KINGDOM OF CAMBODIA
NATION RELIGION KING

ROYAL GOVERNMENT OF CAMBODIA

STRATEGY FOR THE DEVELOPMENT OF E-SERVICES FOR BUSINESS 2025-2028

2025

“Contribute to fostering a favorable business environment through the delivery of efficient, effective, transparent and on-demand e-services for business”

2025

“All ministries and institutions shall review their business-related public services to streamline the procedures and to merge similar or no high value-added permits, licenses, and certificates, and to continue integrating these services into the business registration mechanism through CamDX, with the aim of building a digital ecosystem for business that contributes to enhancing business environment and investment attractiveness in Cambodia.”

PREAMBLE

Over the past two decades, digital technology has undergone rapid development and continues to evolve, serving as a key catalyst for enabling economic activities globally, including in Cambodia. It has transformed the way people live and work across both private and public sectors. In the private sector, adopting digital technology in business operations is a new advantage that can help promote and sustain business activities, particularly as witnessed during the COVID-19 crisis in Cambodia. Furthermore, digital technology has facilitated business operations, reduced costs, increased efficiency, and, in particular, expanded market opportunities by enabling businesses to reach more customers. Likewise, in the public sector, the use of digital technology is considered a key opportunity and an indispensable instrument for advancing key reforms aimed at ensuring high operational efficiency and, in particular, improving access to public services for both citizens and businesses.

Modernizing public service delivery in Cambodia, especially services for business, has been a priority for the Royal Government of Cambodia (RGC), both during the 6th legislature of the National Assembly and the current legislature. Under the pragmatic and far-sighted leadership of **Samdech Akka Moha Sena Padei Techo HUN Sen**, former Prime Minister and current President of the Senate, the delivery of business-related public services has been continuously improved and modernized. Particularly, in 2020, the RGC launched the Online Business Registration (OBR) system which is enabled by the Cambodian Data Exchange (CamDX) for data sharing in an integrated digital ecosystem among relevant ministries and institutions. Registering business through such integrated ecosystem has streamlined procedures, and reduced both time and cost required for business owners when applying for such services from relevant ministries and institutions, which has led to a new change easing the way to start a business in Cambodia. Implemented in phases—now in phase 3 -- the OBR system has since expanded to include applications for business licenses, further enabling businesses to fulfill their compliance. Hence, despite some challenges, we can say that the development of interoperable information technology systems within an ecosystem is a suitable solution for Cambodia, as it can increase efficiency across ministries and institutions and reduce procedural complexity.

For the RGC of the 7th Legislature of the National Assembly, we have a mission to continue strengthening and expanding the modernization of the delivery of business-related public services with an integrated ecosystem, in accordance with the approach of the **"Dynamics of Stakeholder System**." As pointed out in the **"Pentagon Strategy – Phase 1"**, the RGC has placed strong emphasis on strengthening institutional and governance capacity to build a public administration that is **highly competent, strong, smart, and clean** through the modernization or digitalization of public service delivery, particularly public services for business to help improve the business environment in Cambodia. Additionally, during the **19th Government-Private Sector Forum** held on November 13, 2023, ministries and institutions were instructed to review all permits and licenses in each sector to eliminate or merge overlapping requirements, to streamline application procedures, and to adjust service fees in order to make sure that no procedures cause difficulties or unnecessary burdens for businesses or applicants.

Building on the past successes and addressing the current challenges, the making of the **"Strategy for the Development of E-Services for Business 2025–2028"** is extremely essential, with the rollout of sharp, pragmatic, and comprehensive measures to build a strong, mutually complementary, and vibrant "**Digital Ecosystem for Business."** This ecosystem aims to foster a favorable business environment through the e-services delivery, thereby contributing to the realization of Cambodia Vision 2050. As a strategic initiative of the RGC, this strategy will be facilitated and promoted by key actors, including the *Digital Economy and Business Committee*, *Public Administration Reform Committee, Digital Government Committee*, *Inter-Ministerial Working Group for Developing E-Services for Business*, and relevant ministries and institutions. Its successful implementation will require close collaboration and active engagement from these actors.

I strongly believe that this strategy will serve as an important roadmap for ministries and institutions to maximize the benefits of digital transformation for delivering e-services for business in Cambodia. On behalf of the RGC, I would like to express my deep appreciation for the efforts of **His Excellency Akka Pundit Sapheacha AUN Pornmoniroth, Deputy Prime Minister, Minister of Economy and Finance, and Chairman of the Digital Economy and Business Committee**, for his

leadership and guidance in the preparation of this important strategy. I would also like to thank **His Excellency HUN Many, Deputy Prime Minister, Minister of Civil Service, and Chairman of the Public Administration Reform Committee**, as well as **His Excellency CHEA Vandeth, Minister of Posts and Telecommunications, and Chairman of the Digital Government Committee**, for their support and commitment to promoting the implementation of this strategy. At the same time, I would like to express my sincere appreciation to **His Excellency Dr. KONG Marry, Chairman of the Inter-Ministerial Working Group for Developing E-Services for Business**, and all members of the working group who have worked diligently to prepare and finalize this strategy. I encourage all relevant ministries and institutions to proactively and responsibly implement this strategy, in the spirit of reform, in line with the approach of the **"Dynamics of Stakeholder System"** and the analogical approach related to good governance, namely, **"Self-reflection, Showering, Scrubbing, Treatment, and Surgery,"** to enhance the delivery of business-related public services and foster a more favorable business environment in Cambodia.

Phnom Penh, February 12, 2025

Prime Minister

(Signature and Seal)

Samdech Moha Borvor Thipadei HUN Manet

(National Coat of Arms)
KINGDOM OF CAMBODIA
Nation Religion King

Office of the Council of Ministers
No. 377 SCN.HT

Phnom Penh, March 6, 2025

Permanent Deputy Prime Minister,
Minister in Charge of the Office of the Council of Ministers
Respectfully Informs
His Excellency Akka Pundit Sapheacha AUN Pornmoniroth,
Deputy Prime Minister, Minister of Economy and Finance and
Chairman of the Economic and Financial Policy Committee

Subject: Case to request for review and approval of the "Strategy for the Development of E-Services for Business 2025–2028"

Reference: - Letter No. 824 SHV.L.S, dated February 5, 2025, of the Ministry of Economy and Finance;

- Letter No. 2052 SHV.L.S, dated February 28, 2025, of the Ministry of Economy and Finance;
- The high note of **Samdech Moha Borvor Thipadei HUN Manet, Prime Minister of the Royal Government of Cambodia**, dated February 7, 2025.

With reference to the above subject and references, the Office of the Council of Ministers would like to respectfully inform His Excellency Akka Pundit Sapheacha AUN Pornmoniroth, Deputy Prime Minister, that the Royal Government has approved the implementation of the "Strategy for the Development of E-Services for Business 2025–2028."

As informed above, may His Excellency Akka Pundit Sapheacha kindly acknowledge and take the necessary action for implementation.

On behalf of Minister in Charge of
the Office of the Council of Ministers
Permanent Secretary of State

(Signature and Seal)

Pundit Sapheacha HING Thoraxy

CC:
- Digital Economy and Business Committee
- All Relevant Ministries and Institutions
- Cabinet of Samdech Moha Borvor Thipadei Prime Minister
- Cabinet of His Excellency Permanent Deputy Prime Minister
- Archives-Chronicle

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ABBREVIATIONS

API	Application Programming Interface
BPR	Business Process Re-engineering
CamDigiKey	Cambodia Digital Key
CamDX	Cambodia Data Exchange
DPI	Digital Public Infrastructure
ESB Secretariat	Secretariat of the Inter-Ministerial Working Group for Developing E-Services for Business
E-services	Electronic Services
IT	Information Technology
OBR	Online Business Registration
OWASP	Open Web Application Security Project
RGC	Royal Government of Cambodia

LIST OF FIGURES

EXECUTIVE SUMMARY

Aligned with the Industry 4.0 trends and its policy direction, the Royal Government of Cambodia (RGC) has been striving to improve access to public services, bring them closer to citizens and business owners and enhance service quality through the use of information technology (IT). This aims to build a more favorable business and investment environment in Cambodia and to promote sustainable economic and social development. Some public services for business have already been fully delivered using IT systems, such as the integrated business registration and the application for licenses, certificates, and permits at some sectors. However, several challenges in delivering such services remain, including complicated procedures, fragmented service delivery through separate and non-interoperable IT systems, absence of common standards and technical guidelines for system development and interconnection, limited utilization of Digital Public Infrastructure (DPI) and shared digital infrastructure across ministries and institutions, as well as insufficient access to relevant information.

In this regard, the **"Strategy for the Development of E-Services for Business 2025-2028"** has been prepared with a vision to **"contribute to creating a favorable business environment through the delivery of efficient, effective, transparent, and on-demand e-services for business"** and with an objective to **"build a vibrant, resilient, interconnected, and mutually complementary digital ecosystem for business, aiming to strengthen the effectiveness of public service delivery mechanisms and to promote compliance."** The development of such digital ecosystem is guided by five fundamental principles; those are, **the Once-Only Principle**, **Interoperability as an Ecosystem Principle**, and **Land and Expand for Efficiency Principle**, **Pro-Business Principle** and, lastly, **Operational Excellence Principle.** The first three principles are fundamental ones set out in the **"Cambodia Digital Economy and Society Policy Framework 2021-2035"** and the **"Cambodia Digital Government Policy 2022-2035"** while the last two are specific principles in line with international best practices.

To achieve the above vision and objective, this strategy has set four main goals: 1) To revise or eliminate services and procedures that are redundant or do not have high value-added, in order to minimize complexity and ensure the ease of applying

for business-related services; 2) To build and develop IT systems for the delivery of e-services to operate in the digital ecosystem for business based on the principle of investment efficiency; 3) To prioritize business-related services based on necessity and high demand, and to implement 80% of those prioritized services using IT systems by 2028; and 4) To disseminate information and raise awareness about e-services for business to promote engagement from all relevant stakeholders. In addition, this strategy has set five strategic priorities, including: 1) Reviewing and revising services and procedures; 2) Developing and continuing to modernize digital infrastructure and information technology systems for delivering e-services for business; 3) Developing and modernizing base registry to ensure quality within the business framework; 4) Promoting the dissemination of information on e-services for business; and 5) Enhancing the capacity of implementing officers and developing support mechanisms to assist users of e-services for business. These five strategic priorities include a total of 21 key measures.

The development of e-services for business encompasses all services throughout the business cycle, including registration, applications for specialized licenses, permits, certificates, and other related services, from startup to closure, for all types of businesses at both the national and sub-national levels. The success of this strategy's implementation depends on a close collaboration, commitment, and strong sense of responsibility from all stakeholders, particularly **ministries and institutions that provide or oversee business-related services**, under the direct coordination of the **Secretariat of the Inter-Ministerial Working Group for Developing E-Services for Business**. Additionally, the **Public Administration Reform Committee** and the **Digital Government Committee** will play key roles in coordinating and supporting both technical and procedural aspects, while the **Digital Economy and Business Committee** will oversee, monitor, and evaluate the overall implementation of the strategy.

Overall, the **"Strategy for the Development of E-Services for Business 2025-2028"** will serve as an important roadmap for ministries and institutions to deliver e-services for business with efficiency, effectiveness, accountability, and transparency. The implementation of this strategy will enhance the quality of business-related services delivery, streamline procedures, and reduce both the time and financial

burden on business owners. It also aligns with the core priorities of the RGC's **"Pentagon Strategy - Phase 1"** to foster a **highly competent, strong, smart, and clean** public administration through the use of information technology, strengthening the capacity of public officials, and ensuring the delivery of high-quality public services. Moreover, this strategy will foster a more favorable business environment in Cambodia and contribute to the realization of Cambodia Vision 2050.

The **"Strategy for the Development of E-Services for Business 2025–2028"** is a **"living document"** which may be revised as necessary to ensure its consistency and adaptability in response to the rapid advancement of technology and the evolving economic and social landscape.

1. INTRODUCTION

Over the past two decades, Cambodia has built a strong economic foundation by adopting a market economy system through 1). Opening up to international trade based on the principle of multilateralism, 2). Encouraging and attracting more foreign direct investment by improving the business and investment climate, 3). Strengthening and rehabilitating hard infrastructure such as roads, water, and electricity to enhance connectivity and competitiveness, 4). Continuing the development and enhancement of human capital to participate in economic activities and increase productivity, and 5). Undertaking regular institutional and governance reforms to ensure effective management of the political and economic system. Based on this foundation, Cambodia achieved an average economic growth rate of 8% per year (based on new 2014 GDP base year data) before the COVID-19 pandemic and has since recovered rapidly from the crisis, with growth rates of approximately 5.1% in 2022 and 5.0% in 2023, despite ongoing global crises.

Meanwhile, in the context of the Industrial Revolution 4.0, the RGC has been and continues to implement various digital initiatives and projects to promote the adoption of digital technology and maximize its benefits. These efforts align with the **"Cambodia Digital Economy and Society Policy Framework 2021–2035"** which aims to build a vibrant digital economy and society, and the "**Cambodia Digital Government Policy 2022–2035"** which focuses on building and developing a modern digital government. At the same time, the **"Pentagon Strategy – Phase 1"** of the RGC of the 7th Legislature of the National Assembly designates the development of the digital economy and society as the fifth pentagon, with its second angle focusing on the development of the digital economy, digital business, e-commerce, and digital innovation systems.

Aligns with such policy direction, the RGC has been prioritizing the digitalization of service delivery for business, including the development and implementation of the Online Business Registration (OBR) system, facilitating all-in-one business registration applications, as well as those for specialized licenses. Additionally, at the **19th Royal Government–Private Sector Forum** held on November 13, 2023, the RGC introduced key measures to further promote business registration

through the OBR platform by expanding public services that support businesses across relevant ministries and other institutions with high demand, along with a comprehensive review of all permits and licenses in each sector, to eliminate or merge overlapping permits and licenses, as well as procedures and fees for each permit and license.

In this regard, the formulation of a strategy for the development of e-services for business is essential to expand the current efforts for addressing existing challenges and to complement previously implemented policy measures, aiming to reduce redundant information submission and simplify complicated procedures. Furthermore, the development and management of information technology (IT) systems that provide e-services for business should be implemented within an integrated digital ecosystem for business, in alignment with clear principles and technical standards to ensure investment efficiency. Such strategy is a part of a comprehensive reform in public service delivery through IT systems, with a focus on business-related services, and could contribute to the improvement of business and investment environment in Cambodia, making it more favorable and vibrant, increasing competitiveness, enhancing economic productivity, and strengthening resilience against potential future crises.

2. RATIONALE FOR THE DEVELOPMENT OF THE STRATEGY

2.1. Current State of the Delivery of Business-related Services in Cambodia

According to a survey conducted by the **Secretariat of the Inter-Ministerial Working Group for Developing E-Services for Business (ESB Secretariat)**, there are a total of 714[1] business-related services provided by ministries and institutions, delivered to applicants through various means. Of such, 432[2] services are currently implemented through a mechanism in which applications are received in paper form and manually recorded or later entered into computer systems. Some other services receive applications via Telegram or email, with documents stored in digital format (Portable Document Format – PDF).

Meanwhile, semi-online service delivery refers to a use of system where applicants can complete application forms online, but the remaining procedures, such as payment, still require in-person completion. Currently, 169[3] services for business are being implemented through this approach, which continues to pose challenges for business owners to comply with due to procedural complexity and the significant amount of time and cost involved.

In response to these challenges, several ministries and institutions have developed online service delivery, which can be further categorized into two types: online services with separate systems and online services within an ecosystem. Typically, business registration or the application for specialized licenses falls under different jurisdiction of multiple ministries and institutions, and businesses are required to submit applicationss separatelty. Currently, ministries and institutions have streamlined these procedures by implementing registration or specialized licenses' applications almost entirely online through their IT systems; however, these systems remain separate, and data exchange among relevant ministries and institutions has not yet been established. Therefore, although the process can be made online at a given ministry or institution, businesses are still required to provide the

[1] As of October 8, 2024, and does not include business-related services at the sub-national level.
[2] National-level Service
[3] National-level Service

same information about the enterprise, owner, or other necessary details when completing applications at other ministries or institutions, leading to complexity and inefficiency. In other words, this type of service delivery merely shifts from a traditional complexity to a digital complexity.

Online service delivery within an ecosystem, on the other hand, refers to a full delivery of services using IT systems, where business owners can request services that are related to each other and provide required information only once. Then, based on the user's consent, the necessary data will be shared, verified, and used in an integrated ecosystem through a specific interoperability and data governance mechanism, without the need to provide the same additional information to other relevant ministries and institutions. This implementation helps reduce the procedural complexity, as well as the time and financial burden on business owners. In fact, Cambodia has implemented this approach for a total of 33 business registration and specialized licenses across 21[4] participating ministries and institutions through the OBR system in three phases since 2020. This enables enterprises to register businesses or apply for specialized licenses all-in-one channel through the integrated IT systems, with the data shared among relevant ministries and institutions through the Cambodia Data Exchange (CamDX) for a review and an approval process according to their respective jurisdictions, as illustrated in Figure 1 below.

[4] As of December, 2024

Figure 1. Ecosystem of Online Business Registration

As of December 31, 2024, there were approximately 42,000 enterprises registered via the OBR platform with a total investment capital of approximately USD 15.6 billion. In addition, approximately 28,000 licenses, permits, and certificates have been approved by ministries and institutions in the ecosystem operating within the CamDX. The implementation of the OBR platform has made it easier to legally establish a business, as enterprises can apply for business registration entirely through an integrated IT systems, which reduces the need to fill out repetitive information, a lot of attachments, and service fees. With these efforts and achievements, the RGC's digital public infrastructure, which supports the public services delivery for businesses, has also won successive awards at the regional and international levels. In particular, digital payment platform Bakong received the 2021 Product and Service Excellence Award from the Japanese magazine Nikkei. Similarly, Cambodian data exchange platform, CamDX, won the Open Source Adaptation of the Year award from the Future Government Awards in 2022; and document verification platform verify.gov.kh won the gold medal at the 2024 ASEAN Digital Awards.

