministry assists in establishing commercial tourism projects (attractions, hotels) throughout the territory by providing grants per the Encouragement of Capital Investments Law and the procedures of the Israel Investment Center.

The goal of the ministry is four as follows;

1. Preserving the physical and human resources of the Israeli tourism industry in Israel and abroad.
2. Preparing for the expansion of tourism traffic in the recovery stage of the crisis
3. Developing core products to improve the visitor experience while focusing on high-priority target customer groups.
4. Optimizing and increasing the efficiency of the Ministry of Tourism work and operations

②. Digital-Based Sales Promotion

Ministry of Tourism is conducting the international promotion. The brand name is "Go Israel" on the official website and "Visit Israel" on SNS. The official website is available in 17 languages. In addition, the website has SNS links for viewers to guide.

Caption Number 6-4-3 Sales Promotion by Israel's De Major Digital Media

Media	URL	Language
Israel Ministry of Tourism Official Website (Go Israel)	https://goisrael.com/?lang=uk	17 languages including English and Arabic
Facebook	https://www.facebook.com/goisrael	English
Youtube	https://www.youtube.com/user/goisraelofficial	English
Twitter	https://twitter.com/IsraelTourism (No renewal after April 2021)	English
Instragram	https://www.instagram.com/visit_israel/	English

Source: Study Team based on Israeli Ministry of Tourism website, etc.

The Israel Ministry of Tourism further distributes brochures on safety information and digital tourist information centers on the website for visitors' convenience. The tourist map is available in both general and pilgrimage editions, which can be ordered online with a charge, and it will be sent by mail from the Ministry of Tourism.

③. Oversea Bureaus

Israel has 20 overseas tourism offices[33] that serve as centers for promoting Israel abroad. These are mainly targeted at countries with direct flights to Israel and countries with many Christian pilgrimages. No public-private partnership organizations similar to the JTB in Jordan was identified in the survey.

④. Israel Pass & Ride

The Israel Pass & Ride ("Israel Pass") is a joint initiative of the Israel Nature and Parks Authority and the

[33] Source: Israel Ministry of Tourism HP URL https://www.gov.il/en/Departments/DynamicCollectors/tourists-offices-abroad-english?skip=0 Reviewed on February 13 2023

Ministry of Tourism to make travel to Israel easy. The Israel Pass includes entrance fees for national parks. Public transportation throughout Israel is available for an additional cost. In addition, it offers discounts on tourist attractions up to 40%.

There are three types of Israel Pass depending on the number of parks to visit. The validity period is 14 days from the first entry. Visitors can buy the Pass at seven locations, including the Tel Aviv airport, Jerusalem. The benefits are shown in the following table.

Caption Number 6-4-4 Israel Pass Benefits and Fees

Type	Benefit		Charge
	National parks and nature reserves covered	Basic Privileges	
Israel Pass 3	3 locations	・ RAV KAV (transportation card) available for 5 ILS (190 yen) ・ Discounts at tourist attractions	78 ILS
Israel Pass 6	6 locations		110 ILS
Israel Pass All	all		150 ILS

Source: survey team from Israelpath HP [34]

According to an interview with Intertech, the web production company that developed MoTA's website, Israel Pass, has a mobile application. The Study Team could not see it during this survey, but Intertech said the app introduces nearby tourist attractions based on location information of visitor excursions.

[34] Source: The ISRAEL PASS & Ride HP URL https://www.israelpass.biz/ Reviewed on February 13,2023

Chapter 7 Challenges to Be Addressed

7-1 Environmental Analysis

In order to identify issues to solve and develop tourism DX in Palestine, Study Team conducted 3C analysis, one of the frameworks of environmental analysis, by information through desk research and on-site study.

3C analysis is generally used for enterprises to understand the circumstance by classifying into three categories: Company, Competitor, and Customer (Market). In this context, Company is replaced with the domestic condition of Palestine. In addition, tourism collaborates with neighboring countries to approach markets, so competitors include the concept of cooperation.

7-1-1 Environmental Analysis (Palestine Domestic Circumstance)

The domestic circumstance of Palestine is summarized by major actor.

①. MoTA

- MoTA recognizes the tourism challenges in Palestine, such as the shift to FIT other than pilgrimages and the popularization of alternative tourism in local destinations, such as Community Based Tourism, history, and so on.
- MoTA has begun using ICT to promote digital media in the marketing field, improving the efficiency of TIC operations, etc.
- MoTA is developing a mobile app that enables online registration for tourism businesses to improve convenience.
- In the field of data utilization, the Planning Department of MoTA is developing Hotel Guest Data Collection System in collaboration with the Tourism Police and PCBS.
- In the future, MoTA is considering mitigating waiting time at the Church of the Nativity to improve the tourism infrastructure.

②. Public Sector (Ministries, Local Governments, etc.)

- The ministries related to tourism authority include the Tourism Police and PCBS, which cooperate in collecting data such as the number of visitors and guests and tourism statistics. They are also jointly developing Hotel Guest Data Collection System.
- The Palestinian government is active and making an effort to improve ICT circumstances. MTIT is cooperating with MoTA to notify visitors about MoTA's official website via mobile roaming announcements.
- Local governments are taking tourism initiatives suited to each destination's characteristics. In addition, a city such as Ramallah has sought cooperation from oversea organizations and is taking an advanced approach to destination management.

③. Private Sector, Industry Associations

- In the tourism sector, there is a common understanding among the private sector that it is necessary to develop new tourism products and respond to FIT, and some operators have already begun to do so.

- In the tourism sector, the private sector has a common understanding of the necessity for new tourism, and some businesses have already begun to respond to FIT and develop products.
- The tourism industries exist in Palestine, but the business scale is small, and many have multiple businesses. Small businesses have the advantage of being able to enter a new market quickly. On the other hand, small businesses have small revenue, face difficulty in reinvestment, and are susceptible to a tourism crisis, such as a pandemic or political and economic impact.
- In the ICT sector, many businesses have high technology capabilities. Therefore, the tourism sector can domestically procure technologies such as website and mobile app development, VR/AR technology, AI, machine learning, IoT, and data science.
- Regarding human resources in the ICT sector, there are engineers, designers, project managers, and other professionals at different stages of development. In addition, ICT industry organizations such as PITA also serve as the secretariat of donor tourism projects, acting as a bridge between the tourism and technology sectors.
- A business develops a system domestically which is popular in foreign countries, such as PMS as a hotel management system. Because the foreign system's licensing fee is costly, the company developed its own products for the domestic market, which are currently implemented in most hotels with more than 50 rooms.

④. Academics, Civic Organizations

- As for the academic situation in tourism, a university offers a hospitality education. However, there is no researcher in tourism statistics or destination management.
- In the ICT field, many universities educate and research ICT, such as VR, AR, and AI technologies. They proactively cooperate with tourism, such as restoring archaeological sites in the digital world.
- As a civic organization, PHOENIX - Tourism Innovation Hub has an achievement of solving tourism issues through events such as pitch contests and hackathons.

⑤. Donors, International Organizations

- Support for the tourism sector comes from many directions. Some measures targeting tourism include the use of ICT.
- Support for developing e-government is underway, and interagency data collaboration is expected.

7-1-2 Environmental Analysis (Competitor, Neighboring Countries)

Jordan and Israel are competitors, and at the same time, they can be collaborators due to the entering points of Palestine, which has no airport. Therefore, the cooperation perspective is included in this report.

①. Tourism Promotion

- Both Jordan and Israel promote with their official website and approach international markets.
- Both Jordan and Israel offer tourism passes that promote going around the countries. The Jordan Pass is a tourism package centered on the Petra Ruins and designed to extend visitors' stay. The Israel Pass &

Ride is designed to encourage visitors to visit national parks and tour around the territory.

②. Complement of Visitor Demand

- Palestinian monthly visitor trend is linked to Israel. It is likely because most visitors arrive at Israel airport and then visit Palestine.
- The peak season in Jordan is in August, corresponding to the off-season in Palestine. Cooperation with Jordan may contribute to mitigating seasonality.

7-1-3 Environmental Analysis (Market)

As market trends, the Study Team summarizes visitor trends and the ICT environment.

- Many international visitors come to Bethlehem, but there are few excursions to the local destinations. In addition, there is a prominent seasonality in demand.
- Pilgrimage visitors are decreasing; many of them originate from Europe and the United States. However, data detailing visitor situations is limited and unclear the actual situation. It is due to the lack of tourism statistics and target audience surveys.
- The internet and mobile infrastructure have improved over the past years but should be considered transmission speeds for delivering digital content on the website.

7-1-4 Summary of Environmental Analysis

All actors understand the challenges of tourism, including the need to respond to conditions other than pilgrimages, attract FITs, promote excursions from Jerusalem to rural areas, and equalize seasonal fluctuations. Private companies and local governments that can utilize foreign knowledge from donors and international organizations have begun to absorb knowledge about the new visitor needs and trends. They have started to develop tourism products and other responses.

Palestine's ICT sector has high technology capability, although there are some challenges with mobile networks.

The importance of using ICT in tourism to disseminate information through digital media is widely recognized and implemented. Not only MoTA but also private enterprises are creating websites to convey information.

VR content, a new technology, is also being produced and utilized in Palestine, and businesses in the ICT sector are actively cooperating with the tourism sector to solve issues. In this respect, the tourism sector has the potential to utilize the ICT sector fully.

On the other hand, the tourism sector is not fully utilizing ICT technology. It is true not only for MoTA but also for private operators. One of the advantages of digital media is not only to approach the international market but also easily obtain and analyze to improve quickly. However, many interviewees did not analyze or utilize transaction data. There may be several reasons for little awareness of data utilization. First, it is not familiar to use data in business due to not available sufficient tourism statistics. Second, donors and others assist with the initial investment, such as setting up a web page or hardware but do not follow up after the launch and its operation, which causes not focus on evaluation by data.

In general, while the ICT field is growing rapidly, MoTA and tourism businesses are not fully benefiting from it due to a lack ICT related knowledge.

7-2 Analyzing According to the Four Pillars of the Study

The results of the environmental analysis are classified into the four pillars of the Study.

(1) Studying on data collection and utilization methods that contribute to the development of tourism promotion strategies
(2) Verifying the effectiveness and study utilization regarding establishing a digital platform that integrates tourism information.
(3) Advice on initiatives leading to the "Tourism Corridor" concept.
(4) Proposal for enhancement of MoTA's capability and capacity.

7-2-1 Studying on Data Collection and Utilization Methods that Contribute to the Development of Tourism Promotion Strategies

Data utilization is not sufficient. It is generally the same situation not only in MoTA but also in the private sector. MoTA and the private sector utilize digital media to disseminate information, which is fundamental to capturing data for analysis. However, only a few cases of web analysis are observed.

Regarding data utilization, PCBS has challenges in preparing statistical data, such as international visitors number due to no immigration and the data accuracy. As a result, tourism statistics have not been well utilized. Although "Sectoral Strategy for Tourism and Antiquities 2021-2023" expects tourism investment, the incredibility of tourism statistics may have a negative impact on tourism decision-making of investors.

7-2-2 Verifying the Effectiveness and Study Utilization regarding Establishing a Digital Platform that Integrates Tourism Information

The Jordan Pass and the Israel Pass are offered in neighboring countries as platforms of integrated tourism information, and there is the market potential for similar services. The Jordan Pass is designed to extend visitors' stay, while the Israel Pass promotes excursions to local destinations. If services are to be offered in Palestine, clarifying the objectives and providing content for visitor convenience is necessary. The future Palestine Pass can compile the contents of the QR code project currently underway at MoTA.

When integrating tourism information, it should care private sector, which conducts similar business through advertising revenues and sponsorships. The public sector needs to avoid damaging the private sector's business model and consider win-wing collaboration.

7-2-3 Advice on Initiatives Leading to the "Tourism Corridor" Concept

Since entry into Palestine land requires passing through Israeli or Jordanian airports, private tour operators have already offered two- or three-country tours. In this regard, the significance of the "tourism corridor" will facilitate political coordination among the three countries in the field of tourism and facilitate travel smoothly.

7-2-4 Proposal for Enhancement of MoTA's Capability and Capacity

In Palestine, the tourism sector can procure ICT technology domestically. The academic ICT sector is also proactive in cooperation, so industry, academia, and government collaboration are expected.