However, the World Bank's "Business Ready 2024" report, which assessed the business and investment climate in the region, showed that Cambodia still has some

areas for improvement, including strengthening public service delivery mechanisms through digitalization to ensure interoperability between IT systems, and simplifying application procedures to reduce compliance requirements for businesses. Therefore, the results and recommendations of the study in the abovementioned report are also important to use as a basis for reflecting on the key measures in the strategy.

2.2. Challenges

Despite the remarkable achievements of online business registration in Cambodia, the implementation still faces the following key challenges:

1. Complicated business-related services and procedures

Ministries and institutions have many business-related services that require business owners to request services from multiple relevant entities to comply with sector-specific regulations. Some services may also have overlapping characteristics due to the absence of a structured service catalog, reflecting dependencies among relevant services under different ministries and institutions. Such practice has not yet been implemented under a common framework.

Meanwhile, the procedures for requesting certain services at ministries and institutions remain complicated. These may involve requiring a large amount of information and excessive supporting documents, conducting unnecessary physical site inspections for business that could be exempted, and imposing multiple layers of procedures in the approval process for specialized licenses, permits, and certificates. These complexities are barriers for business owners in fulfilling compliance requirements.

2. Lack of common standards and technical guidelines for developing IT systems

Ministries and institutions have developed IT systems with specific functions tailored to their unique situations and needs, aligned with the types of public services under their jurisdiction, with a primary focus on the so-called **Functional Requirements**. However, another essential function that ensure interoperability with other systems, namely **Non-Functional Requirements**, have not received sufficient attention. Furthermore, list of technologies used in developing these IT systems has not been clearly defined.

Non-functional requirements play a critical role in ensuring interoperability between IT systems. The variation of these requirements has resulted in multiple standards for developing IT systems across ministries and institutions, which poses challenges in implementing the approach of **"Dynamics of Stakeholder Systems"**; in essence, the operations of those IT systems remain fragmented. Therefore, the lack of common standards and technical guidelines for developing IT systems has caused and continues to pose challenges to interoperability across systems at ministries and institutions, leading to high costs and inefficiencies in investing in technologies—costs that could have been mitigated by leveraging existing resources—along with high maintenance costs for systems relying on outdated legacy technologies.

3. Limited utilization of digital public infrastructure by ministries and institutions

Digital Public Infrastructure (DPI) is a shared digital infrastructure, similar to water, roads, and electricity, created to support the delivery of public services through various IT systems within a digital ecosystem in a secure, efficient, and interoperable manner. Additionally, DPI serves as a digital backbone, promoting interaction between various stakeholders through interoperation mechanisms aimed at fostering innovation within the vibrant digital environment of the ecosystem.

Cambodia has established key DPIs such as the Cambodia Data Exchange (CamDX), Cambodia Digital Key (CamDigiKey), the Bakong Digital Payment Platform, and the document verification platform (verify.gov.kh). However, the use of these DPIs for developing IT systems for public service delivery across some ministries and institutions is not yet widespread, partly due to a limited understanding of DPIs and the technical capacity to implement these technologies, as the concept of DPI is still relatively new to Cambodia.

4. Lack of the development and sharing mechanism of base registry across ministries and institutions

Base Registry is a source of data or a foundation for national management, which can be divided into three main categories: Business Base Registry, Individual Base Registry, and Property Base Registry. In addition to being used for management, this data also supports the delivery of public services by the government. Some ministries and institutions, which have the authority to manage key base registries,

have developed IT systems for storing; however, the quality of some data remains limited, and these data have not yet been widely shared or automatically exchanged.

5. Limited dissemination of information and awareness raising

The dissemination of information related to public services for business, especially information about business compliance, have not yet been consistently implemented. These ambiguities or shortcomings have created challenges for some business owners in fulfilling compliance.

2.3. International Experiences

Similar to Cambodia's situation, countries in the region and globally have encountered and continue to face challenges related to the delivery of business-related public services, such as complicated administrative procedures for requesting such services, overlapping services, and fragmented IT systems. For that, experiences from Singapore, Malaysia, and France have demonstrated some potential solutions to these issues through the implementation of comprehensive reform measures and the use of IT systems.

Singapore's GoBusiness platform was set up to consolidate public services of key ministries and institutions, starting with services in the food and beverage sector, which has the highest demand, and then progressively expanding to public services in other related sectors. Currently, on this platform, business owners can find information about over 300 business-related services from more than 40 ministries and institutions and can apply for various licenses through the completion of a single Integrated Application Form, which is simple and requires minimal information[5]. Additionally, a Government Tech Stack has been developed and implemented to ensure that IT systems providing public services for business are built according to common guidelines and are interoperable with one another within the ecosystem. These initiatives have reduced time to obtain licenses in the food and beverage sector

[5] 845 data points across 14 different application forms have been consolidated into 90 data points in a single application form because the data received from businesses is shared with ministries and institutions for verification and license issuance and can also be used to check compliance.

from an average of 12 to 16 weeks to less than 4 weeks[6]. This has eased the compliance burden for many businesses, contributing to create a more favorable business environment for businesses in this sector—most of which are small and medium-sized enterprises—and to the overall economic and investment environment.

Likewise, Malaysia has used the Regulatory Guillotine Approach to review and streamline regulations related to public services for business, focusing on eliminating or merging redundant or low-value-added services. Additionally, businesses can apply for multiple licenses at once and easily track the progress of their applications through the Business Licensing Electronic Support System (BLESS)[7]. As a result of this comprehensive reform together with the use of the BLESS system, the number of licenses in Malaysia has been streamlined by approximately 36%. Similarly, France has developed and launched the platform *entreprendre.service-public.fr* for business owners to search for information or apply for e-services for business efficiently. These public services for business have undergone a so-called *redundancy test* and a simplification process of application procedures to ensure the elimination of overlapping services and minimize the complicated procedures using the *"Dites-le-nous une fois"* or *"Tell us once"* approach[8].

For Cambodia, to ensure the successful implementation of the **"Dynamics of Stakeholder System"** approach within the framework of public service delivery for businesses, and in line with international experiences, it is essential to develop a government-level strategy that emphasizes a common framework for developing e-services for business across ministries and institutions. Based on this framework, ministries and institutions shall develop business-related public services, focusing on two main aspects: reviewing and revising services and application procedures, and developing IT systems using a common standard within an integrated digital ecosystem. This will ensure investment efficiency, support the efficient, effective, secure, and transparent delivery of business-related public services, and promote compliance.

[6] gobusiness.gov.sg/
[7] bless2.bless.gov.my/bless2/public/publicRegistration
[8] numerique.gouv.fr/services/guichet-dites-le-nous-une-fois/

3. FRAMEWORK OF THE STRATEGY

3.1. Vision, Objective and Goals

To address abovementioned challenges and strengthen intervention measures in line with the government's policy direction, the **"Strategy for the Development of E-Services for Business 2025-2028"** adopts the vision to **"contribute to fostering a favorable business environment through the delivery of efficient, effective, transparent and on-demand e-services for business."** To support the above vision, the strategy aims to **"build a vibrant, resilient, interconnected, and mutually complementary digital ecosystem for business, aiming to strengthen the effectiveness of public service delivery mechanisms and to promote compliance."**

In response to the above vision and objective, this strategy has set out four goals as follows:

1. To revise or eliminate services and procedures that are redundant or do not have high value-added, in order to minimize complexity and ensure the ease of applying for business-related services;
2. To build and develop IT systems for the delivery of e-services to operate in *the digital ecosystem for business* based on the principle of investment efficiency;
3. To prioritize business-related services based on necessity and high demand, and to implement 80% of those prioritized services using IT systems by 2028; and
4. To disseminate information and raise awareness about e-services for business in order to promote engagement among all relevant stakeholders.

3.2. Definition and Scope

E-services for business refer to public services that support businesses by using information technology as a core element at all stages of the business cycle—from establishment, operation, and suspension to closure of a business. These include services such as registration, application for specialized licenses, permits, certificates, and other related services. These services are transactional services in nature, involving activities such as receiving applications, processing fee payments, reviewing

and approving applications by implementing officers, **all in a fully online format within the digital ecosystem for business**, aiming to improve efficiency, effectiveness, and transparency of service delivery. To facilitate the consistent implementation of the strategy, it is essential that all ministries and institutions recognize and agree upon the common definition of "**e-services for business**." In this strategy, e-services for business encompasses all services that support the business sector, at both the national and sub-national levels.

3.3. Digital Ecosystem for Business

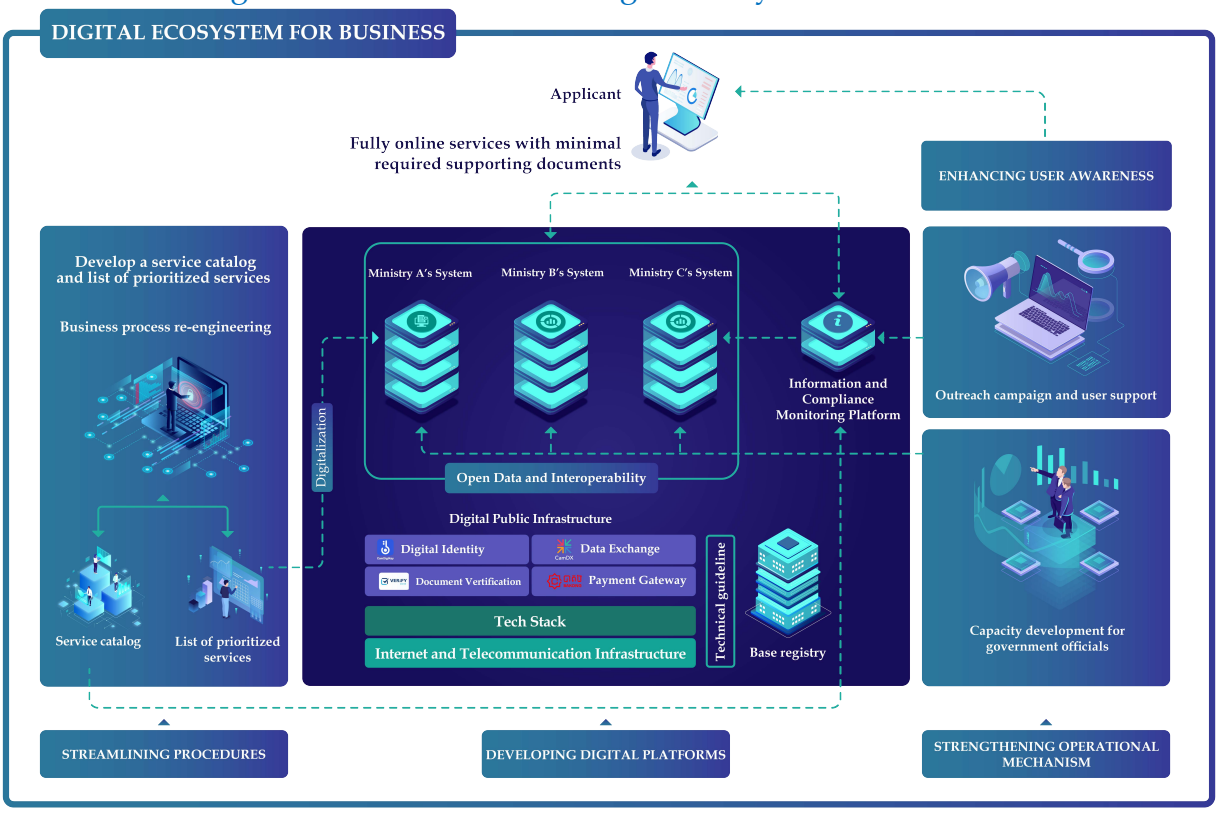
The RGC has instructed all ministries and institutions, under the leadership and coordination of the *Digital Economy and Business Committee*, to continuously work on integrating high-demand business services into e-services and build a common framework, namely the **"Digital Ecosystem for Business"** to improve business environment and attract investors to Cambodia. A digital ecosystem is a complex network of people or institutions, businesses, and IT systems that interact with each other by adhering to clear principles to achieve a specific objective. **"Digital Ecosystem for Business"** in this strategy, therefore, refers to the interaction and mutually complementary in term of functions between ministries and institutions of all sectors, acting as one actor, with other relevant actors in a digital environment to enable a good experience in delivering public services that supports business with transparency, efficiency, effectiveness and interconnected with one another to promote business compliance as shown in Figure 2.

3.3.1. Key Actors and Interaction

Building an efficient and sustainable digital ecosystem for business requires strong engagement of key actors who interact in various ways through the use of data and digital platforms. These interactions involve ministries and institutions who deliver business-related services, business owners or applicants who apply for such services, and private sectors, which together shape the experience in developing and innovating e-services for business through a clear working mechanism. To develop e-services for business, ministries and institutions shall be collaborative, especially in reviewing and performing business process re-engineering (BPR) in service design and delivery by eliminating redundant or no high-value-added procedures and

prioritizing services that are in high demand from private sector through the use of IT systems. The development of IT systems for service delivery shall comply with clear rules and principles and leverage existing resources to ensure investment efficiency, with an aim to strengthen interoperability and data exchange between ministries and institutions, thereby fostering innovation across the entire ecosystem.

Figure 2. Interaction in the Digital Ecosystem for Business



In addition, business owners or applicants interact with ministries and institutions through a central information repository, which connects to IT systems of all relevant ministries and institutions. This central repository plays a key role in facilitating and supporting the applicants in finding information about e-services for business and conducting compliance checks for their own businesses in a transparent and efficient manner. Simultaneously, other relevant actors in the private sector, such as financial institutions, can utilize this repository to verify and check user/customer compliance, thereby promoting the development and innovation of digital services within the private sector itself.

Also, to support and promote the effectiveness of service delivery, ministries and institutions shall cooperate in promoting capacity development for implementing

officers, disseminate information, and support applicants in order to improve the dynamics of this ecosystem. Overall, the coherence of such interactions among all actors, coupled with resilient supporting digital infrastructures, will create a vibrant digital ecosystem for business, making a favorable environment for doing business and further attracting investment to Cambodia.

3.3.2. Principles for Building the Digital Ecosystem for Business

Building the digital ecosystem for business shall be based on three technical principles in line with existing policies, along with two additional specific principles in line with international best practices. These principles are as follows:

3. **The Once-Only Principle**: is a principle for delivering e-services for business that requires ministries, institutions, or business owners to provide data only once to competent authorities, ministries, and institutions without requiring or needing to provide the same data multiple times. Ministries and institutions, in this sense, shall share their base registries with one another. This principle reduces inconsistent data entry and eases the burden of applicants in completing applications, as well as effectively facilitates ministries and institutions in collecting, storing, and using data in accordance with a specific data governance.

2- Interoperability as an Ecosystem Principle: ensures that all IT systems at ministries and institutions providing business-related services can function independently in offering such services in electronic form while securely interoperating with other IT systems in accordance with the **"Dynamic Stakeholder System"** approach. Thus, those IT systems can work as an ecosystem through data governance and open data, with connections between systems and data exchange to fulfill each other's functions in providing public services in an effective and efficient manner.

3- Land and Expand for Efficiency Principle: focuses on the approach of the development of IT systems for e-services for business that shall begin with a small scale and expand to meet with the requirement of effective public service management and delivery. The development of IT systems shall focus on essential priorities and efficiency, which are the keys, before expanding the scope by utilizing existing

resources (reusability), or extending further to share the common resources with other systems, ensuring the effectiveness and security of the entire system.

4- Pro-Business Principle: focuses on the design of IT systems and on the delivery of business-related services based on good experiences of business owners as the users, aiming to provide convenience, attractiveness, and user satisfaction by incorporating key elements such as user needs and habits. This principle requires ministries and institutions to strictly adhere to a mindset of supporting businesses in all aspects, whether in designing the services, defining application procedures, or delivering such services through the IT systems to well respond to the actual needs of businesses, thereby reducing various barriers in fulfilling business compliance.

5- Operational Excellence Principle: refers to a good practice/operation of implementing officers at ministries and institutions in supporting the needs of applicants. Through the implementation of this principle, the implementing officers at ministries and institutions shall enhance capacity development and strictly uphold professional ethics to ensure cleanliness, transparency, and quality of public services delivery for businesses.

Figure 3. Principles for Building the Digital Ecosystem for Business

3.4. Strategic Priorities

To attain the well integrated digital ecosystem for business that is vibrant, resilient, interconnected, and mutually complementary to support the delivery of e-

services for business, this strategy has laid out 5 strategic priorities, each with specific key measures to implement. The 5 strategic priorities include:

1- Reviewing and revising services and procedures.
2- Developing and continuing to modernize digital infrastructure and IT systems for delivering e-services for business.
3- Developing and modernizing base registry to ensure quality within the business framework.
4- Promoting the dissemination of information on e-services for business.
5- Enhancing the capacity of implementing officers and developing support mechanisms to assist users of e-services for business.

3.4.1. Reviewing and Revising Services and Procedures

Building the digital ecosystem for business requires collaboration and interaction among relevant ministries and institutions, working together as one actor to ensure consistency, quality, and efficiency in delivering e-services for business. Therefore, in this strategic priority, ministries and institutions shall collaborate to review and revising or re-engineering business process in the delivery of public services and define a clear mechanism for developing e-services for business.

Reviewing and improving the business process for prioritized services is essential for maintaining a balance between regulatory requirements and business interests. Therefore, ministries and institutions shall reduce or eliminate low value-added procedures in the process of applying for business-related services, as well as review all licenses and permits in each sector to explore the possibility of eliminating or combining similar licenses and permits, in alignment with the aforementioned Pro-Business Principle.

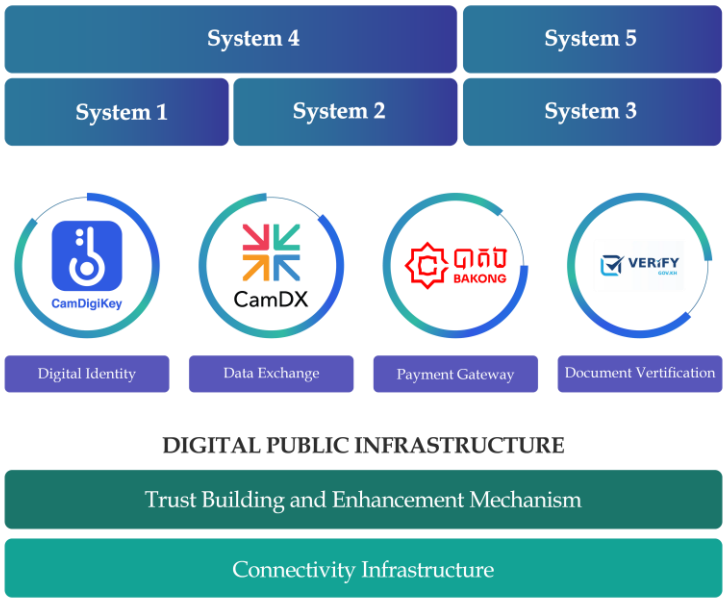
At the same time, ministries and institutions shall contribute to the preparation of a Service Catalog for businesses and to prioritize services to be developed as e-services, focusing on three principles: “high demand, less complexity, and low risk,” or as directed by the RGC. This task shall be carried out regularly to reflect the current status of the delivery of business-related services across ministries and institutions.

3.4.2. Developing and Continuing to Modernize Digital Infrastructure and IT Systems for Delivering E-Services for Business

This strategic priority focuses on developing and strengthening digital means to support the delivery of business-related services. Ministries and institutions shall modernize or develop IT systems for service delivery by utilizing existing DPIs and taking into account both functional and non-functional requirements in compliance with the Technical Guideline in Appendix 3 in this strategy. In this regard, to facilitate the modernization and development of IT systems for some ministries and institutions, a Basic System Template will be developed as a basis for ministries and institutions to further develop and use. This system template contains key basic functions, especially non-functional requirements, ensuring interoperability with other systems and a common standard in the entire ecosystem.

As a matter of practice, ministries and institutions shall use existing resources to the fullest extent possible to ensure investment efficiency. In cases where there are insufficient technical resources, ministries and institutions may consider using private sector services to develop IT systems while strictly adhere to the Technical Guidelines and ensure the ownership of the system, including data management.

Figure 4. Digital Public Infrastructure

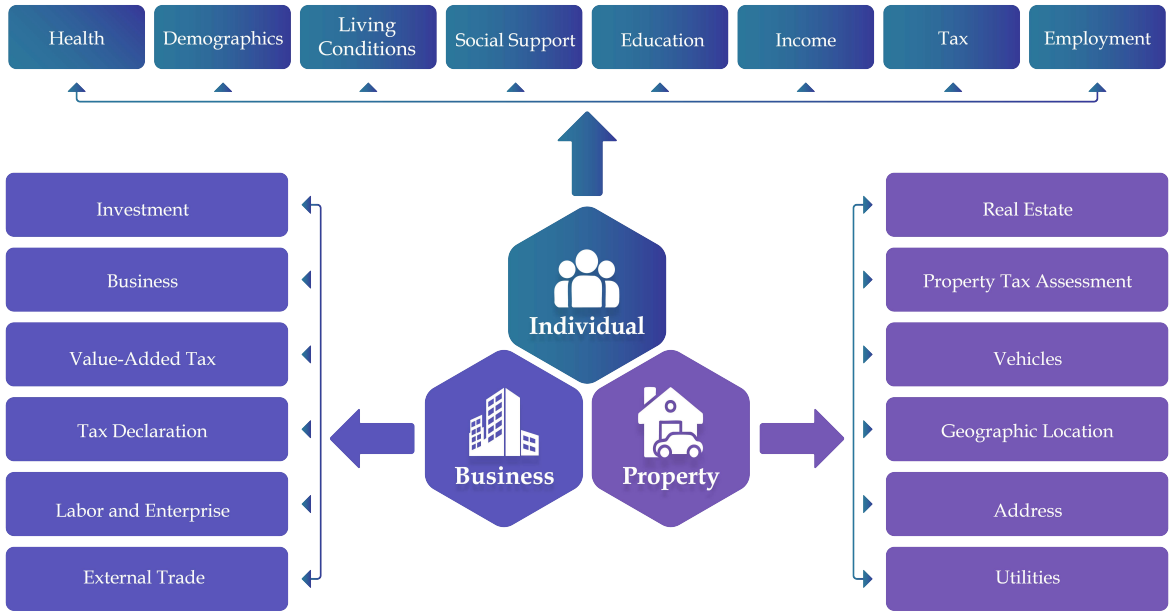


3.4.3. Developing and Modernizing Base Registry to Ensure Quality within the Business Framework

To promote the building of the digital ecosystem for business and data governance, relevant ministries and institutions shall prioritize the development and modernization of some significant base registries with high quality and comprehensiveness to support business operations. The base registries include business base registry, individual base registry, and property base registry.

Therefore, this strategic priority focuses on developing and modernizing those base registries, where ministries and institutions shall have a full responsibility to manage them rigorously in accordance with the Technical Guideline and applicable regulations. For sensitive base registries, ministries and institutions shall ensure that base registry management systems shall be developed and managed by the RGC and shall not use cloud infrastructure or data centers of foreign states to avoid the incidental leakage of sensitive data. In addition, ministries and institutions who own base registries in the business framework shall ensure the openness and sharing of those registries within the digital ecosystem for business through CamDX in accordance with the Technical Guideline outlined in this strategy. This is to facilitate data entry and enhance data integrity, as well as to promote the participation among businesses in taking part in interaction with the RGC's IT systems which is open to synergy and co-creation.

Figure 5. Base Registry in Business Framework



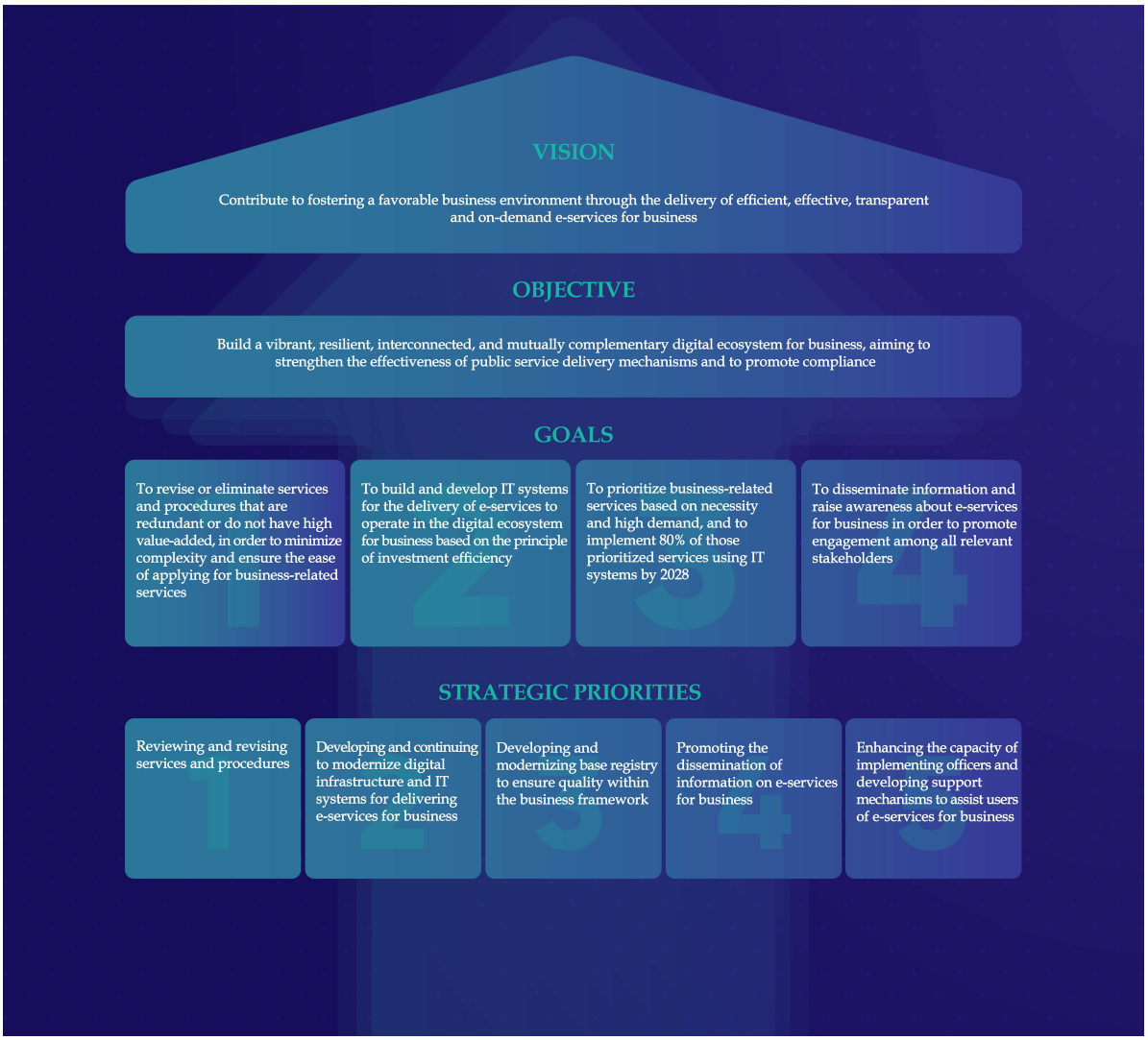
3.4.4. Promoting the Dissemination of Information on E-Services for Business

The establishment of a One-stop Shop for e-services for business is crucial for enabling business owners to easily access relevant information on services that support their operations, as well as ensuring transparency in compliance check. In this regard, this strategic priority focuses on organizing and enhancing the mechanism for disseminating information about e-services for business to users. This will be achieved through expanding the functions of the current *business.gov.kh* portal, considering various support features to facilitate businesses and users in accessing information related to services for business. Additionally, awareness-raising workshops, the creation of diverse promotional materials in various types and formats, and multiple social media campaigns will be implemented to provide clear and accurate information regarding the e-services for business offered by ministries and institutions.

3.4.5. Enhancing the Capacity of Implementing Officers and Developing Support Mechanisms to Assist Users of E-Services for Business

This strategic priority focuses on capacity development of implementing officers who interact directly with applicants and enhancement of user support mechanisms in line with the Operational Excellence principle. In this regard, implementing officers shall adapt and undergo relevant training on the procedures for implementing new business processes to ensure good experiences for users. Additionally, electronic user support mechanisms will be strengthened and expanded on the scope to monitor progress and enhance the quality of public service delivery for businesses, bringing accountability within the roles and duties of ministries and institutions. Moreover, the transformation from traditional to digital of the delivery method requires the establishment of clear operational mechanisms for implementing officers outlining specific service delivery implementing mechanism and support for users and applicants, promoting the adaptation of the officials and eventually improving the overall efficiency of the delivery of busienss-related services.

Figure 6. Framework of the Strategy for the Development of E-Services for Business 2025-2028



4. MECHANISMS FOR IMPLEMENTATION, MONITORING AND EVALUATION

To implement this strategy effectively, efficiently, and successfully, it requires close cooperation and pro-active involvement with a strong political commitment from all relevant ministries and institutions that provide business-related services. The coordination among various institutions shall leverage the existing institutional mechanisms based on the "**Strengthening, rather than Expanding**" approach. In this context, the "**Strategy for the Development of E-Services for Business 2025-2028"** has defined a working mechanism for implementation, coordination, and monitoring and evaluation as follows:

4.1. Implementation Mechanism

The **Inter-Ministerial Working Group for Developing E-Services for Business (ESB)** and its Secretariat shall continue their duties to coordinate the implementation of this work directly from administrative, technical, and regulatory standpoint on daily basis, as obliged in the Decision of the RGC No. 247 SSR dated December 29, 2023. The **ESB Secretariat** is responsible for developing a template action plan for ministries and institutions to use for preparing their respective detailed annual action plans. Under the coordination of the Secretariat, both leading and participating ministries and institutions shall prepare the annual detailed action plans for implementing relevant key policy measures prior to each implementation year, ensuring consistency with the policy measures outlined in Appendix 1 within the allotted timeframe. However, the ministries and institutions shall prepare and submit to the Secratariat the detailed action plans for *the first year* of implementation, i.e. 2025, by the first quarter the latest to ensure the timely execution of the strategy.

In addition, as part of the framework for developing e-services for business, the **General Secretariat of the Public Administrative Reform Committee** shall cooperate with the ESB Secretariat to develop a catalog of public services for business, reviewing and revising the administrative procedures of prioritized services related to business, as to combine or eliminate similar or low value-added business-related services or procedures, to reduce application fees, and to amend respective legal frameworks, among other tasks. Furthermore, the **General Secretariat of the Digital Government Committee** shall cooperate with the ESB Secretariat to coordinate and

provide technical support, as well as contribute to the capacity-building and relevant skills training for implementing officers at ministries and institutions regarding the use of IT systems.

To support the implementation of the key policy measures in this strategy, ministries and institutions may utilize funding from various sources, including the national budget, public-private partnership mechanisms, development partners, and other lawful sources.

4.2. Monitoring and Evaluation Mechanism

Leading ministries and institutions of each key measure shall prepare annual progress reports (trimester, semester, and annual) that outlines challenges and/or suggestions to the ESB Secretariat. This will enable timely interventions to address challenges and to prevent any obstructions in the implementation process. The ESB Secretariat shall regularly compile progress reports from ministries and institutions to the Inter-Ministerial Working Group for Developing E-Services for Business.

Meanwhile, the **Digital Economy and Business Committee (DEBC)** shall play as a monitoring and evaluation entity overseeing the overall implementation of this strategy. The General Secretariat of DEBC shall be responsible for developing Key Performance Indicators (KPIs), establishing data collection mechanisms, and preparing annual evaluation reports on the implementation of the strategy from 2025 throughout 2028. These reports shall be submitted to the RGC for review and to receive necessary guidance.

Figure 7. Institutional Mechanism

5. RISK MANAGEMENT

The implementation of this strategy necessitates careful consideration of potential risks that may arise and disrupt the process or create obstructions. The risks include the following:

1. Rigidity of the Regulatory Revision Process: Public services for business in each sector are defined within legal documents at different levels. The inflexibility of certain legal revision may hinder the overall implementation of the strategy. Therefore, ministries, institutions, and other relevant stakeholders shall engage in close cooperation with a collaborative and proactive spirit during the regulatory revision process.

2. Changes and Adaptation to New Working Methods: Revision of the procedures for service delivery will introduce new ways of working, which may pose challenges for implementing officers at ministries and institutions to adapt within a limited timeframe. In this context, ministries and institutions shall collaborate with the **ESB Secretariat** to prepare and enhance the implementation of rules and standard operating procedures (SOPs) for effectively delivering e-services for business.

3. Ability to Adopt Technology in Ministries, Institutions, and Private Sector: The varying levels of ability to adopt and utilize digital technology among ministries and institutions may present challenges in developing an IT system that well complies with the Technical Guideline outlined in this strategy. This disparity may obstruct the participation of ministries and institutions in building a digital ecosystem for business based on the **"Dynamics of Stakeholder System"** approach. Additionally, the limited capacity for adopting digital technology among businesses and users in the private sector may hinder the expansion of the IT system used for service delivery. Therefore, ongoing development and regular technical capacity building for ministries and institutions, as well as enhancing the capabilities of private sector, are essential to ensure the effective process and improved experiences when applying e-services for business.

6. CONCLUSION

The ongoing effort on reform and modernization of services for business are essential for driving innovations in public service delivery and creating a favorable business environment. In this context, the **"Strategy for the Development of E-Services for Business 2025-2028"** by the RGC serves as a crucial roadmap and a specific framework for ministries and institutions to develop and deliver e-services in efficient, effective, accountable, and transparent manner. Furthermore, this strategy aligns with the core objective of the **"Pentagonal Strategy - Phase 1"** of the RGC of the 7th Legislature of the National Assembly which aims to contribute to the establishment of a modern public administration that is **highly competent, strong, smart, and clean** through the use of information technology, the enhancement of capabilities for implementing officers, and the delivery of quality public services.

Through the implementation of this strategy, a vibrant and interactive **digital ecosystem for business** between related stakeholders will be established based on the **"Dynamics of Stakeholder System"** approach. Interactions among these actors in the ecosystem will demonstrate the interconnectedness of services that support businesses, necessitating close collaboration to facilitate and assist them in achieving full compliance. In this context, the strategy primarily focuses on reviewing and revising, or eliminating application procedures that are redundant or has no high value-added together with the establishment of interoperable IT systems capable of seamless data exchange among one another that aims to ensure investment efficiency. The strategy also focuses on enhancing the dissemination mechanisms and building capacity for implementing oficials aiming to create a good experience in service delivery, ultimately to attain the so-called **"Best e-services for business."** Furthermore, the development of a robust digital ecosystem for business will serve as a critical foundation for building a data repository for business, driving innovation in public service delivery, and acting as a vital catalyst for fostering a more vibrant and resilient Cambodian economy.