ICT has begun solving tourism issues, specifically in digital media, the digital registration applications for tourism businesses, and the development of the Hotel Guest Data Collection System jointly by the MoTA, the Tourism Police, and PCBS. While ICT utilization is undergoing, the initial momentum in the ICT field, such as the hackathons to address tourism issues, is not recognized for breaking through problems. In addition, as in the Hotel Guest Data Collection System case, the system is developed without considering the operational aspects that should be the first step of the development; it may cause operational problems at the implementation stage.

In a similar case, MoTA's ICT department is considering mitigating waiting times at the Church of the Nativity. Still, there are a few assumptions regarding operations, such as tour operators' and visitors' trends.

In the context of the above, regarding functional enhancement, it is important to identify and prioritize tourism issues that can be solved by ICT and develop the capacity and mechanism of ICT utilization.

7-3 Challenges in the Utilizing ICT in the Palestinian Tourism Sector

Based on the issues identified thus far, the challenges in using ICT in the tourism sector can be divided into two main categories.

Selecting tourism issues to be solved by ICT and then developing the capacity and mechanisms.

1 Solving tourism issues using ICT
2 Capacity for realize Tourism DX

Only when both are established the tourism sector can continue to utilize ICT.

The previous JICA project provided training in tourism statistics and web analysis. Still, it is hard to say the knowledge has been utilized in daily operations because it needed to be customized to the actual situation in Palestine and incorporated into practical processes.

Thus, it would be desirable to take up small-scale tourism issues that can be solved by ICT and educate human resources in realizing it.

7-3-1 Solving Tourism Issues using ICT

The following five proposals are prioritized as tourism issues to be solved through the use of ICT, based on the results of the interviews and other factors.

These five proposals may be implemented alone or in combination. The details of each proposal are considered in Chapter 8.

Caption Number 7-3-1 Proposed Solutions to Tourism Issues Using ICT

Proposal	Theme	Objective	In charge of MoTA	Stakeholders
Proposal A	Strengthen digital promotion	Strengthen information dissemination to attract Palestinian tourists	General Administrate on of Tourism Marketing and Information	Web development company InterTech

Proposal B	Advancement of TIC	Enhance the ability to collect tourist needs and promote consumption in tourist areas	General Administrate on of Tourism Marketing and Information	TIC management (municipality) Local businesses (hotels, restaurants, etc.) Chatbot development company
Proposal C	Easing the waiting time for the Church of the Nativity	Maximize the length of stay, consumption of food /beverage and shopping in Bethlehem	ICT unit	The Church of the Nativity Tour company Tour guide Local businesses (restaurants, stores, etc.)
Proposal D	Efficient collection of guest data	Quickly ascertain the number of guests and efficiently record guest information	Planning unit Tourist police	Hotels Tour companies Hotel system developmen company Cool Easy Systems
Proposal E	Integrated Tourist Information Application(Palestine Pass)	Provide local information and encourage tourists to visit the region	General Administrate on of Tourism Marketing and Information	Ministry of Finance Tourist facilities Tour Company Tour guides Local businesses (restaurants, stores, etc.) App Development Company

Source: Study Team

7-3-2 Capacity for Realize Tourism DX

The development of ICT utilization will be examined from two perspectives: human resources and systems.

The detail is considered in Chapter 9.

1 Human resource to promote ICT and DX in the tourism sector in Palestine
2 Establishing Mechanisms and Procedures to Address ICT Use and DX

Chapter 8 Examination Solutions to Tourism Issues Using ICT

This chapter examines five proposed tourism problems that can be solved using ICT. As the premise, the solution technology should be procured and developed in Palestine. In addition, the co-creation between the tourism and ICT industries can be expected. The proposed five ideas can be implemented independently or in combination.

With these solutions, visitor's data will be available through promotion activities or behavioral tracing, which has yet to be possible to grasp as ever. Therefore, these five proposals can be fundamental to the next ICT stage.

Each proposal evaluates the easiness of implementation. The evaluation has two axes; technical (score of 1-5, max is 5) and operational (score of 1-5, maximum is 5). The overall evaluation multiplies technical and operational scores, and the maximum score is 25. This evaluation helps in considering which proposal to adopt.

8-1 Proposal A: Enhancement of Digital Promotion

Proposal A is to increase the dissemination of information to attract visitors to Palestine.

MoTA's marketing department implements digital promotion through their official website and SNS to disseminate information to attract inbound visitors.

The current website framework was developed about five years ago, and its structure needs to be updated with trends. The content management system, the interface for content registration, also needs to modified, and the ongoing QR code project also requires the addition of a website link page to explain the facility’s attractions to visitors.

A website analytics tool, such as Google Analytics, is underutilized and does not measure the effectiveness of promotions. The result of website analytics is available to make decisions for revision and update of the website. To make the website more attractive, continuous improvements are also needed.

Although appearing at the top result of search engines is important, SEO is not taken in Travel Palestine. One of the responses is to eliminate unlinked pages.

The concept of distinguishing between the use of websites and SNS needs to be clarified. In general, websites are called "stock media," which are highly searchable and easy to access past information, and good at summarizing the information. SNS such as Facebook are called "flow media," which are good at quickly disseminating information what is happening in real time. The content posted on websites and SNSs must also be improved based on the results of each analysis. Understanding these technologies is necessary to effectively promote Palestine in the digital world.

In order to promote "going around Palestine" tourism agenda and increase consumer confidence, the following content must be considered information on annual festivals and other events held in different Palestinian regions, traditional crafts made and sold in different regions, and other Palestinian regional attractions, as well as photos and feedback from visitors. In addition, attractive digital promotions can be efficiently carried out by using content and information created by the private sectors. In Palestine, there are ICT companies that can develop VR and projection mapping, as well as tourism businesses that can promote

trail courses and other activities. It is necessary to establish a cooperative relationship that will allow these private sectors to be used to disseminate information to attract visitors to Palestine. Proposal A is to renew the official website while increasing digital promotion based on the above situation. This will involve training staff in website analytics and SEO measures implementation.

Technical point is 4 because it uses existing technology, and operational point is 4 because it requires ongoing organizational activities and capacity building. Therefore, the evaluation score is 16 points as it is achievable with the efforts of MoTA's internal organization and the cooperation of Palestinian companies.

Caption Number 8-1-1 Proposal A: Enhancement of Digital Promotion

	Contents
Theme	Enhancement of digital promotion
Current Situation	・ Official websites, Facebook, and Youtube channels exist, but clear distinctions in the use of these channels for information dissemination are not yet in place. ・ Website analysis is not being conducted on the website, and a person in charge needs to be appointed and trained.
Purpose	・ Attracting visitors to Palestine and providing useful information during their visit
Activities Operational Sustainability	・ Consideration of information and channels for dissemination and enhancement of content (web, Facebook, Youtube channels) ・ Website analysis to check popular content, keywords of interest, and the relationship between events and the number of accesses, etc., to improve the information transmitted. ・ Creating appealing content ・ Information gathering (tourism businesses, local communities, restaurants, handicraft workshops, etc.) ・ Need to improve skills by working with a web development company ・ Ongoing organizational activities and capacity building are needed
Data to be Acquired	・ Access date, time, number, region, popular pages, dwell time, abandonment rate, search keywords
Technology	・ Website analytics and dashboards to evaluate and improve activities ・ Content Management System ・ Media archive (photos, videos, narrative articles, VR, AR)
Expected Effects	・ The ability to disseminate attractive information is expected to attract more visitors, increase tourism, and improve consumption.
Evaluation Max.25 Min. 1	Technology 4: Existing technology in terms of technology. Operation 4: Ongoing organizational activities and capacity building are needed. Assessment 16: Achievable with the efforts of MoTA's internal organization and the cooperation of Palestinian companies.

Source: Study Team

8-2 Proposal B: Upgrading TIC

Proposal B is promoted the ability to collect visitor needs and to consume in destinations.

MoTA has established six TICs throughout Palestine. Currently, the TICs are staffed by counter staff who collect records of the demographics and questions from visitors visiting the TICs. Currently, the data is collected by filling out a Google form.

The current challenge is that except for a few TICs, most TICs are open until 15:00, which is not consistent with visitor behavior. The reason for this is that the counter staffs are MoTA and local government employees with limited working hours. As a result, they are unable to accommodate visitors outside of business hours.

In addition, there is usually only one counter agent, which causes problems when multiple visitors ask at the counter at the same time. In addition, the capacity of TIC staff is not standardized; the service level is not the same for visitors.

Chatbots can be used to solve this problem. Chatbots are programs that automatically engage in conversations through text and voice conversations and can provide 24/7 service in response to visitors' queries. In addition, chatbots can be used to record interactions with visitors. Specifically, data can be collected on the date and time of the inquiry, the contents of the question, and the visitors' demographics. The ability to track visitor access to the TIC and the inquiry can be used to review for service level. Knowing the needs and preferences of visitors can also be used as a reference when developing a tourism strategy as a MoTA.

To operate the chatbot, it is necessary to create anticipated Frequently Asked Questions (FAQs) in advance. Currently, TIC staff accumulate information about hotels, restaurants, tourist attractions, etc. of destinations where TICs are located, and this information can also be incorporated into the chatbot.

In the future, the chatbot can be linked to Travel Palestine, the official website, to make it available for visitors who do not visit the TIC, thereby improving the convenience of visitors.

Since this would be a change in the operation of a real TIC, it is recommended to conduct a pilot implementation in a model region. After evaluating the efficiency or difficulty, it is recommended to implement other TICs. Installing a chatbot needs to accumulate visitor usage data which will lead to the convenience of TIC. In the future, it may be possible to restructure the TICs' function and staff operation to respond to off-peak season.

Proposal B is relatively small-scale and can be considered in combination with other proposals.

The technical score is 4 because it uses existing technology, and the operational score is 4 because the operation itself is not hard; even the content of FAQs needs to be developed, and staff needs to be trained. Therefore, the overall evaluation score is 16.

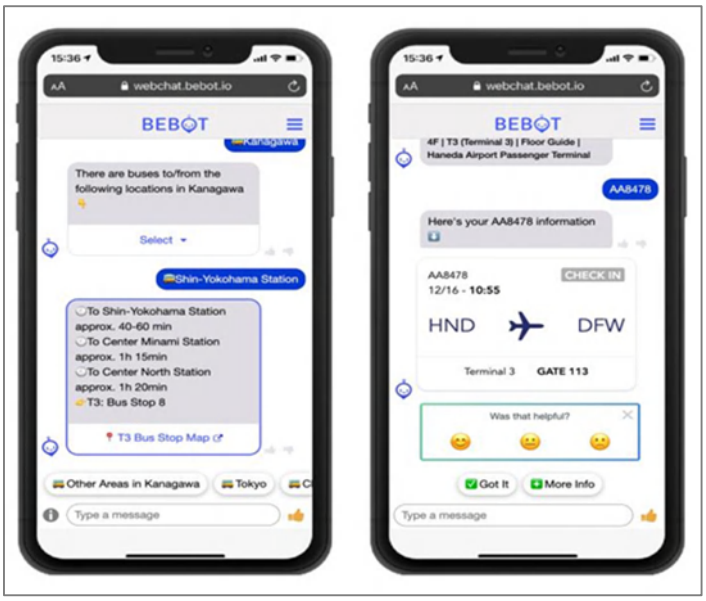
Caption Number 8-2-1 Proposal B: Upgrading TIC

	Contents
Theme	Upgrading TIC
Current Situation	・ TIC hours of operation are limited and differ from visitors' hours of operation. ・ The actual status of TIC utilization, etc., is not fully understood.
Purpose	・ Enhance the ability to collect visitor needs at TIC and promote local consumption
Activities Operational Sustainability	・ Need FAQ database, training, and other personnel support ・ Establishment of operational manuals, etc., that determine how to respond in the six TIC locations. ・ Information gathering by the person in charge (information on changes in sightseeing, transportation, restaurants, etc.) ・ Consideration and enhancement of information that meets the needs of visitors through analysis of collected data
Data to be Acquired	・ Visitor Attributes, Date and Time of Use, and Questions
Technology	・ TIC staff support system (chatbot, FAQ database, etc.) ・ Digital map ・ Link to the official website
Expected Effects	・ Satisfaction will be improved by conducting trials in model areas and enhancing FAQs according to visitors' interests. Consumption in visitor destinations will be

	improved. ・ Expand the results of the model district to other districts.
Evaluation Max.25 Min. 1	Technology 4: Existing technology in terms of technology. Operation 4: The content of FAQs needs to be enhanced and the corresponding staff needs to be trained. Evaluation 16: There is potential for development, including expansion to other districts and expansion of Travel Palestine.

Source: Study Team

Caption Number 8-2-2 Chatbot Service Image



Source: Study Team based on Japan Airport Building Corporation public relations[35]

8-3 Proposal C: Mitigating the waiting time of the Church of the Nativity

Proposal C is to mitigate the waiting time of the Church of the Nativity in Bethlehem.

The Church of the Nativity is the most visited place in Palestine. Due to the high concentration of visitors, the long time required to enter the Church of the Nativity is considered a challenge by many tourism businesses. Long queues are painful for visitors and negatively impact their travel experience and satisfaction. It is also a lost opportunity for tourism businesses, who can expect consumption more on shopping and restaurants or cafes in Bethlehem if visitors spend less time in line.

While there is a case of 5-hour waiting, since no actual observation is made, nobody knows the exact peak month, day of week, time, and average waiting time.

At the time of this study, a reservation system is proposed. MoTA was considered a reservation system in 2018 but has not yet been realized. However, the reservation system requires careful preparation for operation.

It includes cancellations after a reservation, delays of arrival due to heavy traffic in the old city of Bethlehem, and so on. To avoid this complicated operation, a reception system is recommended. The

[35] Source: Japan Airport Building Corporation HP URL https://tokyo-haneda.com/site_resource/whats_new/pdf/000012846.pdf Reviewed on February 19, 2023

reception system is commonly used in Japan at hospitals and restaurants, whereby numbered tickets are issued in the order of arrival, and visitors are admitted entrance according to the order of their number. Visitors can also know the expected entrance time and spend time in the city until the notice time.

In parallel with the reception system, MoTA can utilize data by image analysis techniques to judge crowd situations, such as peak time, the number of visitors, and the length of stay. By accumulating data, the trend of the conjunction is clarified.

MoTA can share the trend information with tour operators and visitors; it is expected to moderate peak time because visitors would like to avoid waiting.

The Church of the Nativity must cooperate with implementing equipment to make this happen. Besides, tour operators and guides must be included in the operating rules. Also, the advance announcement on the official website or tour operators should be prepared to minimize confusion after the operation. Tourism businesses near the Church are also informed to take advantage of their business opportunity.

The first phase of the reception system is for mitigating waiting time; more functions will be added in the next phase, such as collecting visitors' nationality. This will save work for the Tourism Police.

The technology score is 3, because of the implementation of the reception and image analysis systems, and the operational score is 2, because it needs some arrangement and preparation among the Church of the Nativity, tourism operator, etc. Therefore, the total evaluation score is 6.

Caption Number 8-3-1 Proposal C: Mitigating the waiting time of the Church of the Nativity

	Contents
Theme	Mitigating the waiting time for the Church of the Nativity
Current Situation	・ It has been considered for several years but has not been realized. ・ Long lines are seen, but peak crowding times and days of the month are not objectively quantified.
Purpose	・ Maximize the length of stay, consumption of food / beverage and shopping in Bethlehem.
Activities Operational Sustainability	・ Development of a same-day reception system to manage arrival orders (same-day reception system instead of advance reservation system) ・ Data on actual congestion (days, times, frequency of congestion) ・ Analyze data and disclose congestion trends (day, time, season, etc.) ・ Prior dissemination of information and briefing sessions on the operation of the reservation system to those involved in tourism are necessary.
Data to be Acquired	・ Date and time of congestion, number of people, length of stay, and booking demographics
Technology	・ Reception system (newly developed in a Palestinian ICT company) ・ Image recognition technology (may require technical cooperation from Japan) ・ Cameras, sensors, monitoring systems ・ Congestion Analysis
Expected Effects	・ Operational coordination with the Church of the Nativity and tour operators is essential before system development. ・ It is anticipated that the function of manually counting the number of visitors to the Tourism Police will be expanded in the future.
Evaluation Max. 25 Min. 1	Technology 3: Reception systems and image analysis systems need to be implemented. Operational 2: Need to seek cooperation from the Church of the Nativity, tourism operators, etc. on operational aspects.

	Evaluation 6: Operational coordination with the Church of the Nativity and tourism operators is essential before system development.

Source: Study Team

Caption Number 8-3-2 Example of Counting the Number of People in Image Analysis

Source: Study Team using SCORE's website [36]

8-4 Proposal D: Efficient Data collection of visitors/guests

Proposal D is the efficient collection of visitor/guest data.

Palestine has no immigration control and cannot track visitor data. It causes a problem for tourism statistics and the Tourism Police, who respond to inquiries from the ICPO. Currently, the Tourism Police are collecting hotel guest numbers and reporting them to MoTA. Then, the data is reported to PCBS once a month and as primary data for tourism statistics. Since this process is entirely manual, MoTA, the Tourism Police, and PCBS are developing a Hotel Guest Data Collection System and will test it at actual hotels in 2023

However, the system development process has taken the hotel operation as an afterthought and has not yet been examined. MoTA and PCBS, which use the data as tourism statistics, do not require visitors' personal information, but the Tourism Police need passport data for ICPO inquiries.

On the hotel side, large hotels with more than 50 rooms generally have a PMS in place. Regarding hotel operations, five-star hotels acquire guests' passport data due to its regulation. They can capture digital data by scanning passports and linking data to the PMS. In the EU,[37] some rules force to obtain of passport data, even for group guests. For example, foreigners staying overnight must show their passports in Germany, Italy, and other countries. The Hotel Guest Data Collection System can extend its functionality with the above

[36] Source: SCORE HP https://crowd-count.demo.scorer.jp/ Reviewed on February 20, 2023

[37] Source: EU HP URL https://europa.eu/youreurope/citizens/residence/documents-formalities/reporting-presence/index_en.htm Reviewed on February 19, 2023

measures.

To make this happen, the technical feasibility of this project is high, while there are issues in operation. The first is the regulation for collecting passport data at hotels. The second is the feasibility of the process at check-in time in hotels. Under the future system, all group guests are required to present their passports, but under the current system, passports are not required to show. Also, it is necessary to ask for tour operators' cooperation in advance. Finally, data security and access management are required. Stakeholders need to discuss information security, data transmission, and access permission.

The technology score is 4, because technologies exist. Still, it needs to link with the hotel system, and the operational score is 2, because it needs to work with hotels to implement the PMS with renovations and establish regulations. Therefore, the evaluation score is 8.

Caption Number 8-4-1 Proposal D: Efficient Data Collection of Visitors/Guests

	Contents
Theme	Efficient data collection of visitors/guests
Current Situation	・ Visitor data is an integral part of tourism statistics but is reported manually. ・ A data collection system for hotel guests is under development at PCBS.
Purpose	・ Collect hotel guest data used by MoTA/the Tourism Police/PCBS
Activities Operational Sustainability	・ Regulations need to be established for obtaining guest information from hotels. ・ Provide explanations and feedback for hotels and operational training. ・ Hold a briefing session for tour operators.
Data to be Acquired	・ Guest's date of stay, name, passport number, and nationality
Technology	・ Hotel system implementation (can be linked to existing hotel management system) ・ A passport information can be submitted through a connection to the hotel system ・ Analysis of collected data
Expected Effects	・ Once regulations are established, they operate on an ongoing basis. ・ Basic statistical data can be obtained quickly.
Evaluation Max. 25 Min. 1	Technology 4: This is an existing technology. Will need to work with hotel systems. Operational 2: It need to cooperate with hotels; implementation of PMS renovations and establishment of rules for submission of passport data are needed. Assessment 8: Once regulations are established, they are continually operational.

Source: Study Team

8-5 Proposal E: Integrated Tourist Information Application (Palestine Pass App)

Proposal E is integration of tourist information in the Palestine Pass application.

One of the commonly recognized issues is that visitors concentrate in Bethlehem and do not visit other destinations in Palestine. As a result, the benefits of tourism do not reach rural destinations. Information on itineraries and excursions is scarce and difficult to obtain.

Palestine Pass is a concept for integrating tourism information and allowing visitors to purchase attraction tickets in advance in bulk. The Palestine Pass will provide information on transportation and tourist attractions in local destinations, encouraging visitors to go around Palestine. When a visitor purchases the Palestine Pass, a QR code is sent to their mobile phone, and the QR code can be shown at a tourist attraction. A similar system has been implemented with the Jordan Pass.

Technically, the system embeds a payment system for purchases (either credit card or prepaid mechanism), a check-in function using QR codes, and an analytics function for accumulating user data. These technologies

are not technically demanding, and Palestinian ICT companies can develop mobile phone applications.

Regarding operations, suggested itineraries and app functions should be attractive to purchase, and tourism attractions should prepare for discounts to motivate visitors. In addition, it will be necessary to consider the revenue allocation among MoTA and tourism businesses. The promotion to reach visitors is also important.

The direct benefit of Palestine Pass contributes to increasing visitor numbers to local destinations. In addition, by obtaining visitor data, it will be possible to analyze visitors' demographics and visiting patterns. Based on this data, it will be possible to improve the Palestine Pass to make it even more attractive.

It is recommended to carry out a pilot implementation in a model destination. Then, the MoTA checks the effectiveness of the Pass. Tourism businesses establish operation rules in parallel, and destinations try to improve their quality. Then, when the Pass can show effectiveness, the Pass can expand to other destinations.

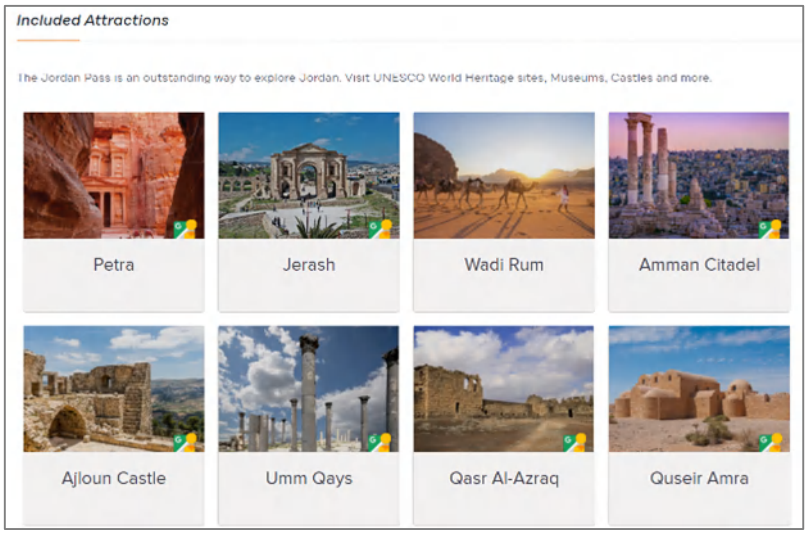
The technology score is 4. because the technology exists and is not difficult. The operation score is 2, because cooperation with stakeholders is necessary to create attractive excursions and allocate revenue distribution. Therefore, the evaluation score is 8.

Caption Number 8-5-1 Proposal E: Integrated Tourist Information in Palestine Pass App

	Contents
Theme	Integrated Tourist Information in Palestine Pass Application
Current Situation	・ There are few visitors who are going around Palestine. ・ Consumption in visitor destinations has not been expanded.
Purpose	・ Providing information on local tourism facilities to encourage visitors to destinations
Activities Operational Sustainability	・ Creating a tour plan and appealing to visitors ・ Improvement of the attractiveness of facilities ・ Gather information on the surrounding destination and request cooperation (sightseeing, transportation, restaurants, etc.) ・ Review of pass with visitor demographics and excursion information obtained through analysis
Data to be Acquired	・ Visitor attributes, dates and times of visits to facilities, number of visitors, duration of stay, the status of excursions, and trends in group and individual visits
Technology	・ Payment system (credit card payment or prepaid mechanism) ・ QR code check-in function ・ Digital map ・ Visitor and facility analysis functions
Expected Effects	・ The program will be tried out in model areas, and rules for operation will be developed. The number of tourist attractions will be expanded sequentially.
Evaluation Max. 25 Min. 1	Technology 4: The technology is existing and is not difficult. Operation 2: Cooperation with related businesses and others is needed to plan attractive pass excursions and revenue distribution. Evaluation 8: A trial in a model district is desirable to identify operational issues.

Source: Study Team

Caption Number 8-5-2 Examples of Sightseeing Spots Covered by the Jordan Pass



Source: Jordan Pass HP [38]

[38] Source: Jordan Pass HP URL HP https://www.jordanpass.jo/Contents/Jordan_Attractions.aspx Reviewed on February 7, 2023

Chapter 9 Consolidation for Realization of Tourism DX

9-1 Organizing ICT Use and DX Human Resources

In setting a direction to solve the problem, explain the human resources needed for ICT use and DX.