APPENDIX 1. TABLE OF KEY POLICY MEASURES

No.	Key Policy Measures	Responsible Ministry-Institution	Timeframe
I.	**Reviewing and revising services and procedures**		
1.	Compile and update a service catalog that includes all business-related services at both national and sub-national levels	- Public Administrative Reform Committee - ESB Secretariat - Relevant ministries and institutions	2025-2028 (Regularly implemented)
2.	Revise/Reengineer business process and procedures of services, eliminate or merge such services/procedures that are similar or have no high value-added and reduce the fees, all through the revision of relevant legal documents in line with the Pro-Business principle	- Digital Economy and Business Committee - Committee of the Economic and Financial Policy - Public Administrative Reform Committee - Digital Government Committee - Relevant ministries and institutions - ESB Secretariat	2025-2028 (Regularly implemented)

3.	Prioritize business-related services to develop e-services by phase based on the principles of "high demand, low complexity, and low risk", while considering the resources available at ministries and institutions	- Relevant ministries and institutions - ESB Secretariat - Public Administrative Reform Committee	2025-2026
4.	Establish rules and procedures for developing e-services for business, clearly defining the requirements and obligations of ministries and institutions	- ESB Secretariat - Relevant ministries and institutions	2025-2026
II. Developing and continuing to modernize digital infrastructure and IT systems for delivering e-services for business			
1.	Develop a Generic Template to ensure common standards and interoperability in the development of IT systems and digital infrastructure in the digital ecosystem for business across ministries and institutions	ESB Secretariat	2025-2026
2.	Develop a Heartbeat Health Check System for monitoring the systems of ministries and institutions, with integration of a notification system utilizing platforms such as Telegram or Email, etc.	- ESB Secretariat - Relevant ministries and institutions	2025-2026

3.	Modernize and/or develop IT systems to support the delivery of e-services for business, ensuring compliance with the Technical Guidelines	- Relevant ministries and institutions - Digital Government Committee - ESB Secretariat	2025-2028 (Regularly implemented)
4.	Integrate or interface IT systems at ministries and institutions through CamDX	- ESB Secretariat - Relevant ministries and institutions	2025-2028 (Regularly implemented)
5.	Strengthen the core components of the CamDX, CamDigiKey, and Digital Signature to enhance security, efficiency, and scalability for data exchange within the digital ecosystem for business	ESB Secretariat	(Regularly implemented)
6.	Expand and promote the use of the 4 DPIs (CamDX, CamDigiKey, Bakong, and verify.gov.kh) to enhance the development and implementation of IT systems that support the delivery of e-services for business	- ESB Secretariat - Digital Government Committee - Relevant ministries and institutions	2025-2028 (Regularly implemented)
III. Developing and modernizing the base registry to ensure quality within the business framework			
1.	Develop or modernize management systems for key base registries at ministries and institutions	- Relevant ministries and institutions	2025-2028

		- Secretariat	(Regularly implemented)
2.	Open base registry for verification and data exchange between relevant ministries and institutions in the digital ecosystem for business through CamDX	- Relevant ministries and institutions - ESB Secretariat	2026-2028
IV. Promoting dissemination of information on e-services for business			
1.	Expand the functionalities of *business.gov.kh* platform to better address the needs of businesses	ESB Secretariat	2025-2027
2.	Produce documents and/or content on e-services for business, including guidebooks, videos, and posters for the general public, and disseminate them widely across all media platforms	- Relevant ministries and institutions - ESB Secretariat	2025-2028 (Regularly implemented)
3.	Disseminate the information and promote the use of *business.gov.kh*	- ESB Secretariat - Relevant ministries and institutions	2025-2028 (Regularly implemented)
4.	Organize workshops to promote Cambodia's DPIs	- ESB Secretariat - Digital Government Committee	2025-2028 (Annually implemented)
5.	Organize workshops, training courses and/or exhibitions to raise awareness of the benefits and procedures for requesting e-	- Relevant ministries and institutions	2025-2028

	services for business, aiming to increase confidence, and foster public support for e-services for business	- Public Administrative Reform Committee - Digital Government Committee - ESB Secretariat	(Annually implemented)
V. Enhancing the capacity of implementing officers and developing support mechanisms to assist users of e-services for business			
1.	Develop a capacity development plan for implementing officers responsible for the delivery of e-services for business and for the support of applicants applying for such services, in order to strengthen their ability to adapt to new business processes as well as the use of IT systems	- Relevant ministries and institutions - Public Administrative Reform Committee - ESB Secretariat	2025-2026
2.	Organize regular training courses to strengthen the capacity of implementing officers	- ESB Secretariat - Digital Government Committee - Relevant ministries and institutions	2026-2028 (Regularly Implemented)
3.	Prepare detailed standard operation procedures for reviewing applications and providing support to applicants through various channels	- Relevant ministries and institutions - ESB Secretariat	2025-2027

4.	Strengthen and expand the scope of the system for providing support mechanisms to the central support team and the support teams at ministries and institutions	- ESB Secretariat - Relevant ministries and institutions	2026-2027

APPENDIX 2. GLOSSARY

No.	Terms	Definition
1.	Application Programming Interface (API)	The interface of interactions in data sharing between two or more ICT systems.
2.	Bakong	A backbone payment system developed by the National Bank of Cambodia with the aim of providing cross-institutional payment capabilities, streamlining payment transactions, boosting the financial inclusion, and promoting Riel payments.
3.	Base Registry	A trusted and authoritative source of basic information on data items such as individuals, companies, vehicles, licenses, buildings, locations and roads, managed by ministries and institutions for collection, usage, updating, storage, and sharing or reuse by relevant stakeholders.
4.	Cambodia Data Exchange (CamDX)	The information sharing platform initiated by the government for data exchange by using APIs across the ICT systems of relevant ministries and institutions and the private sector in a standardized and secure way over the Internet or other digital networks.
5.	Cambodia Digital Key (CamDigiKey)	Electronic Know Your Customer (eKYC) initiated by the government for creating and authenticating customers in the digital world through an electronic system based on identification documents that are recognized by the government.
6.	Data Governance	The determination of roles, authority, processes, management, and decision-making to ensure the proper collection, organization, storage, sharing, and use of data.
7.	Digital Ecosystem	A network of interactions between people, institutions, businesses, systems, or programs and data, using technology where these interactions are flexible,

		interoperable, and adaptable to technological advancements and user needs.
8.	Digital Public Infrastructure (DPI)	A shared digital infrastructure created to support the delivery of public services via various IT systems to the public and businesses in a secure and efficient manner.
9.	Digitalization	The process of transforming governance, business, or any process in an effective way by using digital technologies.
10.	Encryption	The process of converting information or data into a special code that is unreadable or unusable without the proper decryption method, typically through an algorithm. To convert the data back to its original form (Decryption), a secret key is required.
11.	Functional Requirement	A set of functions that ministries and institutions provide to IT system developers, in accordance with the established procedures for delivering e-services for business within their mandate.
12.	Hashing	A method of converting a string of text into a fixed-length combination of numbers and letters. This conversion is one-way and irreversible, meaning the original data cannot be restored.
13.	Interoperability	The ability of information technology systems that can interface to exchange and make use of information, which can automatically happen in general under clear conditions.
14.	Non-functional Requirement	Functions that are not essential for service delivery but are used to enhance the system's performance, security, and interoperability with other IT systems in the ecosystem.
15.	Portal	A website, which collects and synthesizes the data from different sources, is created with a specific purpose and provides the point of entry to other Worldwide Webs.

16.	verify.gov.kh	A government's document verification platform developed by the Ministry of Post and Telecommunications for verifying the authenticity of documents bearing a standard QR code.

APPENDIX 3. TECHNICAL GUIDELINE

Part 1. Utilization of Digital Public Infrastructure

1. The development of systems for e-services for business (e-service systems) shall utilize the four digital public infrastructures or digital enablers, including CamDX, CamDigiKey, Bakong, and verify.gov.kh, to ensure the systems are built as an ecosystem.

- E-service systems shall utilize CamDX for data exchange between member IT systems to retrieve and verify data.
- E-service systems shall utilize CamDigiKey to access both the front-end and back-office of e-service systems without requiring the creation of separate accounts.
- E-service systems shall utilize at least one Bakong member payment gateway to facilitate transactions via the KHQR code standard from financial institutions that are Bakong members.
- Licenses, permits, and certificates authorizing business operations for any service shall include a standard QR code for verifying the authenticity of these documents, issued through verify.gov.kh.

Part 2. Data and Data Governance of E-services for Business

2. To develop systems for delivering e-services for business, a well-defined data classification is essential. Data from business-related public services may include:

- Data used to generate the application form, which include enterprise identification data, enterprise owner identification data, representative identification data, data for application review and approval, and data from attached documents.
- Data generated from the processing activity of reviewing officers, including data on the status of service review, service review history, and data on licenses, permits, and certificates.
- Data from service reviewing officers, including officer identity data and transaction data between officers and service delivery.

- Data generated from the processing activity of applicants, including applicant identification data, service fee payment data, and data confirming consent to data sharing.
- Standardized reference data, including location data (municipality/province, city/district, commune/sangkat), business activity code data, etc.

3. Data governance defines the procedure for providing, recording, managing, and processing data within the framework of e-services for business.
4. Stakeholders relevant to data governance include the following:
   - **Data Subject** refers to the person responsible for the content, meaning, and quality of the data, as well as for approving the sharing of data with others for specified purposes.
   - **Data Controller** refers to a natural person, private legal entity, public administrative institution, or public enterprise that determines the purpose and means of collecting, using, or disclosing data.
   - **Data Processor** refers to a natural person, private legal entity, public administrative establishment, or public enterprise that processes data of the data subject on behalf of the data controller or a public authority.
   - **Data Steward** refers to a natural person, private legal entity, public administrative establishment, or public enterprise that monitors, researches, reviews, and promotes the implementation of the agreed data governance framework.
5. Within the framework of delivering e-services for business, the data subject is the service applicant who provides their data and specifies conditions for sharing or disclosing their data with other parties. The data controller refers to the ministry or institution that manages the e-service systems. E-service systems of ministries or institutions serve as a means to record, collect, use, process, and disclose the data of the data subject in accordance with the conditions and consent of the data subject. The data processor refer to the ministry, institution, or secretariat that uses the data of the data subject, which is recorded in the e-service systems, to facilitate data entry and authentication.
6. Delegate the responsibility to the CamDX operator as the data steward, since e-service systems require data exchange to be conducted through CamDX.

7. Before recording the data of the data subject during the service request phase, the e-service systems shall have a consent mechanism for data sharing within the cluster of e-service systems operating on CamDX. This is to ensure that the data subject provides prior consent before their data is recorded, shared, and used automatically within the cluster of e-services for business. The data steward shall monitor and confirm that the data of the data subject is not used for purposes other than enhancing the efficiency of delivering e-services for business. Sharing the data of the data subject outside the cluster of e-service systems is permissible only with the consent of the data subject.

Part 3. Development of E-service Systems

3.1. Determination of Functions of the E-service Systems

8. The e-service systems consist of two main components: the front-end, which is used by the general public or the private sector to request services, and the back-end, which is used by officers to receive applications, conduct reviews, and approve applications.

9. The development of e-services for business shall be organized and structured by defining functional requirements and non-functional requirements.

10. Functional requirements are a list of features that ministries and institutions require service providers to develop within the IT system for delivering e-services for business, including but not limited to:

- Recording the data required in the application form;
- Providing automated and/or Artificial Intelligence (AI)-assisted support for completing the application form, receiving applications, reviewing, and approving;
- Integrating e-payment systems;
- Saving incomplete applications that have not yet been submitted;
- Enabling application status tracking after submission;
- Providing a feedback mechanism for applicants or the general public;
- Implementing a customizable multi-level application verification and approval mechanism;

- Issuing licenses, permits, or certificates in electronic format, verifiable via the platform verify.gov.kh;
- Enabling report generation capability using the IT system;
- Providing statistics or analytical functions based on recorded data and past service delivery, such as number of services by type, by year, service fees, and service delivery duration;
- Displaying the full history of each application, including submission, receipt, review, and approval. During the review stage, applications may be forwarded to technical officers for technical review or returned to applicants for correction or completion of missing information. The system shall record all review steps and application progress stages, and applicants shall have the right to view their application status history;
- Defining user access role permissions in the back-end system.

11. Non-functional requirements are features that ministries and institutions do not consider essential for their service delivery but are added to enhance the system's modernity, security, multi-tasking ability, and integration with other IT systems. Non-functional requirements are crucial for the system's operation as part of the digital ecosystem for business, ensuring interoperability with other systems and supporting long-term maintenance. Non-functional requirements include:

- Architecture of the system should be designed using microservices;
- Setting up an API to receive and share data from the data subject for data verification and retrieval, facilitating data entry for application submission;
- Setting up an API for sharing data related to the status of applications, reports, and statistics;
- Implementing security mechanisms for the system, such as using hash functions for one-way data conversion, encryption for two-way data conversion, and authentication mechanisms for data entry;
- Reviewing the use of third-party software modules to avoid challenges such as security, integrity, and reliability during operation;

- Prioritizing the use of third-party software modules that are widely used, open-source, and have sufficient guideline documentation, if such modules are used.
- Designing the system to handle at least 100 transactions per minute;
- Including the CamDX logo for licenses, permits, certificates, or other administrative documents approved by ministries and institutions;
- Leveraging existing digital products to assist in system development, such as Go.gov.kh, Qr.gov.kh, Form.gov.kh, Nomsa.gov.kh, etc; and
- Setting up an audit trail feature to facilitate IT audits.

3.2. Technical Guideline for System Development

12. Project planning and management

A. Principle: Prepare clear planning and management documents for IT system or program development projects and ensure effective implementation.

B. Standard:

- **Software Development Methodologies:** Choose the software development methodology that best suits the specific project. Each methodology offers unique strengths and weaknesses, tailored to different project needs. These methodologies include Agile Methodology, Scrum Methodology, Waterfall Methodology or Spiral Methodology, etc.
- **Documentation:** Prepare detailed documentation for requirements at each stage, including design, development, and testing. The documentation can be created using tools such as Confluence, GitBook, etc.
- **Version Control:** Use a version control system, such as Git, to track code changes and facilitate collaboration. Platforms or systems such as GitHub, GitLab, and Bitbucket are commonly used.

13. Code quality control

A. Principle: Ensure the quality of IT system code that is standardized, easy to understand, easy to maintain, efficient, and reusable, while taking into account security, scalability, testing, and proper documentation.

B. Standard

- **Coding Standards:** Follow established coding standards for each language to ensure consistency, simplicity and readability. Examples include Google Java Style Guide, PEP 8 (Python), Airbnb JavaScript Style Guide or TypeScript Style Guide.
- **Code Reviews:** Conduct regular code reviews using tools like GitHub/GitLab Pull Requests to ensure code quality, adherence to consistent coding patterns and modularization. Incorporate pair programming for real-time feedback and knowledge sharing, and apply automated checks with tools like SonarQube. Code reviewers shall follow best practices, and coding standards, and clear review objectives with checklists.
- **Static Analysis**: Use static analysis tools to detect potential errors and assess code quality to ensure adherence to coding standards.

14. Security Maintenance

A. Principle: Ensure security for IT systems or other threats.

B. Standard:

❖ **Follow Open Web Application Security Project (OWASP) Best Practices for Web Application Security**:

- **Access Control:** Shall have specific permission to access the private data or private part of the application and ensure the system access or view of the data is correctly controlled.
- **Cryptography:** Ensure that every data transaction, data exchange, or sensitive data storing are encrypted with modern and strong cryptography mechanism.
- **Injection:** Ensure that all data inputted by users is sanitized and validated to prevent malicious input that could compromise the system.
- **Security Misconfiguration:** All use of security functions shall ensure proper application of other functional settings.
- **Vulnerable and Outdated Components:** Ensure that all third-party dependencies, libraries, or software tools are up-to-date and free from vulnerabilities or expiration.
- **Identification and Authentication:** Clearly define the user identity through secure authentication when accessing data or performing other actions on the system.

- **Software and Data Integrity:** When using software or tools other than dependencies and libraries, it shall ensure the integrity and accuracy of those components related to security.
- **Security Logging and Monitoring:** During system development, every action related to users and system security shall be logged and securely stored for easy access when necessary.

❖ **Follow OWASP's best practice for Mobile Application Security checklist**:

- **Storage**: Use the appropriate mobile storage solution for different data categories, especially sensitive data.
- **Cryptography**: Use mobile data protection mechanism by encrypting critical data and ensuring proper protection for sensitive data, such as passwords or access codes.
- **Authentication**: Secure the storage of user authentication history on mobile devices using encryption, and integrate authentication features with user biometric profiles.
- **Network:** Ensure that data exchange between mobile phones and the internet are encrypted or using TLS/SSL protocol at a minimum.
- **Platform**: Assess the potential for data leakage during development, when utilizing various mobile features, or when granting permissions such as access to location data, microphone, or camera, etc.
- **Code:** Ensure the code quality is free from vulnerabilities, including issues related to data storage, third-party dependencies or libraries.
- **Resilience:** Ensure mobile apps to be resilient against attacks, such as reverse engineering, data leakage, credential leaks, device jailbreaking or rooting.
- **Privacy:** Mobile apps shall provide users the ability to control their own data and use user data as minimally as possible, in a transparent manner.

15. Testing

A. Principle: Improve the efficiency of testing IT systems or applications to provide a smooth user experience and ensure the stability of IT systems.

B. Standard

- **Unit Testing:** Ensure individual components are rigorously tested with comprehensive scenarios, leveraging mocks and stubs to isolate units to

ensure the right operation. Maintain high code coverage and align tests with evolving codebase changes to catch issues early and maintain code quality.

- **Integration Test:** Validate the interactions between integrated modules and external services, ensuring data flows and interfaces operate as intended. Simulate real-world conditions and edge cases to uncover integration issues and validate end-to-end functionality.
- **Security Test:** Conduct in-depth security assessments, including static and dynamic analysis, penetration testing, and threat modeling. Implement security best practices, regularly update tests for emerging vulnerabilities, and ensure compliance with security standards and regulations.
- **Load and Profiling Testing:** Perform stress and load testing to evaluate system performance under expected and peak conditions. Use profiling tools to identify and address performance bottlenecks, optimize resource usage, and ensure scalability and reliability in production environments.
- **UX/UI Test:** Assess the user experience and interface design for usability, accessibility, and consistency with design specifications. Utilize user feedback and usability metrics to drive iterative improvements and ensure alignment with user needs and business objectives.
- **User Acceptance Test:** Facilitate UAT by defining clear criteria and engaging stakeholders in realistic testing scenarios. Address feedback promptly, ensure that all functional requirements are met, and validate that the application aligns with business goals and user expectations before deployment.

16. **Scalability**

- **Principle:** Design the application to scale efficiently as demand increases.
- **Standard:**
  - **Stateless approach:** Develop the application in a stateless manner, meaning that the application does not store any state or information. Each access to the application is processed independently and does not manage the data (data is stored and managed elsewhere). This approach makes scalability easier.
  - **Software architecture:** Choose an architecture that matches the system's needs. Monolithic is suitable for simpler systems, while microservices offer better scalability for complex system or applications.

- **Containerization:** Package the the entire application or system, along with its dependencies, into containers to ensure consistent deployment across environments. Containers enable rapid scaling and efficient resource management during deployment.

▪ **Commonly used tools**

- **Nginx**: a commonly used tool that helps manage stateless applications by efficiently distributing requests across multiple servers, enhancing load balancing and failover capabilities.
- **Docker:** the leading tool for creating and managing containers, providing a standardized environment for applications.
- **Kubernetes:** Used for automating the deployment, scaling, and management of containerized applications. It helps manage containerized applications at scale, ensuring efficient resource utilization and handling increased demand.

17. UI/UX Standardization

A. Priniciple: Ensure simplicity, user-friendliness, and attractiveness for the IT system or application.

B. Standard:

- **Accessibility:** Follow accessibility standards (e.g., WCAG) to ensure the application is usable by all.
- **Design Consistency:** Maintain consistency and harmony in design elements across the application using design systems like Material Design or Bootstrap.
- **Color:** Follow a standard color pattern that ensures accessibility and consistency across the application. Use tools like Material Design Color Tool to create a cohesive and consistent color palette.
- **Font:** Use standard font sizes and styles to ensure readability. Maintain a hierarchy of typography and use web-safe or brand-specific fonts.
- **Screensize:** Design responsively to ensure a seamless user experience across all platforms. Use fluid grids and media queries to adjust the layout based on the device size.
- **Icons:** Use cohesive, open-source, or licensed icon sets. Ensure icons are consistent in style and provide alternative text for accessibility.

- **Images:** Use high-quality images that are either license-free or properly paid for, and ensure images are optimized for the web to maintain performance.
- **Fewer Clicks:** Simplify user interactions by reducing the number of clicks needed to complete tasks. Streamline navigation and design intuitive workflows to enhance user efficiency and satisfaction, making it easier for users to achieve their goals with minimal effort.

C. Commonly used tools

- **UserTesting:** For user experience research.
- **Hotjar:** For heatmaps and user session recordings.
- **Material Design:** For consistent design guidelines.
- **Bootstrap:** For responsive design and component library.
- **Material Design Color Tool:** For creating a cohesive color palette.
- **Google Fonts:** For selecting web-safe fonts.
- **FlatIcon:** For accessing open-source icons.
- **Freepik/Adobe Stock:** For sourcing high-quality images.

18. API Standardization

A. Principle: Prepare, develop, and maintain APIs in accordance with best practices to ensure reliability, scalability, and ease of use.

B. Standard:

- **RESTful Design:** Follow REST principles for API design, ensuring meaningful resource names, and appropriate HTTP methods.
- **Versioning:** When there are changes or modifications to the API, a new version number shall be used to avoid affecting existing APIs that are currently in use. The version number can be included in the API's URI or in the Header.
- **Documentation:** Provide comprehensive API documentation using tools like Swagger or Postman to ensure developers can easily understand the API.
- **Naming Convention:** Use meaningful names to describe the entity or action they represent. Setting a common standard for naming conventions in the code makes development and maintenance easier afterward.

- **Authentication:** Secure APIs using robust authentication mechanisms such as OAuth2 or JWT (JSON Web Tokens). These methods ensure that only authorized users can access or modify the API's resources, enhancing security.
- **Rate Limiting:** Implement rate limiting for API usage to protect them from abuse and excessive usage.
- **Error Handling:** Set standard error codes for each issue, along with clear error messages to inform users about the problem, making it easier to understand and fix the issue. Clear error reporting also helps developers in troubleshooting and improving the system or application.

19. Deployment and Maintenance

A. Principle: Ensure smooth deployment and effective maintenance of the IT system or application by dividing the development environment into three main sections: development environment, testing environment, and production environment.

B. Standard:

- **Plan and Test Deployment**: Create a comprehensive deployment plan that outlines each step, dependencies, and rollback procedures in case of failure. Thoroughly test deployments in a staging environment to ensure configurations and application functionality perform as expected, simulating production conditions as closely as possible.
- **Automate and Monitor Deployment**: Leverage automation tools like Jenkins, GitHub Actions, or GitLab CI/CD to streamline the deployment process and minimize manual errors. Set up monitoring with tools such as Grafana, ELK Stack, New Relic, Datadog, or Prometheus to track performance, detect issues early, and receive alerts for prompt action.
- **Container Orchestration**: Automate the deployment, scaling, and management of containerized applications to ensure efficient resource utilization and high availability. Popular tools for container include Kubernetes, Docker Swarm, and OpenShift, etc.
- **Implement Version Control and Backup:** Integrate version control systems (e.g., Git) to manage code changes or configurations, facilitating easy rollbacks in case of failure and maintaining traceability. Establish a backup strategy to

regularly back up critical data and configurations before deployments, and test recovery processes to ensure quick restoration in case of failures.

- **Conduct Regular Maintenance and Testing:** Perform routine maintenance, including applying updates, security patches, and optimizations, to keep the system stable and secure.

Part 4. Tech Stack for E-Services for Business

1. Development Tech Stack

- **Server side:** Refers to the technology or tools used to develop back-end systems.
- **Client side:** Refers to the technology or tools used to develop front-end systems, mobile applications, or desktop applications.

	Server-side	Client-side		
Platform / OS	Linux, Windows	Web		Linux, Windows
Scripting	Shell, Python, Ruby, Perl	JavaScript, TypeScript, VBScript		Shell, Python, Ruby, Perl
Programming Language	Java, JavaScript, C#, Python, PHP, Ruby, Go	JavaScript, TypeScript		Java, JavaScript, C#, Python, PHP, Ruby, Go
Database	PostgreSQL, MySQL, MongoDB, Oracle, MS-SQL Server, IBM DB2, Redis	WebStorage		PostgreSQL, MySQL, MongoDB, Oracle, MS-SQL Server, IBM DB2, Redis
Web Server	Node.js, Nginx, Apache, Tomcat, Jetty, WildFly, GlassFish, Microsoft IIS	-		
Framework	Spring, .NET, ExpressJS, NestJS, Django, Flask, Laravel, Koa.js, Ruby on Rails	AngularJS, ReactJS, VueJS, NuxtJS, NextJS, Blazor		Spring, .NET, ExpressJS, NestJS, Django, Flask, Laravel, Koa.js,

				Ruby on Rails
Package Management	pip, mvn, Composer, Nexus, Bundler, Conan, Jfrog Artifactory	npm, Yarn, Bower		pip, mvn, Composer, Nexus, Bundler, Conan, Jfrog Artifactory
Build Tools	Maven, Gradle, MSBuild, Rake	Webpack, Gulp, Grunt, Parcel		Maven, Gradle, MSBuild, Rake
Webservice / API Tools	Rest-API, JSON, gRPC Postman, Swagger, CURL			
Libraries	PyJWT, Gson, Lodash, Requests	jQuery, Bootstrap, Axios, Lodash		PyJWT, Gson, Lodash, Requests
Development Tools	IntelliJ, VS Code, Eclipse, Spring Tool Suite, Maven, Gradle, etc.			

2. Operation/Monitoring Tech Stack

Category	Tool & Technologies
Source Control	GitHub, GitLab, Bitbucket, Subversion (SVN)
Infrastructure as Code	Terraform, Pulumi, Ansible, Vagrant
Automation & Configuration	Ansible, Chef, OpenStack, Puppet, Terraform, SaltStack, Consul
CI/CD	Jenkins, GitHub Actions, GitLab CI/CD, Travis CI, CircleCI, Argo CD, Spinnaker, Helm, Maven, Git, JFrog
Container Orchestration & Management	Docker, Kubernetes, OpenShift, Rancher, Nomad, Portainer
Virtual Machines	Proxmox, VMware vSphere, VirtualBox
Monitoring, Logging, Reporting & Log Analytics	ELK Stack (Elasticsearch, Logstash, Kibana), ZooKeeper, Fluentd, Prometheus, Grafana, New Relic, Loggly, Sentry, Dynatrace, AppDynamics, Splunk, FortiSIEM
Security, Identity & Compliance	MEF's Security Operations Center (SoC), Web Application Firewall (WAF), Docker Image Scanner (Snyk, ...), Cloudflare, OpenVPN, HashiCorp Vault
Incident Management	TheHive Project, OpsGenie, Jira, Clickup,
Testing	JUnit, JMeter, pytest, Mocha, Selenium, Cypress, TestNG, Cucumber, Postman, K6
Error Tracking	Sentry, Firebase Crashlytics
SSL Provider	Let's Encrypt, Certbot, DigiCert, Comodo SSL, GlobalSign
Message Queue	Kafka, RabbitMQ, ActiveMQ, IBM MQ, TIBCO EMS
Project Management & Tools	Agile, Scrum and Kanban Confluence, JIRA, ClickUp, Asana Notion, Trello
Big Data Tools	Apache Spark, Hadoop, Python, R, Apache Kafka, Apache Flink, Dask
Computer Vision Tools	OpenCV, TensorFlow, CUDA, MATLAB, DeepFace, YOLO, Keras, ML Kit

Data Science / AI Tools	TensorFlow, R, Pandas, NumPy, Keras, Scikit-learn, PyTorch, MATLAB
Khmer NLP	• Frameworks: Django, FastAPI, Flask, • Servers (ASGI/WSGI): Uvicorn, Gunicorn, Hypercorn, • Machine Learning Frameworks: TensorFlow, PyTorch, • NLP Libraries: NLTK, Transformers, TextBlob, Sentencepiece, Levenshtein, Phonetisaurus, SymspellyPy, Fasttext, Hunspell
Graphic	Figma, Sketch, Adobe XD, Draw.io

3. Security Standards

Category	Sub-category	Tools & Technology
Network Security	Firewall	FortiGate, Cisco, Palo Alto, pfSense, iptables, Checkpoint
	Intrusion Detection/Prevention Systems (IDS/IPS)	Snort, Suricata, OSSEC, Bro (Zeek)
	VPNs	OpenVPN, WireGuard, Fortinet, Cisco AnyConnect, SoftEther VPN
	Content Delivery Network (CDN)	Cloudflare, Akamai
Endpoint Security	Antivirus/Anti-malware	Kaspersky, McAfee, Bitdefender, Symantec Endpoint Protection, ClamAV
	Endpoint Detection and Response (EDR)	CrowdStrike, Carbon Black, SentinelOne, OSQuery
Application Security	Static Application Security Testing (SAST)	SonarQube, Checkmarx, Fortify,
	Dynamic Application Security Testing (DAST)	OWASP ZAP, Burp Suite, App Spider, Arachni
	Software Composition Analysis	WhiteSource, Snyk, Black Duck, OWASP Dependency-Check
Identity and Access Management - IAM	Single Sign-On	CamDigiKey, Auth0, KeyCloak, OAuth2, OpenID Connect
	Multi-Factor Authentication	Google Authenticator, RSA SecurID, FreeOTP, Microsoft Authenticator
	Phone Authentication	Firebase
Vulnerability Management	Vulnerability Scanner	Nessus, OpenVAS, Nmap, Lynis
	Patch Management	Microsoft SCCM

Security Information and Event Management - SIEM		OSSEC, Wazuh, ELK Stack (Elasticsearch, Logstash, Kibana), Graylog
Security Orchestration, Automation and Response - SOAR)		TheHive, Cortex, Shuffle, Wazuh
Threat Intelligence		MISP, Open Threat Exchange (OTX), Yeti
Incident Response & Forensics		Autopsy, Volatility, GRR, The Sleuth Kit
Security Awareness	Phishing Simulation	GoPhish, PhishSim, King Phisher
Application Security	Web Application Firewall	Barracuda
Email Security		Email Security Gateway Proof-Point Microsoft email Security
Patch Management		ManageEngine Patch Manager Plus, SolarWinds Patch Manager atera automox
Network Access Control (NAC)		Switch Port Security Storm Control ACL, AD or Radius

Part 5. APIs to be Enabled for Interoperability

APIs to be enabled for interoperability, in compliance with laws and applicable regulations, include:

1. Service base registry

- **List of all application**
  - Enterprise Identification Number (Single ID)
  - Company Name (in Khmer and English)
  - License Type, Status
  - Date of Application, Decision, and Expiry
- Application via SingleID/Business Registration Number
  - Single ID
  - Company Name (in Khmer and English)
  - License Type, Status
- **Application Details**
  - Company Information
  - Business Owner Information
  - Application Information
  - Supporting Documents
  - Applicant or Agent Information
- **Company Documents**
  - Attached Documents

No	Get all applications			
1	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/licenses		
	SS Service Code	applications_info		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token

	Query params	search_term	String	Registraid_id, company_name …
		license_type	String	Check table status Mapping
		license_status	String	Check table status Mapping
		page	Integer	Current page
		size	Integer	Number of records
	Response	status	Integer	Response code • 1: Successfully • 0: Not found • -1: Invalid access token
		message	String	Response message
		data	Array	
		• single_id	String	Single ID
		• company_name_en	String	Company's name in English
		• company_name_kh	String	Company's name in Khmer
		• license_type	Object	
		○ code	String	
		○ name_en	String	
		○ name_kh	String	
		• license_status	String	Check table status Mapping
		• request_no	String	Register Number
		• submitted_date	Date	Submitted Date
		• decision_date	Date	Decision Date
		• expired_date	Date	Expired Date
		pagination	Object	
		• page	Integer	Current page
		• size	Integer	Number of records
		• total_counts	Integer	Total number of records
		• total_page	Integer	Total number of pages

No	Get application by SingleId/MOC Registration Number	
2	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/licenses/{singleId}

	SS Service Code	application_info		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token
	Path params	single_id	String	Single ID
	Response payload	code	Integer	Response code • 0: Successfully • 400: Not found • 500: Invalid access token
		message	String	Response message
		data	Object	
		• single_id	String	Single ID
		• company_name_en	String	Company's name in English
		• company_name_kh	String	Company's name in Khmer
		• licenses	Array	
		○ license_type	Object	
		▪ code	String	License code **See Code Mapping** table for more details
		○ request_no	String	Request Number
		○ services	Array	
		▪ code	String	Service Code **See Code Mapping** table for more details
		○ status	String	Application status **See Code Mapping** table for more details

No	Get application detail	
3	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/licenses/{single_id}/info/{require_no}

	SS Service Code	application_detail		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token
	Path params	single_id	String	Single ID
		request_no	String	Application request number
	Response payload	code	Integer	Response code • 0: Successfully • 400: Not found • 500: Invalid access token
		message	String	Response message
		data	Object	
		• company_data	Object	
		○ single_id	String	Single ID
		○ company_name_en	String	Company's name in English
		○ company_name_kh	String	Company's name in Khmer
		○ company_email	String	Company's email
		○ company_phone_number	String	Company's phone number
		○ total_number_of_employees	Integer	Total number of employees
		○ total_number_of_female_employees	Integer	Total number of female employees
		○ number_of_foreign_employees	Integer	Number of foreign employees
		○ number_of_foreign_female_employees	Integer	Number of foreign female employees
		○ current_address		
		▪ province		
		- code	String	Province's code

		- name_en	String	Province's name in English
		- name_kh	String	Province's name in Khmer
		▪ district		
		- code	String	District's code
		- name_en	String	District's name in English
		- name_kh	String	District's name in Khmer
		▪ commune		
		- code	String	Commune's code
		- name_en	String	Commune's name in English
		- name_kh	String	Commune's name in Khmer
		▪ village		
		- code	String	Village's code
		- name_en	String	Village's name in English
		- name_kh	String	Village's name in Khmer
		▪ house_number	String	House number
		▪ street_name	String	Street number
		▪ group_name	String	Group name
		▪ latitude	Integer	Latitude
		▪ longitude	Integer	Longitude
		○ is_register_via_obr	Boolean	Is this business register via OBR?
		○ use_obr_business_address	Boolean	Is this business use same address from OBR?
		• biz_owner_data	Object	
		○ first_name_en	String	Business owner's first name in English
		○ first_name_kh	String	Business owner's first name in Khmer
		○ last_name_en	String	Business owner's last name in English
		○ last_name_kh	String	Business owner's last name in Khmer
		○ date_of_birth	Date	Business owner's birthday

		○ gender	String	Gender: FEMALE ❙ MALE
		○ phone_number	String	Business owner's phone number
		○ email	String	Business owner's email
		○ nationality_code	String	Nationality's code
		○ nationality_name_en	String	Nationality's name in English
		○ nationality_name_kh	String	Nationality's name in Khmer
		○ identity_code	String	Business owner's identity number
		○ current_address		
		▪ province		
		- code	String	Province's code
		- name_en	String	Province's name in English
		- name_kh	String	Province's name in Khmer
		▪ district		
		- code	String	District's code
		- name_en	String	District's name in English
		- name_kh	String	District's name in Khmer
		▪ commune		
		- code	String	Commune's code
		- name_en	String	Commune's name in English
		- name_kh	String	Commune's name in Khmer
		▪ village		
		- code	String	Village's code
		- name_en	String	Village's name in English
		- name_kh	String	Village's name in Khmer
		▪ house_number	String	House number
		▪ street_name	String	Street number
		▪ group_name	String	Group name
		▪ latitude	Integer	Latitude
		▪ longitude	Integer	Longitude
		• supporting_docs	Array	

		○ code	String	Document code
		○ file_name	String	Document file name
		• license_data	Object	
		○ decision_date	Date	Decision date
		○ expired_date	Date	Expired date
		○ license_properties	Object	
		○ license_status	String	Application status **See Code Mapping** table for more details
		○ license_type	String	License type **See Code Mapping** table for more details
		○ payment_status	String	Payment Status **See Code Mapping** table for more details
		○ request_no	String	Request number of license
		○ service_type	String	Service type of license
		○ submitted_date	Date	Submitted date
		• register_by	Object	
		○ first_name_en	String	Registrant's first name in English
		○ first_name_kh	String	Registrant's first name in Khmer
		○ last_name_en	String	Registrant's last name in English
		○ last_name_kh	String	Registrant's last name in Khmer
		○ phone	String	Registrant's phone number
		○ email	String	Registrant's email

No	Get application supporting document	
4	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/licenses/{single_id}/info/{require_no}/document/{document_code}
	SS Service Code	application_document
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}
	Method	GET

		Field	Type	Description
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token
	Path params	single_id	String	Single ID
		reques_no	String	Application request number
		document_code	String	
	Response payload	header status	http header status	200: OK • http body: byte stream 404: File not found • 400: Bad request

2. Status of Application

- Application History
  - Enterprise Indentification Number (Single ID)
  - Enterprise Name (in Khmer and English)
  - Application processing details and time

No	Get applications timeline (histories)			
5	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/licenses/{single_id}/timeline/{request_no}		
	SS Service Code	application_timeline		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token
	Path params	single_id	String	Single ID
		request_no	String	Application request number
	Response payload	code	Integer	Response code • 0: Successfully • 400: Not found • 500: Invalid access token
		message	String	Response message

		data	Object	
		• single_id	String	Single ID
		• company_name_en	String	Company's name in English
		• company_name_kh	String	Company's name in Khmer
		• request_no	String	Request Number
		• timelines	Array	
		○ title_en	String	Title in English
		○ title_kh	String	Title in Khmer
		○ description_en	String	Description in English
		○ description_kh	String	Description in Khmer
		○ event_date_time	String	Date and time when event happened

3. Statistics

Note: The statistics shall be the final values and not change even if retrieved later.