9-1-1 Role of Business Units Using ICT

Before considering the use of ICT in the tourism sector, the general assumptions for the use of ICT are explained.

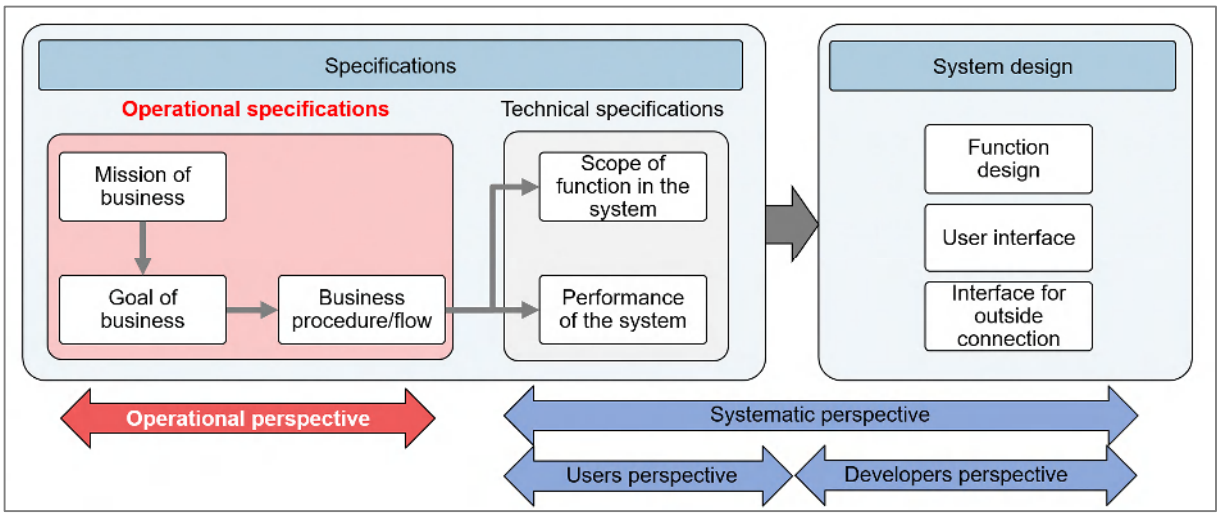
System development cannot be achieved by ICT engineers alone. The users of the system should clarify and select the problems they want to solve by implementing the system. They must then need to be actively involved in each stage of system development, including requirements to be included in the system and evaluation of the system's usability. The side that uses the system is called the "business side". Usually, the business department refers to the non-ICT department in charge of the business, and the business staff and indirect departments that implement the business fall under this category.

Such specialized knowledge about the business and operations of the business department is called "domain knowledge". In order for engineers to study the use of ICT to solve a problem they cannot consider the background of the problem, the current business and operations that should be realized after the problem is solved, without information provided by business department. Knowledge in specialized areas related to these operations is domain knowledge. If ICT engineers proceed with system development without fully understanding the business requirements, even if the system is completed, there is a high probability that it will not be usable by users and will not be used.

In other words, to solve problems using ICT, the business department needs to be involved from the beginning of system development. The following diagram illustrates the stages of requirements definition that the business department should be responsible for when creating system development requirements.

Mechanisms or processes are needed to efficiently share the business department’s domain knowledge with ICT stakeholders. In addition, to speed up the development process, it is important for the business and systems departments to co-create and collaborate on ideas for requirements definition ideas rather than working independently.

Caption Number 9-1-1 Scope of Responsibility for Creating Requirements



Source: Study Team translation "Requirements Definition Don't confuse business requirements with system requirements[39] " 2009 Nikkei XTech

9-1-2 Stages of ICT Use and DX

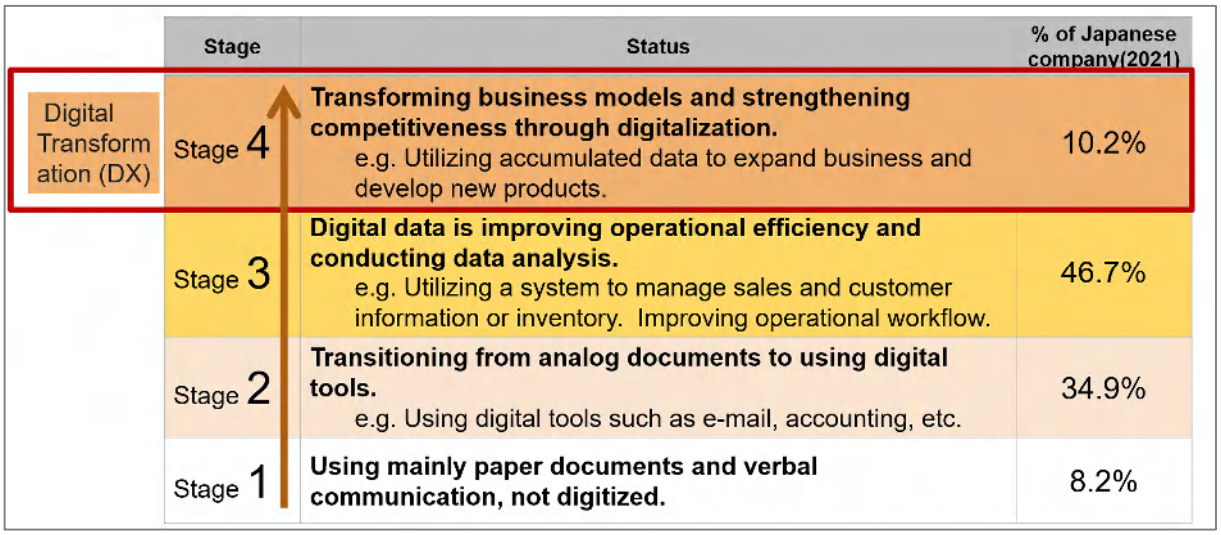
There are several stages in the use of ICT. The first stage is where ICT is not used. In the first stage, information is communicated orally or in paper documents. The second stage is the digitization of analog information. The third stage uses digitized information to improve operational efficiency. In the third stage, information is digitized, which to increases the speed to communication and facilitates analysis, retrieval, and data utilization. This benefit improves workflow efficiency.

Once these premises are in place, the fourth stage is the transition to a business model that fundamentally changes the traditional way of doing business and improves competitiveness in terms of speed, cost, and other factors. This is the stage known as DX, which refers to a major transformation rather than simply replacing traditional operations with ICT.

The following chart organizes the stages of ICT use and shows the percentage of Japanese SMEs in each stage at the time of the 2021 survey. According to this figure, the situation of Japanese companies is mixed in each stage. About 10% of companies are engaged in the fourth stage of DX. However, about half of the companies are in the third stage of business efficiency and data analysis, and the majority are in the stage just before moving to DX utilization.

[39] Source: "Requirements Definition, Don't confuse business requirements with system requirements"
URL https://xtech.nikkei.com/it/article/COLUMN/20090629/332871 Reviewed on January 25, 2023

Caption Number 9-1-2 Stage of ICT Use



Source: Study Team translation "2022 White Paper on Small and Medium-Sized Enterprises, White Paper on Small and Medium-Sized Enterprises, Summary[40] " from 2022 Small and Medium Enterprise Agency of Japan

9-1-3 Specialized human resources are required for ICT utilization and DX promotion

As the issues to be solved by ICT become more sophisticated, personnel with a high level of expertise will be required according to the nature of the problems. In addition, the expected problem-solving cannot be handled by simply digitizing existing workflows, but requires innovative ideas. Furthermore, as the number of departments involved in the workflow expands and the number of specialized technologies required increases, core personnel will be needed to coordinate these business departments and various specialized personnel.

A person in the role of "business architect" would be appropriate for these core personnel. The Information-technology Promotion Agency, Japan (IPA), an independent administrative agency under the jurisdiction of Japan's Ministry of Economy, Trade and Industry (METI), has proposed the "Digital Skill Standards," which define the human resources required for ICT utilization and DX promotion. In the standards, business architects and specialized human resources are classified into five categories.

Note that these names are by the IPA, and other names may be used in practice. For example, the equivalent of a business architect may be called a project manager.

Caption Number 9-1-3 Roles of Five Types of Human Resources by Digital Skill Level

Professional	Role
Business architect	Human resources can realize objectives by establishing what they want to achieve through business and operational reforms (i.e., objectives), coordinating related parties, leading the establishment of collaborative relationships among them, and consistently promoting processes to realize

[40] Source: "2022 White Paper on Small and Medium Enterprises and White Paper on Small and Medium Enterprises, Summary," 2022 Small and Medium Enterprise Agency
URL https://www.chusho.meti.go.jp/pamflet/hakusyo/2022/PDF/2022gaiyou.pdf Reviewed on February 17, 2023

	the objectives.
Designer	Human resources who comprehensively understand business perspectives, customer and user perspectives, etc., formulate product and service policies and development processes, and design products and services in line with these policies and processes.
Data scientist	Human resources are responsible for designing, implementing, and operating mechanisms for collecting and analyzing data to achieve operational reform and new business through the use of data
Software engineer	Personnel responsible for the design, implementation, and operation of systems and software to provide products and services using digital technology
Cyber security	Personnel responsible for measures to limit the impact of cyber security risks in the digital environment that supports business processes

Source: Study Team based on "Digital Skill Standards[41] " 2022 from IPA

The IPA's Digital Skills Standard explains that these professionals should be proactive in establishing connections with other types of professionals and then involve and help other types of professionals.

In addition, since appropriate specialized human resources are not always available within an organization, it is proposed to actively search for human resources, both internally and externally. This point is considered particularly important for the speedy promotion of ICT use and DX.

9-1-4 Trends in ICT Development

With the advancement of digital technology, trends in ICT utilization are changing dramatically. There are two main features of this trend. Instead of building a customized system from scratch as in the past, there is a trend toward rapid ICT utilization by using applications and general-purpose systems that are already in widespread use, if such systems exist. In the case of system development, the experimental development method is often used, in which a small prototype is created, and the scope of the system is gradually expanded while confirming its operational status.

①. Using Popular Applications and Generic Systems

Today, there are a variety of applications and generic-purpose systems in various fields, and many vendors offer them for free or for a fee. Even when they are offered for a fee, the contract is in the form of a monthly or annual fee and can be canceled if it is not useful or if the user no longer uses it.

Business applications and systems are primarily designed to improve business efficiency and reduce costs, and there are different types depending on the purpose of the business, such as data analysis, customer management, finance and accounting, and sales management. Depending on the service, there is also a choice of terminals for use, such as PCs and mobile phones.

In addition, in general, business applications and systems are often designed with best-practice workflows in mind because they are intended to be used. As a result, users can change their workflows according to how they use the application or system, which is expected to increase business efficiency. In addition, when using cloud-based systems and services, it is possible to combine multiple functions and add functions step by step.

[41] Source: "Digital Skill Standards" 2022 IPA HP URL https://www.ipa.go.jp/files/000106871.pdf Reviewed on February 17, 2023

②. Methods Used in System Development

There are several development methods for system development in solving problems using ICT, and they are selected according to the content and scope of the development.

In the past, the waterfall method of development method was the mainstream. This is a development method in which the entire system is designed, the processes proceed according to a schedule, and the system is completed at the end. Each process, such as requirements definition, design, programming, testing, and operations, is performed in sequence, and after the first process is completed, the second process proceeds. While this method makes the development schedule easy to understand, it has the disadvantage that it takes time to complete the entire development period, and it is difficult to respond to changes during the development process.

Agile development method has been on the rise in recent years. Agile development method is a development process that repeats implementation and operational testing in a short time, making changes and modifications along the way. Repeating short development cycles encourages communication between developers and users, which reduces development time while maintaining the quality of the service. It is also easy to stop development if it is discovered in the middle of the cycle that there are no user needs. On the other hand, there is the problem that the purpose of development becomes ambiguous, and repeated small changes make it difficult to see the big picture.

Neither waterfall nor agile development is superior as a development method. However, agile development method is considered more appropriate when change is rapid, there is uncertainty, and the pace of development is faster.

9-2 Human Resources to Promote ICT and DX in The Tourism Sector in Palestine

9-2-1 Stages of ICT Application in The Palestinian Tourism Sector

Applying the level of ICT use in the Palestinian tourism sector to "Figure 9-1-2: Stages of ICT use," the first three stages are mixed.

For example, one example that falls into the first stage is the Tourism Police manually counting the number of the visitors at counters in sites. Once this operation is digitized, it can be moved to the second stage.

An example of the second phase of the project is the use of a Google Form to submit TIC visitor information to MoTA. Previously, this information was sent verbally or by fax, but by using Google Forms, the data is being maintained so that it can be analyzed at the same time it is generated. If this data can be used to improve the value provided by the TIC, improve operations, and even be shared with related departments to review operations, we can move to the third phase.

The third stage of the case study is the hotel management system, the PMS. In Palestine, almost all large hotels with more than 50 rooms have a PMS, which is a fairly high penetration rate. Data information about guests and hotel management can be centrally managed. This is a stage where hotel data can be consolidated with other data to be used as the fourth stage of DX.

As described above, it can be said that the situation in Palestine is a mixture of areas where ICT use is advanced and areas where it is not, in response to various tourism issues. In the public sector, MoTA has

developed a business registration application and is using a general-purpose application for TIC information application to improve operations, while the Tourism Police rely on manual operations such as counting the number of visitors at the counter. In the private sector, hotels are improving operational efficiency through the widespread use of PMS and other systems, while guides are missing out on opportunities to receive orders directly because they are unable to create their own websites.

Given the mixed stages of ICT use, it is necessary to consider what should be prioritized as problems to be solved in the tourism sector.

9-2-2 Human Resources Needed to Promote ICT Use and DX in Palestine

The function of promoting ICT use and DX in Palestine needs to be strengthened in two ways.

The first step is to identify the problems that need to be solved in the business sector and to develop human resources that are proficient in the use of ICT. Then, to secure specialized human resources to form a team for higher-level ICT utilization. The following is a step-by-step review of the contents of this process.

①. Develop Human Resources for DX in the business departments

ICT is constantly evolving and new technologies are constantly being created. It is not necessary for the business departments to have a deep understanding of the details of these technologies. However, it is the role of the business departments to select issues to be solved by using ICT and to clarify the operations to be realized. As specific capacity building for this purpose, it is effective to learn methods for reviewing operations and clarifying issues for digitization. Specifically, through training on relevant ICT use cases and technologies, each department should learn what it can specifically do with ICT. Furthermore, an increasing number of local governments and companies in Japan are using design thinking methods to identify issues and consider ideas for business reform. For example, the City of Yokohama has newly established a "Digital Design Office" to promote urban DX through design thinking.

- Design Thinking

In many cases, business departments do not know what kind of technology can be used to solve the problems they face, and they are not sure what realistic approaches to take. Design Thinking is the answer to this problem, and its use can foster problem-solving skills. Design Thinking" training is practiced in workshops and other settings. By conducting training with organizations outside of one's own department, it is expected to be effective in objectifying issues and sharing information. Design Thinking is effective for both business and ICT departments. It is also effective in creating opportunities to explore the use of design thinking with the tourism sector and tourists, who are MoTA's customers.

How to proceed with design thinking

Design thinking is a way of thinking that identifies potential needs from the user's perspective and seeks solutions. By utilizing design thinking, it is easier to create a common vision for connecting tourism and digital by focusing on "value for the customer. In design thinking, we think in five processes.

- **Empathize:** Identify users' latent needs. Observe the environment and situation in which users are, and imagine users' true feelings about "why people act the way they do" and "what they

want beyond getting the service. Find out what problems and needs that users have deep down that they are not even aware of.

- **Define:** Based on the potential needs of the user that have emerged from observation and empathy, find the essence of the problem by finding out why the user feels it is a problem and why the problem is occurring. Establish a specific direction and concept of what problems need to be solved.
- **Ideathon (idea generation):** Based on the hypothesis established in the definition, generate ideas to solve the problem. Generate as many ideas as possible. Narrow down the many ideas to those that are consistent with the goal to be achieved.
- **Prototype:** Visualize what has been narrowed down in conceptualization by actually giving it. Because materialization is important, prototypes are created in a short time using familiar materials such as colored construction paper, glue, and scissors. By creating a prototype, we will highlight areas for improvement that were previously invisible.
- **Test:** Have visitors try out the prototype you created in prototyping and get feedback. Verify that the hypothesis matches user needs and clarify any issues that were not apparent.

- Training on ICT applications and technologies relevant to each department

It would be beneficial to provide training that explains ICT applications and technology trends that can be used in each department. In this way, operational departments can learn specific technologies that can be applied to their own operations.

- Providing educational programs

In order to improve the skills of the tourism industry, it is necessary to assess the skills in the field, organize the necessary skills, develop educational courses, and provide training through off-the-job training (OFF-JT). To this end, it is necessary to develop educational materials tailored to the Palestinian context. In particular, since tourism operators have little exposure to ICT technology, they need to actually use the technology to achieve results. The PHENIX Tourism Innovation Hub and PITA can be candidates as organizations that can develop such training programs in Palestine. Training programs can be conducted in person, but online e-learning can also be used.

- Improving communication skills

In addition to improved knowledge, communication skills are necessary to promote DX. This is a common skill that is needed regardless of department or job type in order to use ICT and promote DX.

The reason why communication skills are necessary is that the use of ICT is a team effort. In a system development projects, members with different values participate in the project. Sometimes, members with different ideas, such as conflicting interests, also need to build a consensus and cooperate to complete the project. Communication skills need to be acquired through practical experience. To emphasize communication skills as a necessary skill, measures such as including them in the personnel evaluation system can be considered.

②. Ensuring Specialists work on ICT in a team

When the level of ICT utilization is higher and the problem to be solved involves many related parties, it is necessary to organize a team that includes specialized personnel. Specifically, these are specialized

personnel in the five areas of business architects, etc., as indicated in the IPA "Digital Skill Standards".

In Palestine, the private sector has human resources with expertise in these five areas. Therefore, the challenge in forming a team using ICT is how to involve the team and share domain knowledge of tourism and tourism issues.

Regarding how to involve them in the team, it is assumed that the specialized personnel is usually involved in other projects in the private sector. Therefore, if they are asked to be involved in a project to solve tourism issues, it is necessary to show remuneration commensurate with their utilization and to charter them. The Sharing of expertise and problems in tourism needs to be addressed through a mechanism. This will be discussed in the next section.

③. Requirements for Business Architects as Core Specialist

Tourism DX requires us to define what we want to achieve through business and operational transformation, rather than through partial optimization solutions. This requires collaboration across both tourism and ICT, and business architects are the core specialists. The business architect must understand the tourism issues and the ICT technologies best suited to solve them, and must be able to coordinate stakeholders on both sides. However, it is practically impossible for one person to have in-depth knowledge of both tourism and ICT. Therefore, it is necessary to coordinate the operational departments and various specialized human resources and divide their roles to solve the problem. In this regard, communication, coordination, and execution skills are required. In other words, the role of a "bridge person" is needed who has a bird's eye view of both tourism and ICT and who can coordinate the industry and other related parties.

The preferred candidate should come from the tourism industry. The tourism industry should envision the future of the tourism industry, and then work with industry associations and the ICT industry. As an assistant, a person with knowledge of tourism in the ICT industry could be assigned.

Other designers, software engineers, data scientists, and cybersecurity experts will be brought in depending on the nature of the problem to be solved. Business architects will also consider the selection of necessary expertise. They will then work in collaboration and cooperation.

9-3 Establishing Mechanisms and Procedures to Address ICT Use and DX

ICT use and DX initiatives need be addressed not only by MoTA but also by stakeholders in the tourism industry and the ICT industries working together.

There are several methods for cross-sectoral collaboration between the tourism and ICT industries. These could include regular meetings, holding seminars that address topics such as explaining trends and new strategies in tourism, and organizing events related to tourism and ICT, such as hackathons. These will provide a forum for exchange between industry, academia, and government, including the tourism industry, the ICT industry, start-ups, and universities. Cooperation between industry, academia, and government is expected to further promote the use of ICT in the tourism field.

9-3-1 Information Sharing Mechanisms through Seminars, etc.

It would also be beneficial to provide the tourism and ICT industry with information on Palestinian tourism

challenges, case studies in ICT used in the tourism industry in other countries, demonstrations of the latest ICT, and what is feasible, through seminars and e-newsletters. When tourism issues are made known through the provision of such information, new products may be developed that see this as a business opportunity. Cool Easy Systems, a Palestine company selling domestically produced PMS and offered it at a low price. This product was developed by the founder of the company, who is familiar with the hotel industry. Similarly, the provision of information on foreign cases can lead to the spontaneous development of a domestically produced tourism system suitable for the Palestinian market.

9-3-2 A System for Generating Ideas and Co-Creation

Hackathons are being held around the world as a mechanism for young people with diverse expertise and flexible minds to gather and co-create ideas, rather than starting work after carefully selecting the problems to solve and how to solve them in advance. A hackathon is a coined word combining the words "hack" and "marathon," and refers to a type of development event where participants develop services, systems, applications, etc. in a short period of time (one day to one week) and compete for the best results. The best ideas are not only awarded prizes but often become real products. In this event, teams of programmers, designers, markers, and others form teams and bring their skills and ideas to solve a given theme for an application. A similar event is an ideathon. Ideathons can be held as a pre-hackathon meeting or as an introduction to a hackathon to generate ideas, or they can be aimed at creating an action plan or business model in a non-ICT sector.

Hackathon teams are often composed of people from different fields who dare to work together. As a result, challenges and solutions may be found that could not have been conceived with conventional ways of thinking. Hackathons and ideathons also have the advantage of encouraging interaction among participants. The duration of these events is short, and it may not be possible to complete a service, system, or application within the time frame. Therefore, organizers often reserve human resources and continue development after the event. In hackathons and ideaathons, design thinking methods are often used to generate ideas.

There have been previous hackathons in Palestine in the past. Some have involved MTIT, a government agency, and others have been hosted by the PHENIX Tourism Innovation Hub, targeting the tourism sector.

Creating opportunities for both the tourism and ICT industries to participate and share their perceptions of problems could lead to realistic solutions for Palestine. In addition, the experience of co-creation by the tourism and ICT sectors will lead to the development of human resources with knowledge in both areas, which will contribute to the development of both industries.

9-4 Considerations in Feasibility and Sustainable Development

As MoTA addresses the tourism challenge, a sustainable solution is necessary with sufficient preparation due to its limited resources. The scale of the project depends on the adoption of either Proposal A -E, the department in charge, the beneficiaries, and the difficulty level. Also, funding and human resources will be different. However, the direction would be the same regardless of the proposals.

9-4-1 Handling of System Costs

One of the significant costs associated with ICT utilization is the cost related to system development. Generally, the initial system development costs are substantial, and operational costs are incurred on an ongoing basis after the system is completed. The developed systems have been treated as fixed assets, with development costs supported by donors and others, and operational costs are burdened by counterparts. However, the system development trend in recent years is changing: the initial development is small by agile development, using genetic applications to launch quickly and keep paying subscription fees. Therefore, the system costs cannot be divided by completion time. Thus, with aid from a donor, the system costs should be considered flexibly. For example, a tailored arrangement is desirable, such as a donor supporting a fixed cost for a certain period, with counterparts bearing the rest. On this condition, it is considered to set KPIs for evaluating the achievements at high frequency after the service launch and incorporate a decision to suspend the program if the results are unsatisfactory.

9-4-2 Securing Tourism Funding from Private Sector and visitors

Funding for tourism ICT solutions should be addressed in various ways, like overall tourism. Currently, Palestine has not introduced a hotel tax. The hotel tax is widely introduced in the U.S. and is being introduced worldwide. The tax is levied on hotels, but hotels collect the charge from hotel guests according to regulations. Although not a hotel tax in Palestine, a new tax will be imposed on rental villas (short-term rentals) in Jericho from April 2023.

There are other ways worldwide to finance, from entrance fees or parking charges, which are managed by the public sector.

In specific ideas for the Proposal, Proposal B can consider new revenue from TICs. While TIC services are often free in the U.S. and Japan, some European countries charge tourist maps and arrangement fees for tickets and hotels at TICs. So that Proposal B can simultaneously secure new revenue at the TIC.

Regarding Proposal E, visitors pay for the application, and a certain amount of sales could be secured as a system usage fee.

These financial resources could be considered to cover the cost of ICT. In charge of beneficiaries, it is necessary to clarify the purpose and use of the funds and need a highly transparent operation. This response will also help to ask for the understanding and cooperation of payers.

9-4-3 Restructuring of the MoTA's Operation

In order to request cooperation from the private sector and visitors in securing new financial resources, it will also be necessary to review MoTA structure. Specifically, it will be necessary to optimize the allocation of human resources, etc. by suspending the TIC during periods of low visitor numbers and streamlining the marketing system in line with changes in work content and workload due to digitization and other changes in workload. This restructuring will help to secure the human resources necessary for new initiatives.