- Statistics of Applications
  - Number of approved, draft, expired, rejected, returned, under review, submitted, and total applications.
- Statistics of Business Owners or Managers
  - Number of Business Owners or Managers by Nationality

No	Get application statistic			
6	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/statistic?start_date={start_date}&end_date={end_date}		
	SS Service Code	application_statistic		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token

		start_date		License last modified date (start from), ("yyyy-MM-dd")
		end_date		License last modified date (to), ("yyyy-MM-dd")
	Response payload	code	Integer	Response code • 0: Successfully • 400: Not found • 500: Invalid access token
		message	String	Response message
		data	Object	
		• number_of_approved	Integer	Number of approved applications
		• number_of_draft	Integer	Number of draft applications
		• number_of_expired	Integer	Number of expired applications
		• number_of_rejected	Integer	Number of rejected applications
		• number_of_returned	Integer	Number of returned applications
		• number_of_reviewing	Integer	Number of reviewing applications
		• number_of_submitted	Integer	Number of submitted applications
		• total_number_of_all_license	Integer	Total number of applications (Total is the sum of numbers from all states)

No	Get biz-owner/manager statistic			
7	API Endpoint	http(s)://{api_fqdn}/api/{api_version}/statistic/biz-owner/nationality?nationality_code={nationality_code}		
	SS Service Code	owner_statistic		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Request header	Authorization	bearer [CamDigiKey JWT]	Organization level's token
	Request params	nationality_code	String	Nationality code (KH, US, UK, ...)

	Response payload	code	Integer	Response code • 0: Successfully • 400: Not found • 500: Invalid access token
		message	String	Response message
		data	Array	
		• nationality_code	String	Nationality code (KH, US, UK, ...)
		• number_of_female_biz_owner	Integer	Number of female biz-owner or manager
		• number_of_male_biz_owner	Integer	Number of male biz-owner or manager
		• total_number_of_owner	Integer	Total number of biz-owner or manager

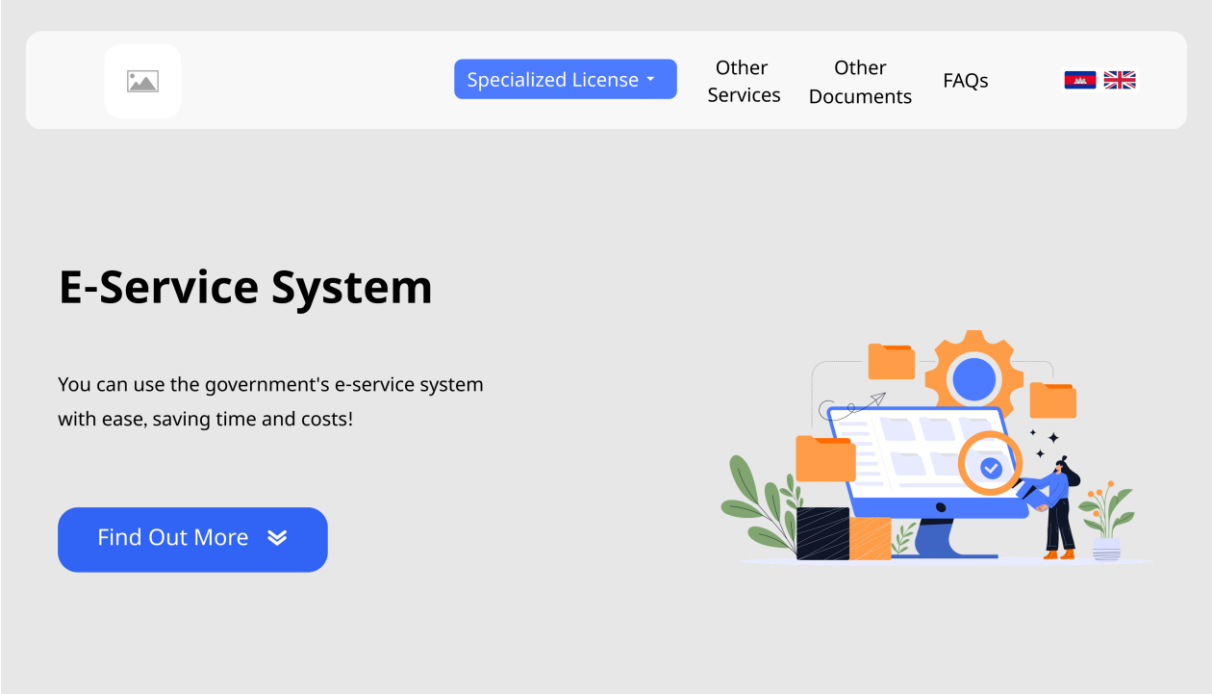
4. System Process Status

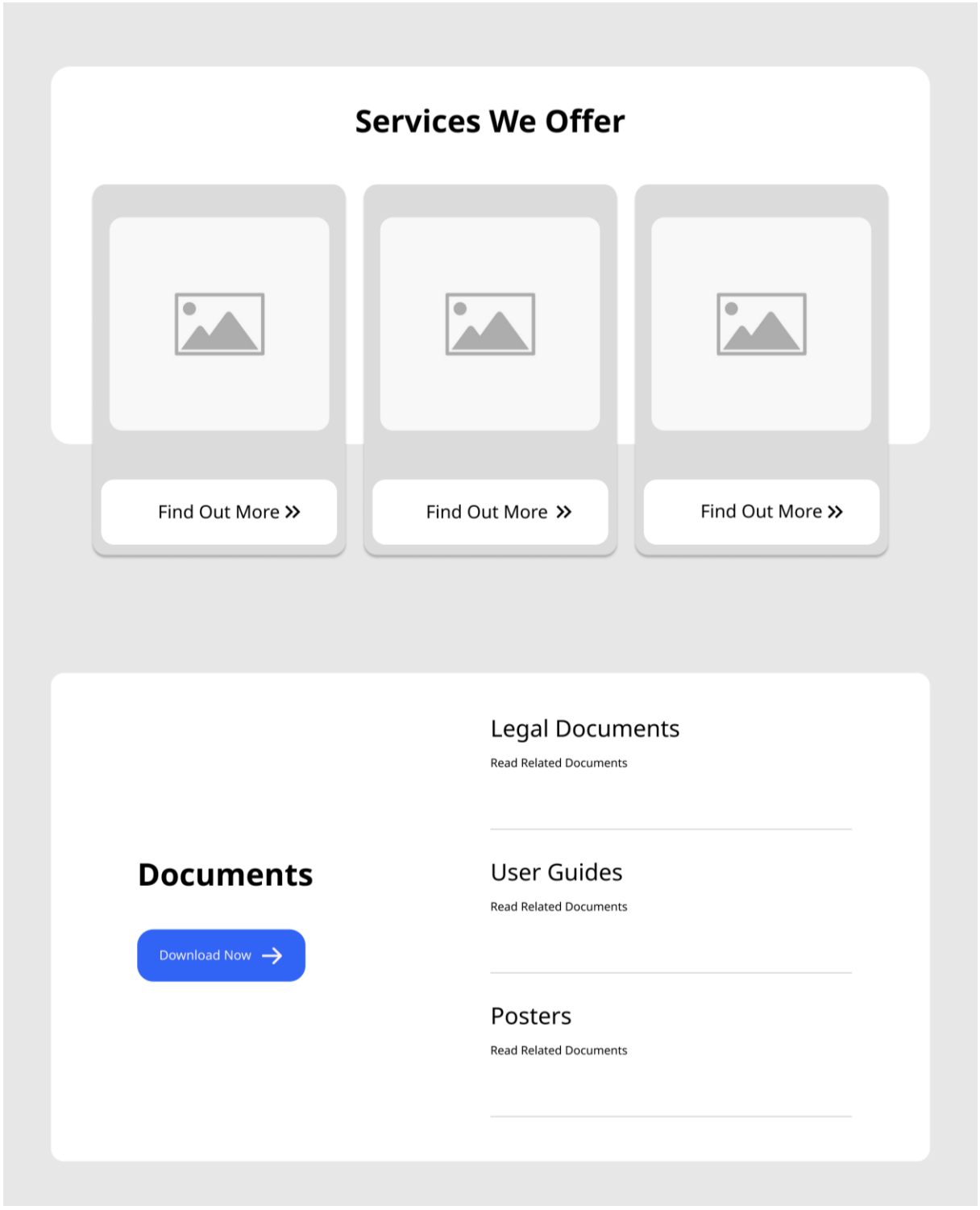
No	Get /health			
8	API Endpoint	http(s)://{api_fqdn}/health		
	SS Service Code	system_health		
	SS Endpoint	http(s)://{ss_fqdn}/r1/CAMBODIA/GOV/{member_code}/{subsystem_code}/{servicecode}		
	Method	GET		
		Field	**Type**	**Description**
	Response payload	code	Integer	Response code • 200: OK • !200: Failed

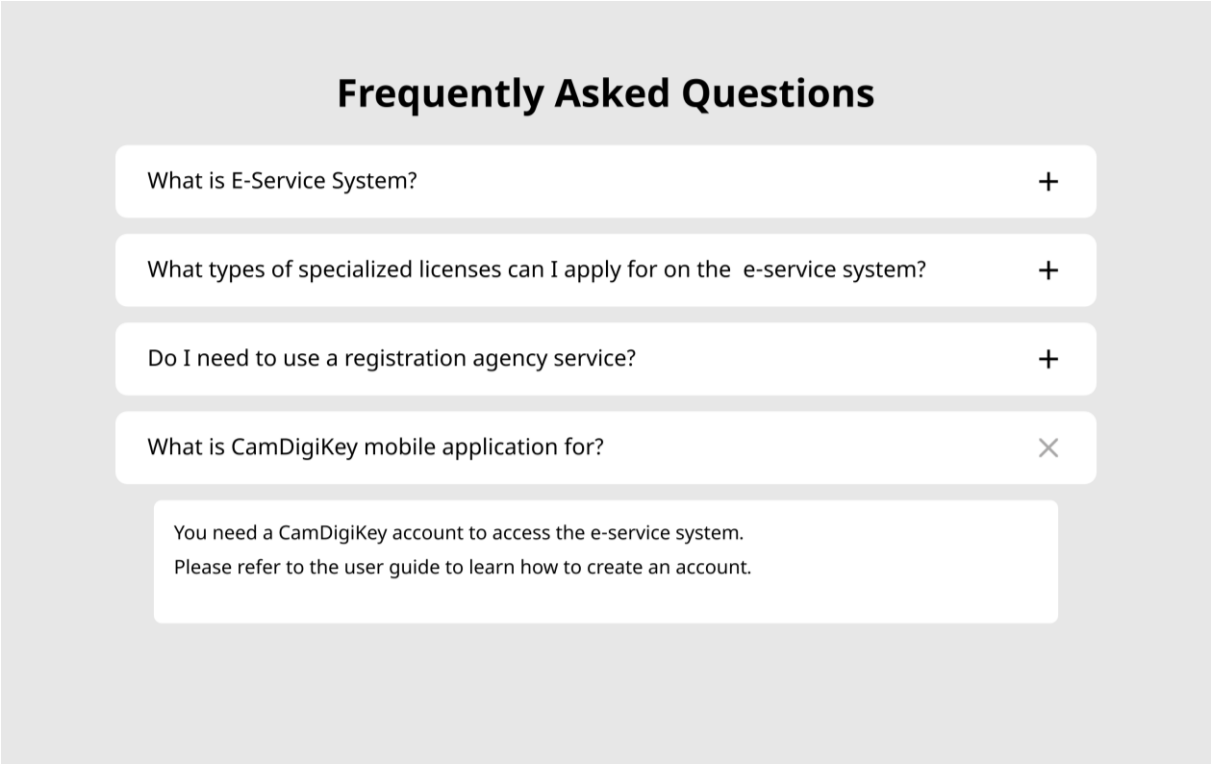
Part 6. System Interface Prototype

A. Front-end Interface Pages of the System

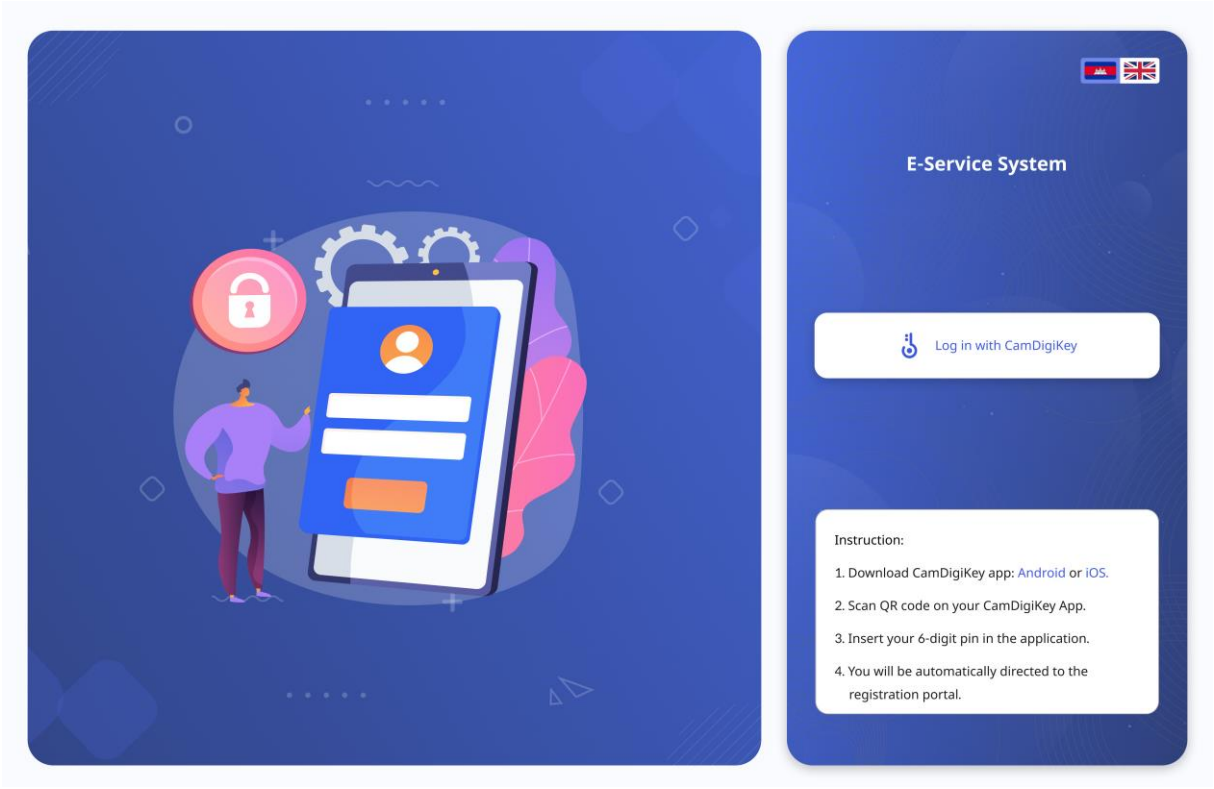
- **Interface Page 1**: Displays general information about the service and the required documents for requesting it, with a hyperlink to the e-service system.
- **Interface Page 2**: Displays a common service application portal with essential functions, such as applying for services by service type, checking the status of submitted applications, and requesting changes to data control rights. The system should also enable users to request support with a link to a Frequently Asked Questions (FAQs) section and allow language switching, at a minimum between Khmer and English, for the entire system.