9-5 Ideal Role of MOTA in ICT Utilization

The role of MoTA in the use of ICT is twofold. First, it is to improve the efficiency and sophistication of

operations through the use of ICT within the organization. At the same time, it provides a mechanism for the Palestinian tourism industry as a whole to utilize ICT and create the groundwork for DX as an industry. Although these roles are different, the issues that need to be addressed from ICT utilization perspective are common; the policy to address this issue for the continued implementation of ICT initiatives is described below.

9-5-1 Increase The Efficiency and Sophistication of Operations within MoTA Organization

MoTA will improve their work performance through ICT utilization. Improve operations that are performed manually or for which data collection is not performed. If advanced ICT tools are introduced all at once, there is a risk that the operations side may not be able to master them, so the scope of improvement will be introduced starting with small-scale operations.

These initiatives should be implemented by the marketing, planning, and other operational departments with an understanding of the issues, and supported by the IT division. It is also effective to establish a working team for improving operational efficiency needs and issues on the ground within MoTA, and to study operational methods and improvement measures.

As information is digitized and workflow is improved, expertise in the use of ICT will accumulate within MoTA. For further improvement from this stage, the number of people involved will increase and the expertise required will become more sophisticated. The expansion of ICT utilization within MoTA will also serve as a stimulus to related tourism businesses and promote the use of ICT in the industry as a whole.

9-5-2 Promote DX in The Palestinian Tourism Industry

The Palestinian tourism industry needs support to improve productivity through ICT utilization.

First, it is necessary to identify the current resources. Specifically, it is necessary to list businesses in the tourism industry to be supported, as well as the ICT companies and organizations that can be supported, and to identify the human resources and their skills that can be utilized. Then, opportunities such as venues and events should be provided where tourism and ICT can share the same awareness of issues. In addition, the need and benefits of ICT implementation in the tourism industry should be promoted.

9-5-3 Response Policy

MoTA will develop Tourism DX Initiatives Policy to address internally the organization and outreach to the tourism industry. By committing to the policy both inside and outside the organization, MoTA will promote Tourism DX initiatives. Since MoTA does not currently have a department responsible for Tourism DX, it is necessary to designate a department to be responsible for this.

The contents of DX Action Policy are summarized in three points along the Plan-Do-See cycle to ensure that DX promotion efforts are continuously promoted and effective.

①. Plan: Information Gathering and Selection of Tourism Problems to be Solved

Gather information on tourism issues that need to be resolved, both within MoTA organization and in the private sector. Among them, those with the highest priority will be evaluated and selected.

The collection of information should include cases that have been resolved. If there are examples of similar problems that have been solved, it can be judged that the solution is easy. Information from overseas cases will also be collected.

You will also work with ICT vendors to collect information on ICT technologies that may be able to solve the problems.

②. Do: Promote Public-Private Partnerships

The use of ICT requires cooperation of both the tourism and ICT industries. MoTA will take the lead in bridging the two, providing a forum for cooperation and information sharing between the public and private sectors.

Public-private partnerships are also important to support and complement the efforts: during the COVID-19, many tourism businesses were forced to suspend or reduce their operations, but public activities continued. In tourism promotion, private tourism businesses can implement measures that MoTA cannot implement due to political constraints.

Problem solving is encouraged to be tackled on a small scale through agile development using ideas generated through demonstration experiments and hackathons. By developing repeatedly on a small scale, the skills of responders can be improved at the same time.

③. See: Evaluating Efforts, Allow for Trial and Error, and continuous efforts

It is expected that projects undertaken in hackathons, agile development, etc. may not produce satisfactory results. It is important to position this as an initiative that will lead to the next step, rather than concluding that the project was a work in progress or that it failed. To this end, it is necessary to set goals and evaluation criteria for the project to be undertaken and to clarify the decision criteria for suspending the project. Even if the project is discontinued, lessons learned should be recorded and linked to the next project. Sustainable project operation can only be achieved with the participation and cooperation of stakeholders such as tourism businesses, local governments, ICT providers, and academics. Measures are needed to gain an understanding of these stakeholders.

Chapter 10 Concept of cooperation by Japan

10-1 Concept of Cooperation

So far, the Study Team has considered the issues based on the four pillars of the Survey in " Chapter 7 Challenges to Be Addressed" and presented the issues to solve by ICT in " Chapter 8 Investigation of Solutions to Tourism Issues Using ICT" and " Chapter 9 Consolidation for Realization of Tourism DX."

In " Chapter 8 Investigation of Solutions to Tourism Issues Using ICT," five proposals have not been narrowed down. All of the proposals are based on practical needs in the interview of the study. Each proposal's technical and operational feasibility differs, and the cost and period of the project will vary accordingly. The proposals are mainly small cases to secure the easiness of implementation. Depending on the issue's priority, an alone or a combination of proposals may be adopted. In such cases, the project scale and difficulty will increase.

In implementing the proposed solutions to the tourism issues, it is necessary to start developing the preparation presented in "Chapter 9 Study on the Development for the Realization of Tourism DX". It will not only solve the issues proposed in Chapter 8. Still, it will also be a foundation to continuously and autonomously implement ICT utilization in the future. In Palestine, the ICT industry has the technological capabilities to address tourism issues. Still, the MoTA and tourism businesses that benefit from technology have been unable to keep up with the speed of advancing technology.

Furthermore, to use ICT and reach the DX stage, it is necessary to adopt new development methods, developing from a small scale. Even if it fails, learn a lesson from it and quickly take the following countermeasure. In addition, it needs to incorporate a mechanism for idea generation through co-creation from a different perspective. According to the issues becoming more sophisticated and specialized, building a team that includes a business architect and other specialists to deal with the problems is required.

Based on the above, as cooperation that Japan should engage in, it is expected to form a project that combines the solutions to the issues proposed in Chapter 8 and the development of human resources and mechanisms presented in Chapter 9. To make this happen, experts are necessary for cooperation, who can advise on the technical aspects of ICT for the solution, and who have a bird's eye view of both tourism and ICT technology who can advise comprehensively.

10-2 Roadmap of Initiatives

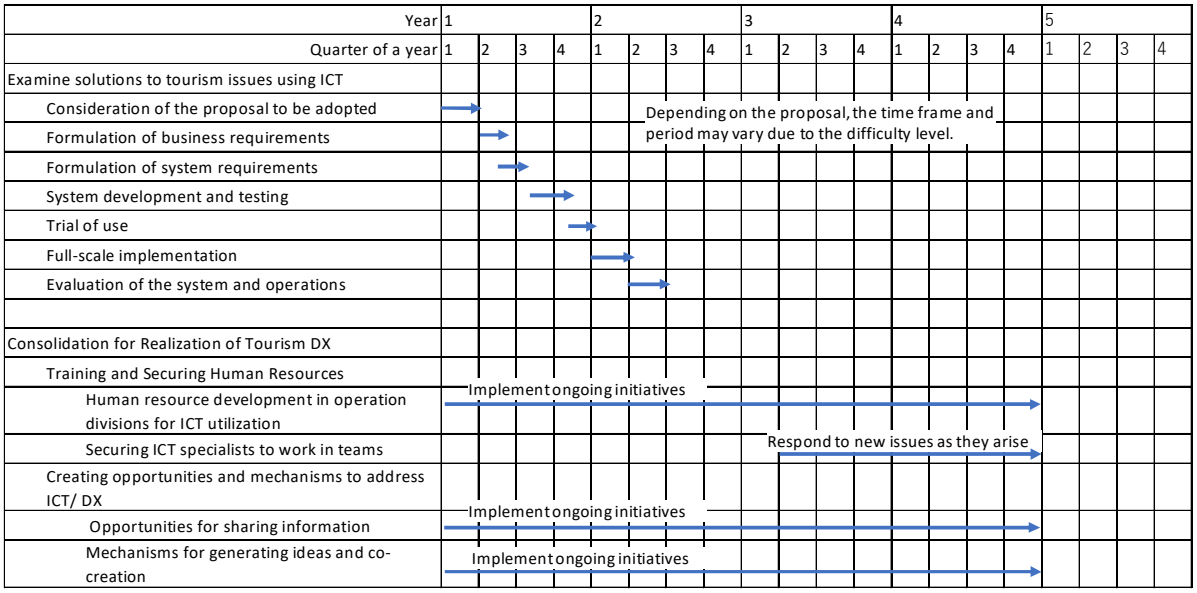
The Study Team plans a roadmap according to the contents of "10-1 Concept of Cooperation."

The timeframe in Chapter 8 to be realized will depend on the project size, which means the combination of proposals. for example, the development process is envisioned for two stages; when a model project is implemented in a destination and rolled out nationwide, such as in the case of "Proposal B TIC Upgrading" and "Proposal E Integrated Tourism Information Application Palestinian Pass." This detail is not described in the timeframe.

Concerning the mechanism development in Chapter 9, it is necessary to implement it in the early stages of the project. Promoting training and industry-academia-government collaboration will be conducted

simultaneously with solving actual tourism issues. This approach may avoid empty theory and help to solve the real solution.

Caption Number 10-2-1 Draft Roadmap of Cooperation



Source: Study Team

10-3 Points to Keep in Mind when Forming Projects

Global trends in both tourism and ICT are changing rapidly. Therefore, it is expected that project implementation will need to be modified in response to environmental changes. If the project sticks to the original plan and rigidifies the implementation details, it may not be able to meet the needs at the time of completion.

It is advisable to consider flexible revisions in advance when designing a project. While maintaining the goals and impacts to be achieved by the project, it is recommended to allow for some flexibility in technologies and operational methods.

Annex (Report of field survey)

Palestine

Data Collection Survey on Tourism Development through Digital Transformation

Report of field survey

January 26, 2023

Yoshiko Maruyama (MS)
JICA consultant
(DX Business Designer)

Hatsuko Koroku (MS)
JICA consultant
(IT Architect)

Achievement

40+ meetings for understanding the tourism digital transformation in Palestine

1st Mission

Date	Interviewee
Dec10 Sat	• MoTA • TIC Bethlehem
11 Sun	• Palestine Museum
12 Mon	• Holy Land Incoming Tour Operators Association (HLITOA) • Arab Hotel Association (AHA) • Palestine Association of Travel Agents (PSTTA) • Network of Palestine Experiential Tourism Associations (NEPTO) • Arab Guide Union (AGU)
13 Tue	• GIZ • Ramallah Municipality
14 Wed	• Palestinian Communications and Informatics Society (PCIS) • Palestinian Central Bureau of Statistics(PCBS) • Ministry of Telecommunications & Information Technology (MTIT)

Date	Interviewee
Dec15 Thu	• AD3 • ENI CBC Med
16 Fri	• UNDP • Palestine Heritage Trail
17 Sat	Meeting preparation
18 Sun	• Palestinian Information Technology Association of Companies (PITA)
19 Mon	• Palestinian Youth Association for Leadership and Rights Activation (PYALARA)
20 Tue	• InterTech
21 Wed	• USAID

Achievement

40+ meetings for understanding the tourism digital transformation in Palestine

2nd Mission

Date	Interviewee
Jan 15 Sun	• JICA Palestine office
16 Mon	• MoTA Bethlehem ➢ Mr. Samer, IT Department ➢ Mr. Steve, Communication division ➢ Ms. Laila Jaser Bandak, TIC manager
17 Tue	• MoTA Ramallah ➢ Mr. Atiya Sartawi, Planning division ➢ Sabri Hisidam, Planning division ➢ Tourism Police division • Intertec
18 Wed	• Mr. Sani Meo, This Week Palestine • Rawabi Tech Hub (Asal, Ultimate)
19 Thu	• Mr. Iyad Hamdan, Jericho Governorate • Jericho TIC • Hisham's Palace

Date	Interviewee
Jan 20 Fri	• Mr. Isam Khayyat, World Bank project • Mr. Elias I. Mukarker, Bethlehem University
21 Sat	• Easy Solutions
22 Sun	• Mr. Saeed Abu Hijleh - DAI • Dr. Maali Diab, Muffaker
23 Mon	• PHOENIX - Tourism Innovation Hub
24 Tue	• Joint meeting PCBS/Tourism Police • JICA internal meeting
25 Wed	• Visit Palestine
26 Thu	• Reporting to MoTA • JICA Palestine office
27 Fri	Reporting preparation

Direction of the survey

Conducted the survey from multiple perspectives; Considering tourism development, business operation, and ICT technologies.

Four Pillars of Direction	
(1)	Study on **data collection and utilization** methods that contribute to the development of tourism promotion strategies
(2)	Verify the effectiveness and study utilization regarding establishing a **digital platform** that integrates tourism information. Organize fundamental elements for developing a roadmap for building the platform.
(3)	Advice on initiatives leading to the "**Tourism Corridor**" concept
(4)	Proposal for enhancement of MoTA's **capability** and **capacity**.

Results of interviews

MoTA plays essential roles in tourism and is conscious of overcoming difficulties.

① Promoting Palestine with a attractive image to visitors.
- Offering an official web page, "Travel Palestine," which is renovated with the latest contents.
- Frequent SNS communication via multiple media for new generations.
- Participation in overseas exhibitions.
- QR code projects are preparing for appealing the correct recognition of Palestine's history.
- The operation of Tourism information centers (TIC) is upgraded with commodity technologies.

② Improved convenience for tourism businesses.
- MoTA almost launches an online system to shorten annual business registration which is internally developed.

③ Interministerial collaboration is on going for efficient operations.
- MoTA/Tourism Police/Palestinian Central Bureau of Statistics(PCBS) is preparing a new system for efficiently capturing hotel guests. The system is planed to be expanded for counting visitors in the next step.

④ The revision of Tourism Law and new regulations are prepared to address challenges.
- Tourism Law is revised, and it will include new perspectives, such as attracting investments.
- The new regulation is ready to handle rental villas.

Results of interviews

Tourism sector faces variety of challenges.
Those issues are acknowledged and some are addressed, but some are hard to realized.

① Visitors are concentrated in Bethlehem, and it is desirable to make them go around in local. Multiple businesses/organizations plan/launched the services.
- Palestine Heritage Trail
- Community based tourism by NEPTO(Network for Experiential Palestinian Tourism Organizations）
- Gaming digital map by Muffaker funded by CBC ENI (EU fund)

② Narrative explanation of tourism sites is important, and it is well recognized.
- This Week Palestine
- POSITIVELY PALESTINE MAGAZINE by the support of GIZ

③ Statistic data are not well delivered due to complex background.
- No immigration data is available because Israel manages the data.
- Tourism Police provide initial data by manual counting, which is a hard burden. The data also includes security and revenue information that hotels are reluctant to share.

④ Tourism businesses have their specific issues.
- Low productivity caused by Israel operators' bargaining. (Hotel rate, guide fee, etc.) It discourages reinvestment for upgrading/expanding their businesses.
- Travel agencies needs national support to implement GDS(Global Distribution System) and BSP (Billing and Settlement Plan)

Results of interviews

Palestine's ICT sector is advanced.
Most of the technologies for digital transformation can be procured domestically.

① MoTA and ministries have ability to develop system/applications internally.
- MoTA is providing online business registration system.
- MoTA/PCBS/Tourism Police are jointly developing the hotel guest registration system.
- PCBS started the system for collecting visitor consumption data

② Variety of ICT businesses exist, and there are great talents with high-level capacity.
- Engineers, designers, and project managers, etc. are available in Palestine.
  - ✓ Web site/mobile app development
  - ✓ VR/AR technology, AI, machine learning, IoT(Internet of things)
  - ✓ Data science

③ The ICT sector has networking through industry associations or non-profit organizations. They are proactively working and have a strong willingness to support tourism.
- PITA(The Palestinian Information Technology Association of Companies)
  - ✓ Front office of two projects of Cross-Border Cooperation (CBC) initiative by the EU under the European Neighbourhood Instrument (ENI)
- PHOENIX - Tourism Innovation Hub
  - ✓ Digital Tourism Month, including Hackathon
- PCIS（Palestinian Communications and Informatics Society)

Results of interviews

Both public and private sectors seem to have a less understanding of data-oriented decision-making/evaluation, which is essential for DX.

① Many companies/organizations, including MoTA, don't evaluate their promotion results and are not regarded as necessary, while a interviewee can fully utilizes free of charge analysis tools.
- Website analysis
- Report for the sponsors/investors

② The launched services are not sustainable in various aspects.
- The websites of several entities are not updated and keep exposing old information, which loses the trust and continuous attraction for visitors.
- One of the reasons is that donors' funds are generally only for initial development rather than operations.
- The donors' supports may not be suitable for the Palestinian situation.

③ Business procedure seems not to be described as documented and standardized, which may be the most significant obstacle to realize for the DX.
- System development projects start without researching operational conditions/specifications.
- Business procedure /operation manuals are sometimes not prepared for tasks.

Circumstance

Visitors spend time with the digital longer. FIT and a new type of tourism are emerging. Tourism businesses should adjust to the speedy changes, and MoTA needs to support them.

① Visitors are searching for information, and making reservations online. No information in the digital world is almost equal to not existing.

- Website, mobile app is essential to providing travel information for all businesses and MoTA.
- The digital information should be trustful by updating the latest information.
- Narrativize explanation is required to attract visitors' interest.

② Many stakeholder are aware of FIT and new tourism. Business models of group tourism needs to be transferred to accept the new visitors.

- Hotel reservations are optimized for group tourism, and it is sometimes challenging to accept FITs due to concerns about lost opportunities for big groups. Tour operators, guides are supported for the transition of the business models.
- Attracting FIT or new types of tourism visitors is required to understand their preferences, demographics, and behaviors via survey and analysis. This information should be shared to whole tourism industries.

Insight

For sustainability, robust operation is essential to maximize technology benefits. Enhancing operational officials is the global trend for the DX era.

① Selecting the issue is much more critical than technology for implementation. There are many ICT talents in Palestine, and various types of solutions are available.

- Five ideas are proposed by this survey for the potential project in near future. Technically, all of the proposals are easy and feasible in Palestine.
- The difficulties are on the operational side, such as planning concepts, collecting data, creating content, establishing standard procedures, and so on.
- MoTA is recommended to shift to a DX-ready organization with fundamental knowledge and mindset.
  - ✓ Operational officials should be involved in a system development through providing operational/service-side specifications, and analysis and evaluation the results.

② Human resource enhancement will be necessary. Utilizing external professionals is highly recommended for efficient / swift Digital Transformation.

- DX professionals are often unavailable internally (in ministries and companies); a guideline of the Japanese Government suggests the appropriate specifications for recruiting /inviting professionals.
- In order to achieve sustainable operation, JICA's support needs to fit the Palestinian situation.
  - ✓ Utilizing ICT skill should be enhanced rather than developing ICT technology
  - ✓ Accompanying support following the Palestinian situation, with checking the level of understanding.

Insight

Tourism sector should be connected to avoid fragmentation and duplication of measures. Public-Private-Partnership is encouraged for overcoming challenges.

① Tourism DX requires cross-cutting cooperation rather than a partial solution. In this regard, a "bridge person" who has a bird's-eye view and performs a coordinating role should be assigned.

- Playing a role between both tourism and ICT sectors. Communication and coordinating skill /power are needed more than expertise.
- Sustainable initiatives will only be achieved with engagement and cooperation among stakeholders such as tourism businesses, municipalities, the ICT sector, etc.

② Variety of methods are available for cross-cutting cooperation.

- Establishing an official PPP organization such as a tourism board.
- Regular based meeting
  - ✓ Sharing trends of tourism, explaining new strategies, announcing statistics, etc.
- Workshops and seminars
- Tourism-ICT related events
  - ✓ Pitch contest
  - ✓ Hackathon

5 Possibilities / Potential Ideas for DX

There are 5 Possibilities / Potential Ideas supported by digital technologies.

	Ideas from MoTA and ministries				Idea for Tourism Corridor
	A	B	C	D	E
Themes	**Enhancement of digital promotion**	**Upgrading TIC and increase satisfaction in destinations**	**Mitigating the waiting times of Nativity Church**	**Efficient data collection of visitors/guests**	**Integrated tourism information in "Palestine Pass" app**
Purpose	•Provide useful information to attract visitors to Palestine	•Improve TIC ability to collect visitors needs and encourage visitors' consumption in local	•Shorten the waiting time of Nativity Church, also increase consumption in Bethlehem	•Support the system of MoTA/Tourism Police/PCBS for collecting hotel guests/visitors data.	•Provide local information and encourage visitors to go around local
Current Situation	•Travel Palestine is existing, but need to be upgrading for international trend. •Web analysis are not conducted, and staff should be trained.	•TICs are recognized as supplements of the local information provider. •Data collection of visitors is started with commodity technologies.	•Idea is discussed for several years, but has not realized. •Long queue are observed but high peak hours/dates are not objectively quantified.	•The guest data is essential of statistic, but reported by manually. •The system for guests is under developing. •The system for visitor number is planned as well.	•Ideas are recognized. •QR code project can be linked to the information. •Private sector developed similar concept.

5 Possibilities / Potential Ideas for DX

There are 5 Possibilities / Potential Ideas supported by digital technologies.

Ideas from MoTA and ministries

A

Enhancement of digital promotion

Solution

- Provides the information which visitors (FIT visitors) need.
  Such as attractions, accommodations, transportation, safety, etc.
- Provide attractive information tailored to visitors' interests.
  Thematic information (Historical sites, nature, trail, etc.)
  Local information (events, handy crafts, food, etc.)

→ Increase visitor numbers in local area and their consumption

Activities for sustainable operation

- Consideration and enhancement of information and channel. (web, SNS, podcast, and so on.)
- Content creation.
- Reviewing web traffic and evaluate the initial plan.
- Information collecting (from local communities, restaurants, hand crafts studio, etc.)
- Skill training is required by cooperation of web company

Technology

- Web analysis to evaluate and improve activities.
- Content management system.
- Media Archive(photos, video, narrative articles, VR, AR).

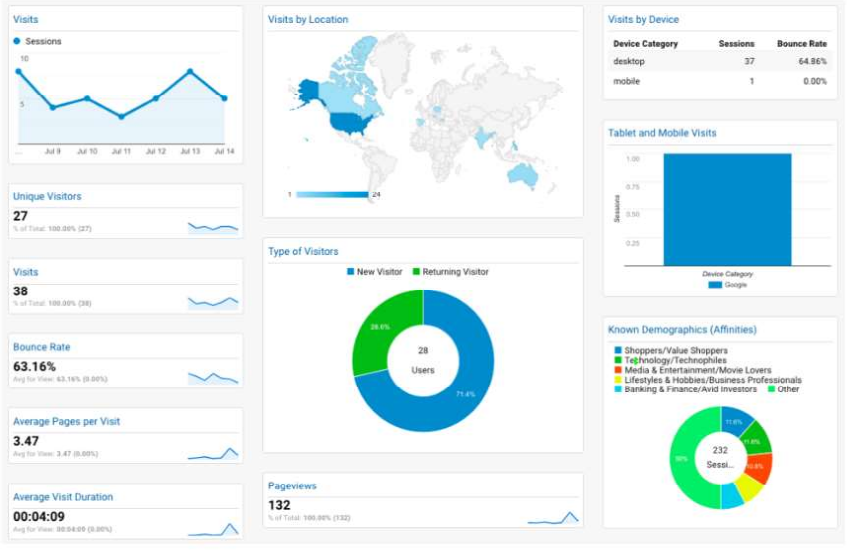
Evaluation for recommendation (max 25 min 1)

Technology	4	Technically, it is not difficult as existing technology.
Operation	4	Requires continuous and responsible activities and capacity building.
Total	**16**	Can be achieved through internal organizational efforts of MoTA

5 Possibilities / Potential Ideas for DX/ sample technology

A:Enhancement of digital promotion　Google Analytics Dashboard(Free)

Google provide free tool for analyzing website traffic which includes number of viewers, viewer's location, viewing duration, number of pages accessed, popular pages, etc. Once setting is done, the data is available anytime,



5 Possibilities / Potential Ideas for DX

There are 5 Possibilities / Potential Ideas supported by digital technologies.

Ideas from MoTA and ministries

B

Upgrading TIC and increase satisfaction in destinations

Solution
- Improve the visitor's impression of the community.
- Provide Information that visitors want to know.
- Propose local attractions and tourism business.
  Local information (events, traditional crafts, food).

→ Extend visitor stay in local area and their consumption

Activities for sustainable operation
- Establishing operation manual for scandalize procedure
- Information collection (tourism attraction, transportation, restaurants)
- Consideration and enhancement of information according to visitors' attributes by analysis
- Staff support scheme is necessary such as FAQs database, training, etc.