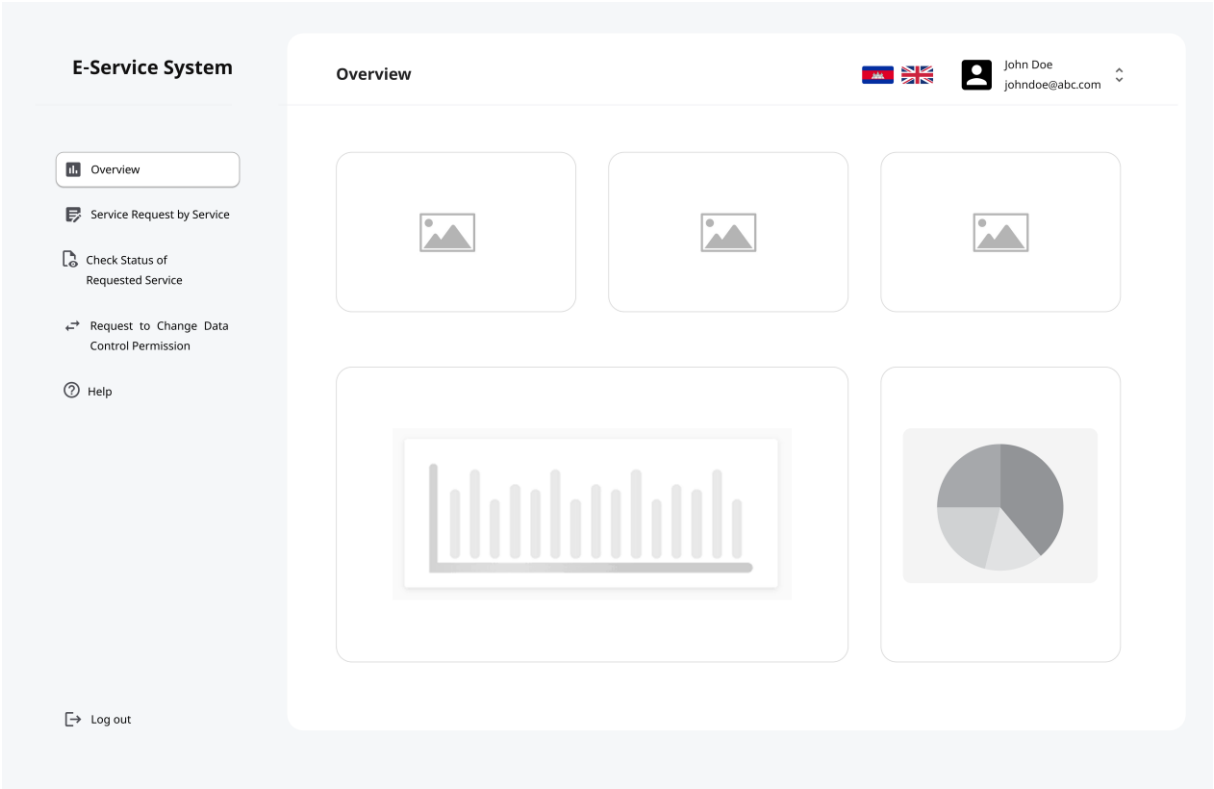

Services We Offer
Find Out More »
Find Out More »
Find Out More »
Documents
Download Now
Legal Documents
Read Related Documents
User Guides
Read Related Documents
Posters
Read Related Documents

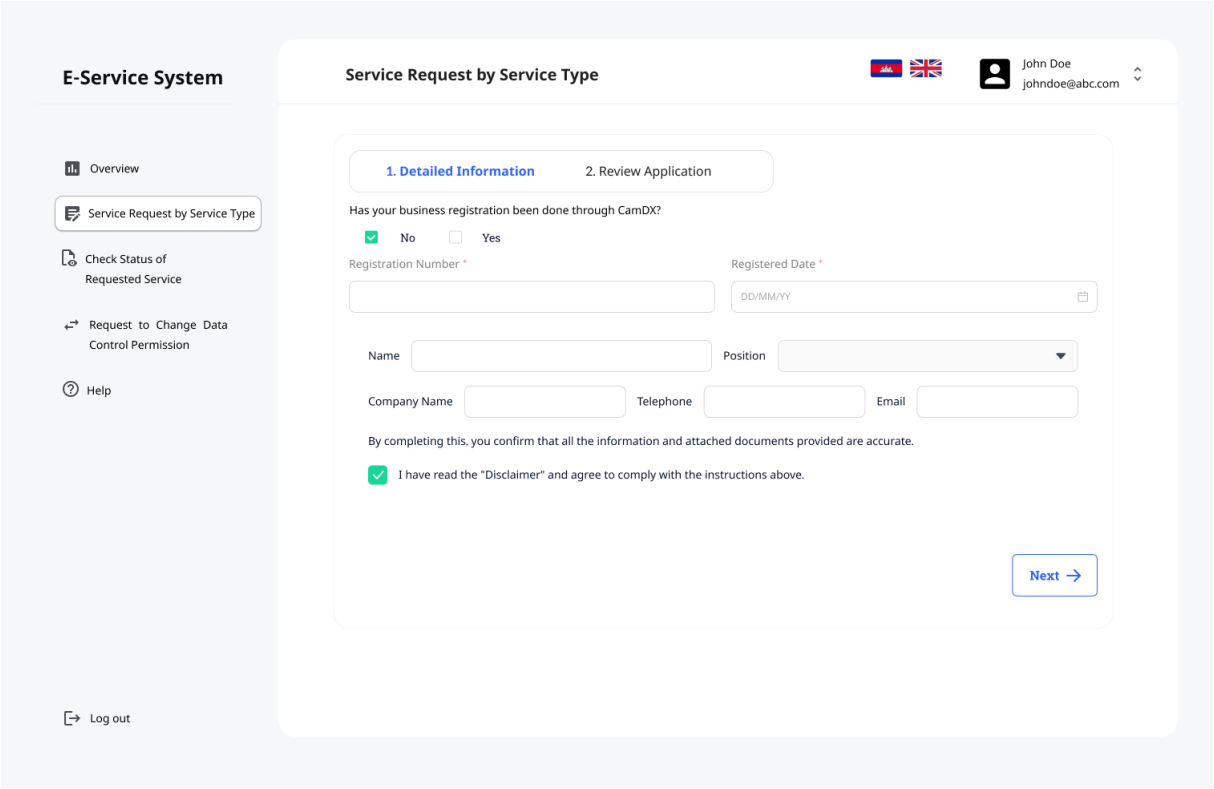


- **Interface Page 3**: A page for authentication, which requires the use of a CamDigiKey account to log in and submit applications through the QR code authentication.

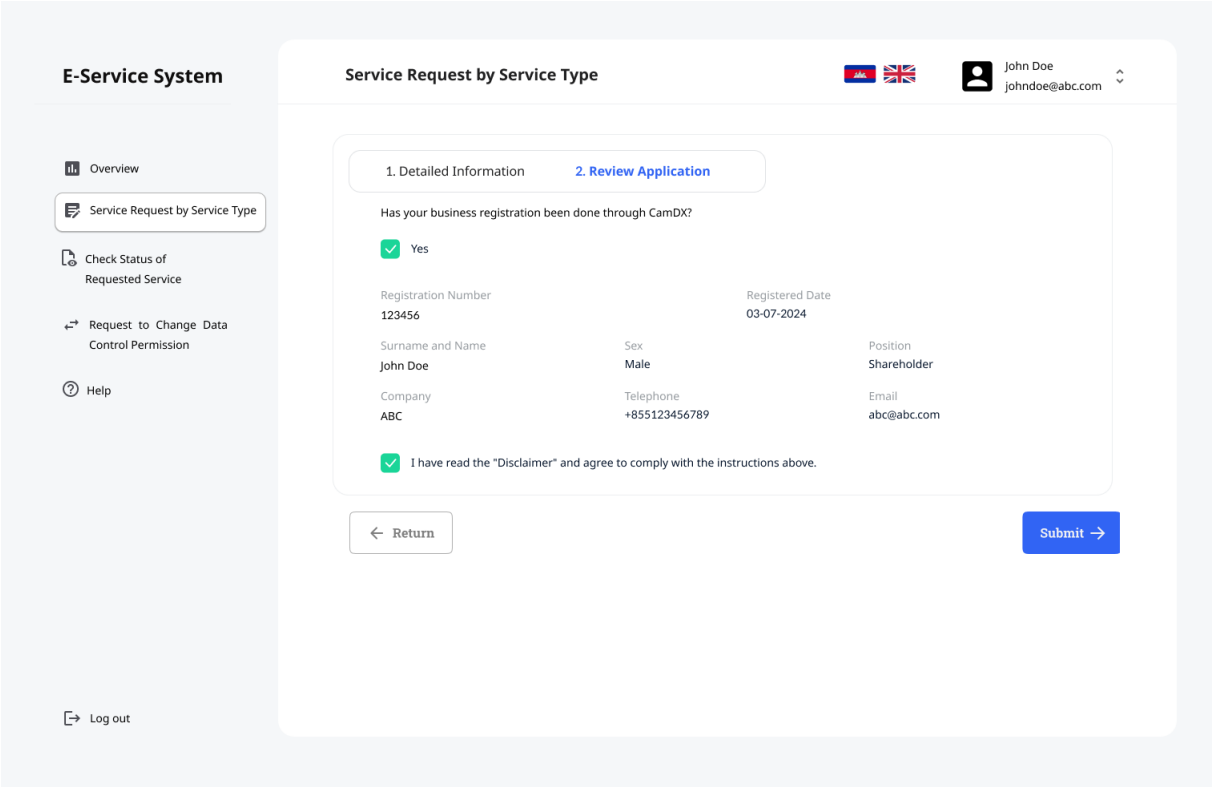


- **Interface Page 4**: A section for filling out the application form, with required fields for data entry.

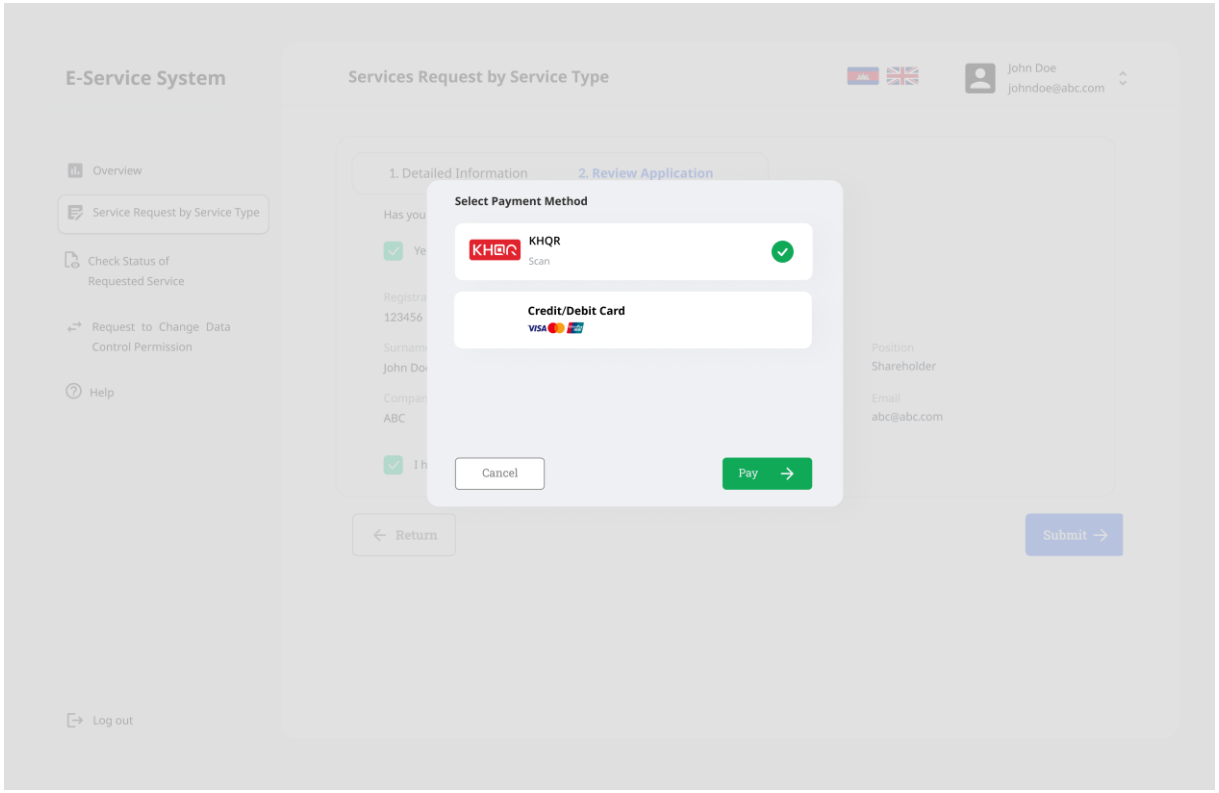




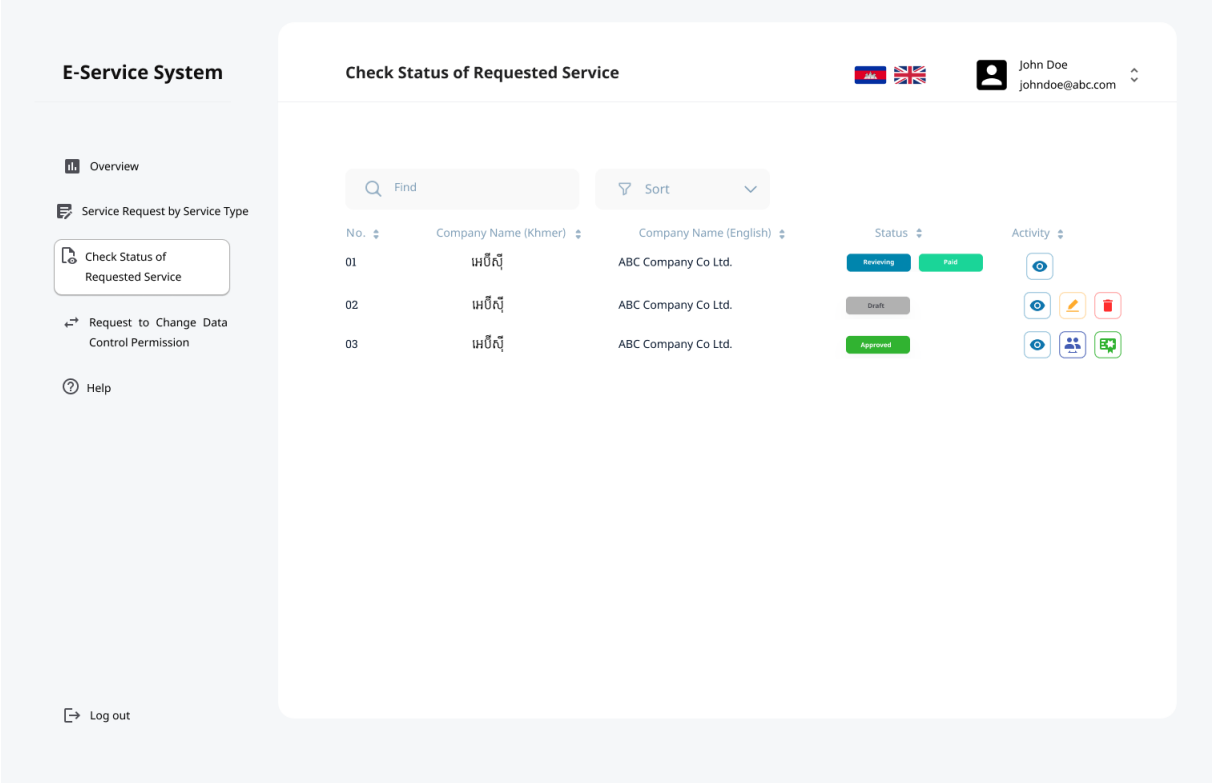
- **Interface Page 5**: Displays the filled-in information for user review and provide options for data correction.

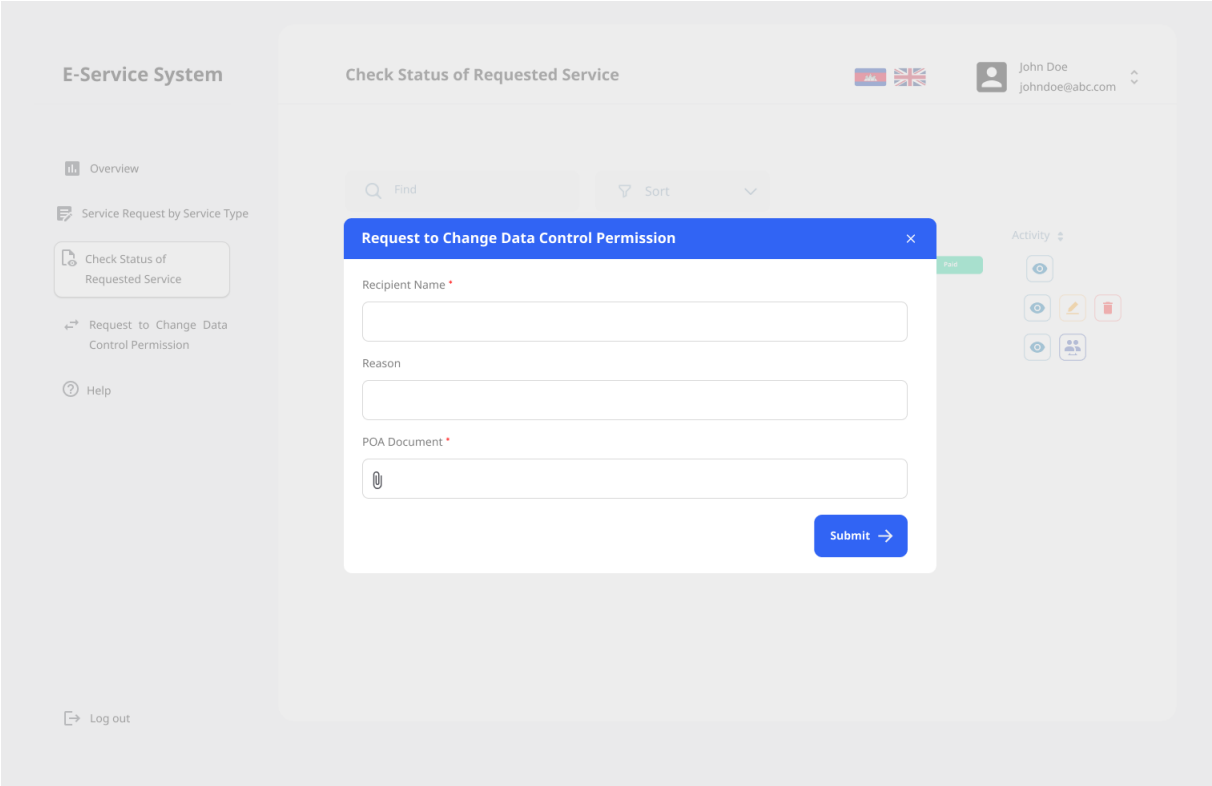


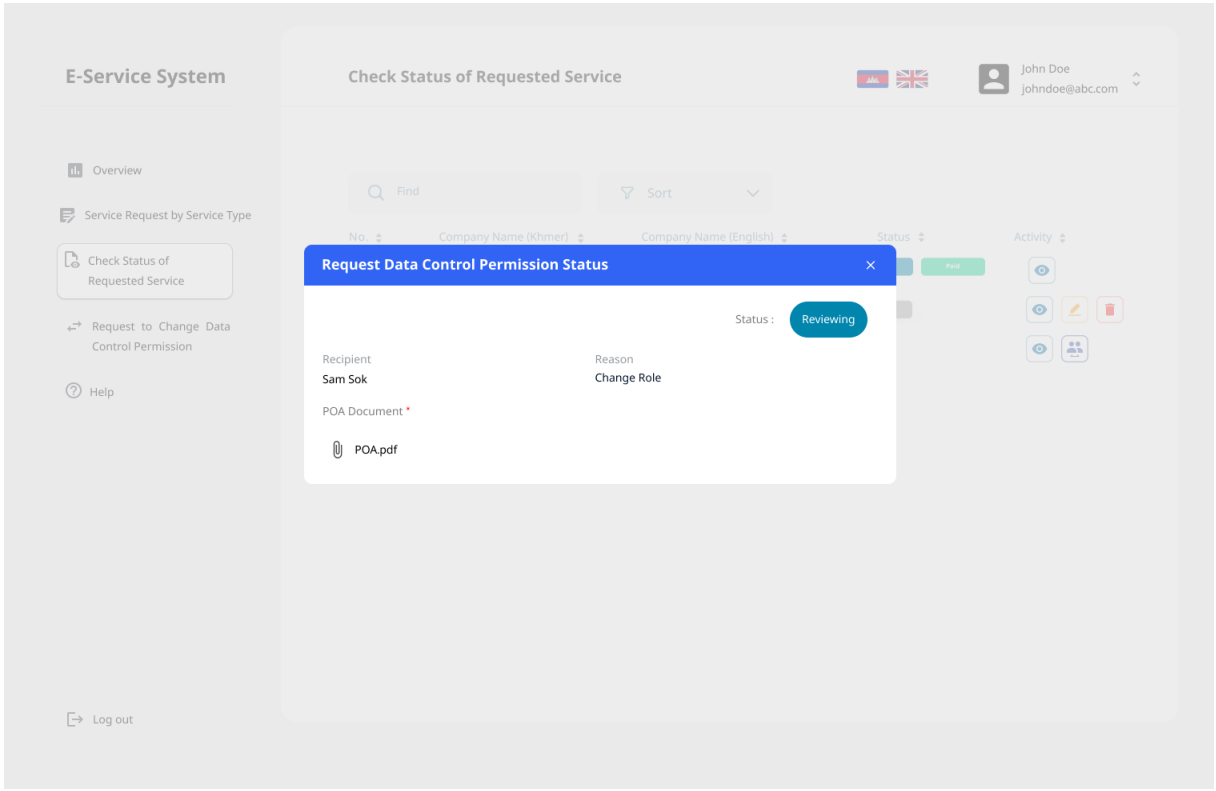
- **Interface Page 6**: Displays an e-payment method that allows payment via credit or debit cards (Visa, MasterCard, or UnionPay), bank transfer, or mobile banking applications by scanning the standard KHQR code.