Technology
- Contents management system
- Staff support system(chatbot, FAQ database, etc.)
- Digital map
- Linkage to web site

Evaluation for recommendation (max 25 min 1)

Technology 4 — Technically, it is not difficult as existing technology.

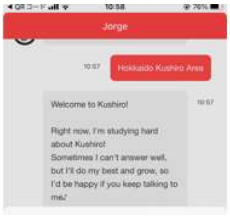
Operation 4 — Need to develop FAQs contents and training for responding staff.

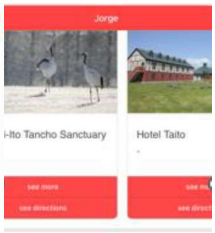
Total 16 — Start from a model destination, conduct a pilot project to develop FAQs according to visitor's interest, then expand to other TICs.

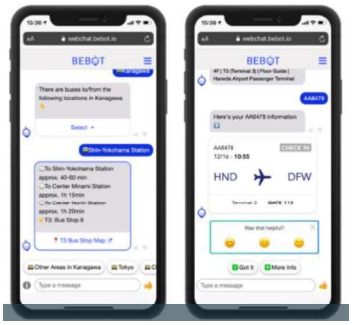
5 Possibilities / Potential Ideas for DX/ sample technology

B:Upgrading TIC and increase satisfaction in destinations

During TIC is closed time, even not visiting TIC, visitors can ask chatbot system on their mobile phone about hotels, restaurants, etc. Question and answer contents are prepared in advance.







https://aismiley.co.jp/ai_news/kuzen-kushiro-tourism-chatbot/

5 Possibilities / Potential Ideas for DX

There are 5 Possibilities / Potential Ideas supported by digital technologies.

Ideas from MoTA and ministries

C

Mitigating the waiting times of Nativity Church

Solution
- Reduce waiting time and visitors can take their time in the city.
- Increase number of visitors to visit neighborhood site.
- Promote visitors to souvenir shops and restaurants.

→ Improve satisfaction of visitors and increase visitors consumption in Bethlehem

Activities for sustainable operation
- Recognize the actual congestion by data and numbers.
- Develop a reception system to manage order of arrival (not reserved in advance)
- Disseminate information about changing waiting system before launch, training guides.
- Trace the data and analysis, disclosing concentration trends (day, hour, season, etc.)

Technology
- Image recognition technology
- Sensing and monitoring system
- Reception system
- Analysis of congestion

Evaluation for recommendation (max 25 min 1)

Technology	3	Video analysis and AI technology are needed to understand the congestion
Operation	2	Need to involve the church, tour guides, etc., and ask cooperation
Total	**6**	Operational coordination with the church and tour guides is essential before system development

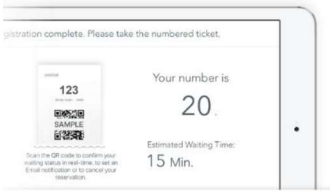
5 Possibilities / Potential Ideas for DX/ sample technology

C:Mitigating the waiting times of Nativity Church

A survey based on image recognition technology can be implemented to understand the actual state of congestion (time of year, number of people, waiting time, etc.). The reception system can manage people without standing in a queue.

Image recognition technology automatically counting the number of people from images

Reception system



Waiting time display

Waiting number ticket

https://crowd-count.demo.scorer.jp/

5 Possibilities / Potential Ideas for DX

There are 5 Possibilities / Potential Ideas supported by digital technologies.

Ideas from MoTA and ministries

D

Efficient data collection of visitors/guests

Solution
- Tourist police can automatically obtain guest information (name, nationality).
- PCBS can also properly compile guest data for statistics.

Continuous and accurate data will help for data oriented decision making such as national strategy.

Activities for sustainable operation
- Establish regulation for obtaining guest information from hotels.
- Publication of guest statistics（PCBS).
- Training for hotels.

Technology
- Installation of hotel systems (possibility is linkage with existing hotel management systems)
- Data connection with hotel systems.
- Analysis of collected data.

Evaluation for recommendation (max 25 min 1)

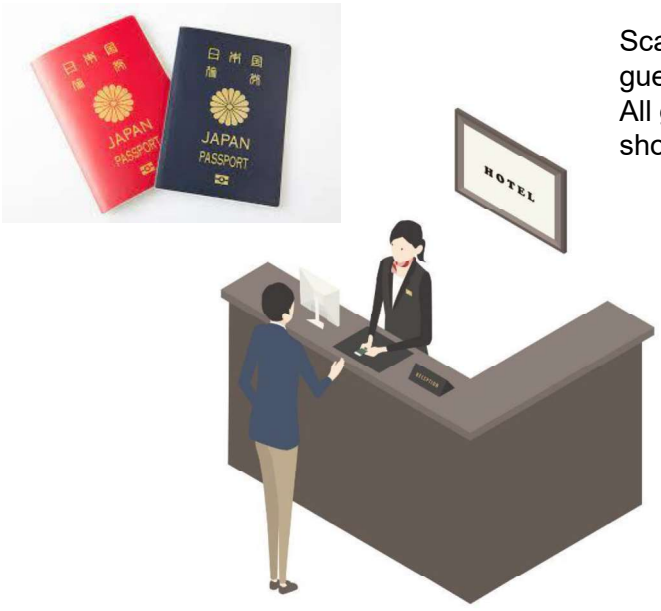
Technology 4 — Technically, it is not difficult as existing technology.

Operation 3 — Guests need to cooperate with hotels. Establish regulation of hotel system implementation and submission of passport data.

Total 12 — Once regulation is established, it would be operated continuously.

5 Possibilities / Potential Ideas for DX/ sample technology

D:Efficient data collection of visitors/guests



Scanning guests' passports at hotels to obtain guest information.
All guests, including group tourists, need to show their passports at check-in

Hotels report information data from guests' passports (name, nationality, etc.).

5 Possibilities / Potential Ideas for DX

There are 5 Possibilities / Potential Ideas supported by digital technologies.

Ideas for Tourism Corridor

E

Integrated tourism information in "Palestine Pass" app

Solution
- Provide information make visitor go around local destinations.
  Location, description, and directions to nearby facilities.
- Propose local attractions and tourism business.
  Local information (events, traditional crafts, food).
- Business data (open/close time, phone number) are updated periodically.

→ Increase visitor numbers in local area and their consumption

Activities Operational sustainability
- Consolidation of Palestine tourism information in one window.
- Entrance reservation /pre-payment of attractions
- Analyze the status of tours, solicit tours and facilities, and propose improvements.

Technology
- Mobile app development.
- Contents management system.
- Online reservation, payment system.
- Measuring system (visitation, route, etc.).

Evaluation for recommendation (max 25 min 1)

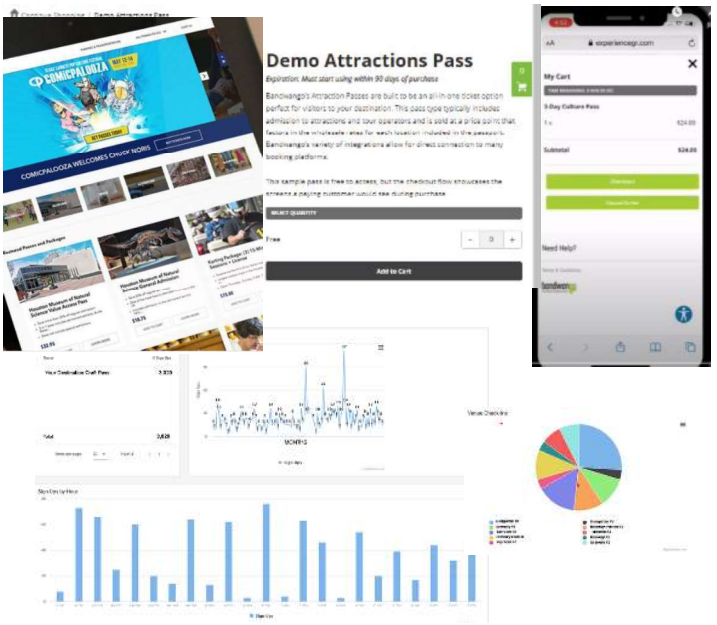
Technology	4	Technically, it is not difficult as existing technology.
Operation	3	Planning itinerary for an attractive pass, cooperation among stakeholders such as allocation of revenue.
Total	**12**	Trial in a model destination is desirable to verify operational issues.

5 Possibilities / Potential Ideas for DX/ sample technology

E:Integrated tourism information in "Palestine Pass" app using Digital Passport

Destination Experience Engine (DXE)
Bandwango

- A pass can be created that allow visitors to purchase a combination of paid admission and hands-on events or food and beverages at restaurants using their smartphones.
- Tourist destinations can increase engagement and ultimately earn loyalty.
- These passes are mobile solutions designed to enhance the visitor experience and capture dynamic marketing data.
- It allows for the capture and analysis of information on customers who have made a purchase.
- Most importantly, a direct return for each redemption of menu items offered by local business partners. This is to promote the economic benefits of the destination.



https://www.bandwango.com/solutions/pass-type/paid-attractions-pass

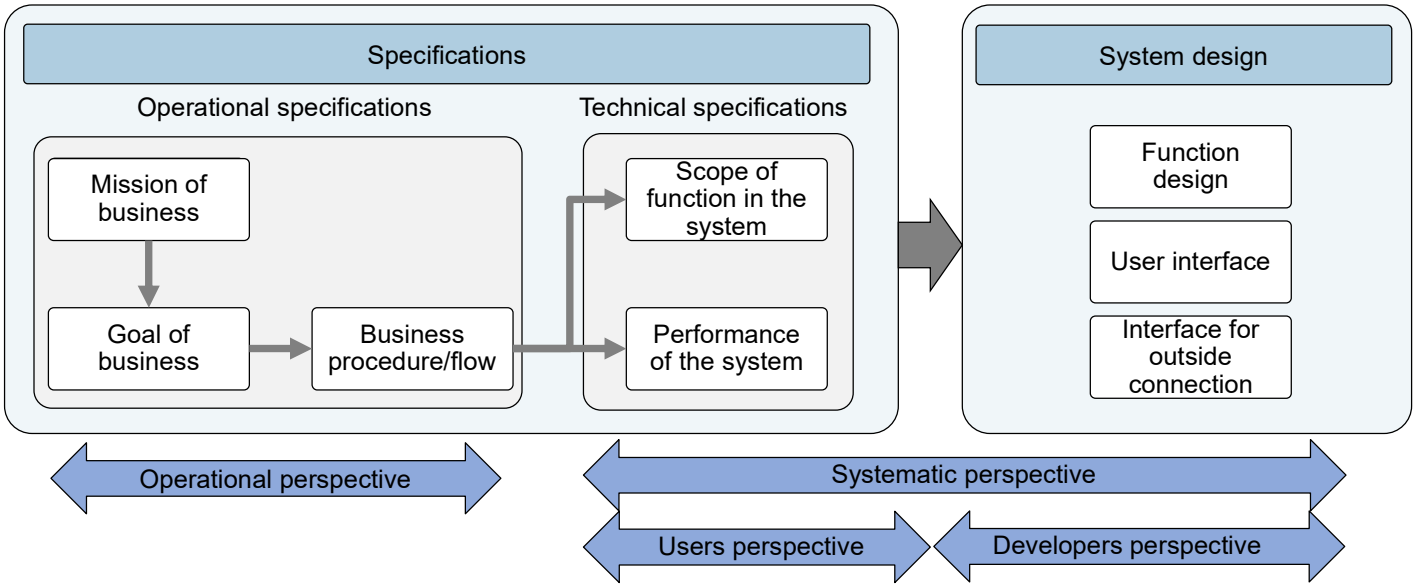
DX Fundamentals

Need to step up operations for "Digitalization" of a higher stage. The current situation of MoTA seems to be mixed with stages 1 to 3.

Stage	Status	% of Japanese company(2021)
Stage 4	**Transforming business models and strengthening competitiveness through digitalization.** e.g. Utilizing accumulated data to expand business and develop new products.	10.2%
Stage 3	**Digital data is improving operational efficiency and conducting data analysis.** e.g. Utilizing a system to manage sales and customer information or inventory. Improving operational workflow.	46.7%
Stage 2	**Transitioning from analog documents to using digital tools.** e.g. Using digital tools such as e-mail, accounting, etc.	34.9%
Stage 1	**Using mainly paper documents and verbal communication, not digitized.**	8.2%

DX Fundamentals

Operational specifications need to proceed simultaneously with ICT development



Types of professionals for DX

- **Five typical professionals for DX; the names of specialties may differ in each organization.**
- **These professionals actively work together and complement other professionals.**