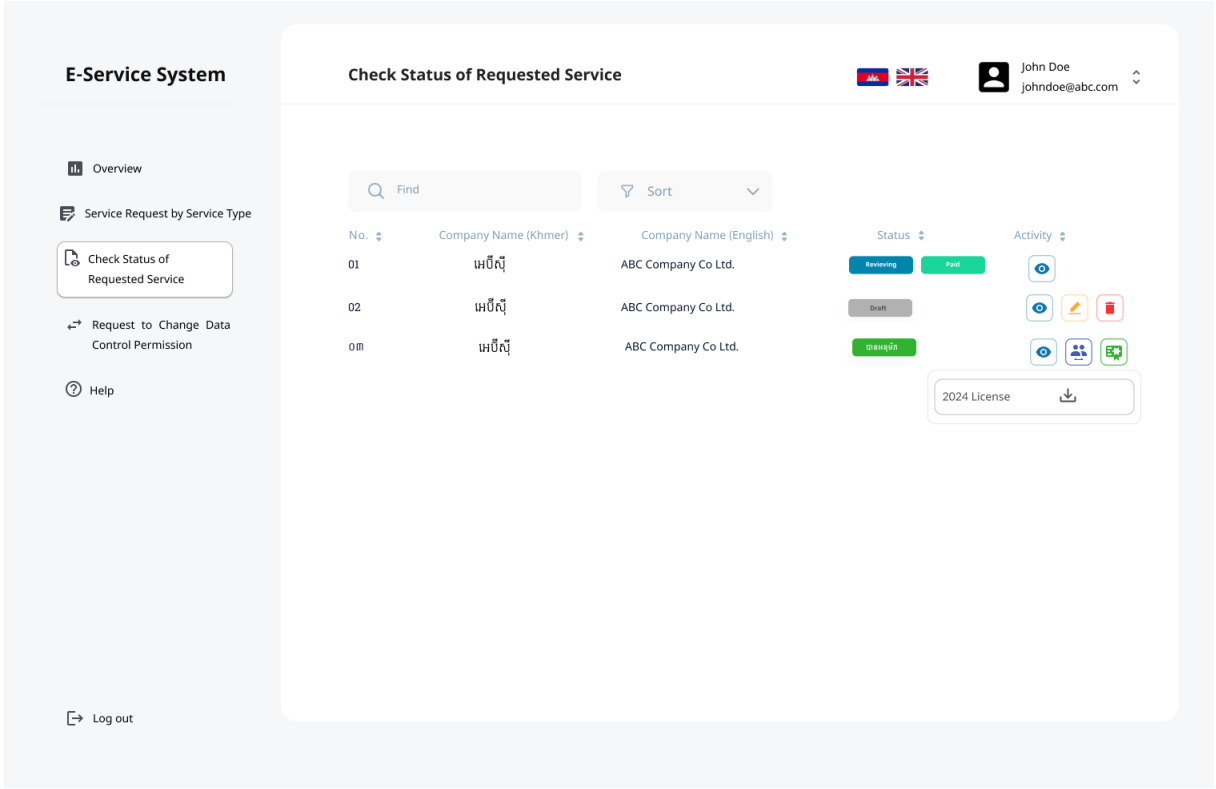


- **Interface Page 7**: Displays the application status after payment and submission. If the reviewing officer requests the applicant to provide additional information or revise the submitted data, this page allows the applicant to make corrections as in the fourth interface page. This interface page also provides an option to download the approved licenses, permits, or certificates in electronic format.


E-Service System
Check Status of Requested Service
John Doe
johndoe@abc.com
Overview
Service Request by Service Type
Check Status of Requested Service
Request to Change Data Control Permission
Help
Log out
Find
Sort
No.
Company Name (Khmer)
Company Name (English)
Status
Activity
01
ABC Company Co Ltd.
Reviewing
Paid
02
ABC Company Co Ltd.
Draft
03
ABC Company Co Ltd.
Approved


E-Service System
Check Status of Requested Service
John Doe
johndoe@abc.com
Overview
Service Request by Service Type
Check Status of Requested Service
Request to Change Data Control Permission
Help
Log out
Find
Sort
Request to Change Data Control Permission
Recipient Name *
Reason
POA Document *
Submit

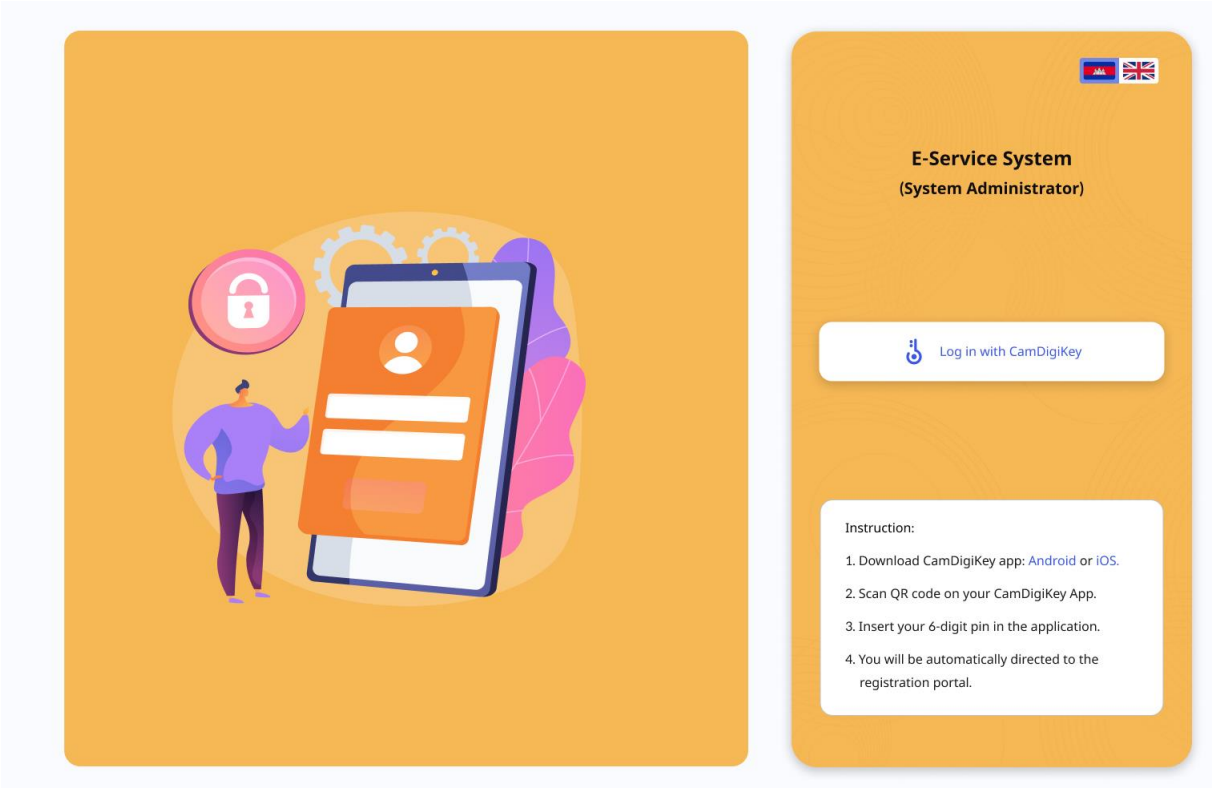




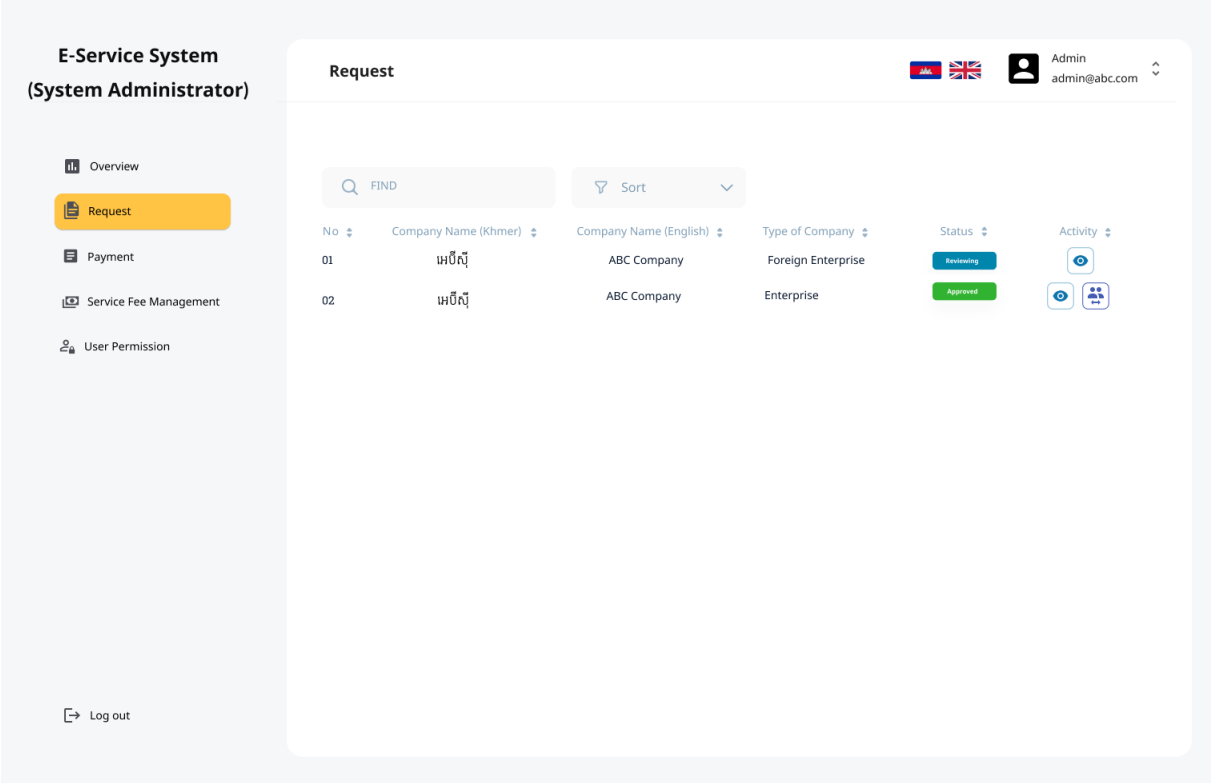
- **Additional interface pages can be included** to serve essential functions based on the specific requirements of ministries and institutions.

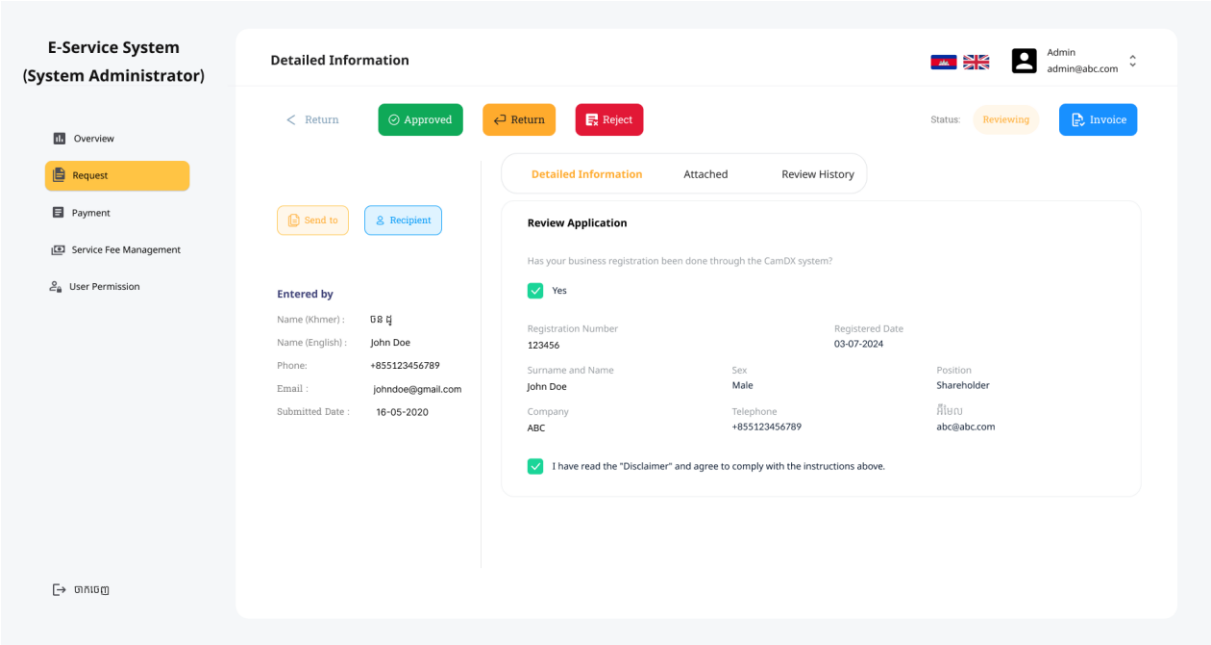
B. Back-end Interface Pages of the System

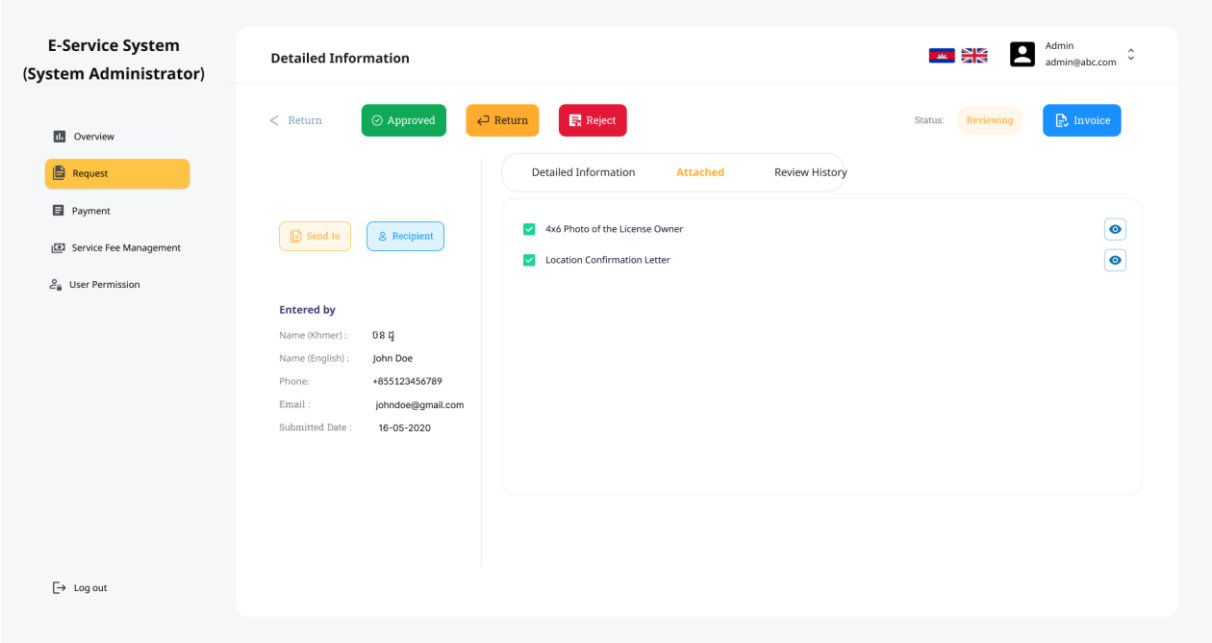
- **Interface Page 1**: A page for authentication, requiring reviewing officers to use their CamDigiKey account to access and review applications through QR code scanning.

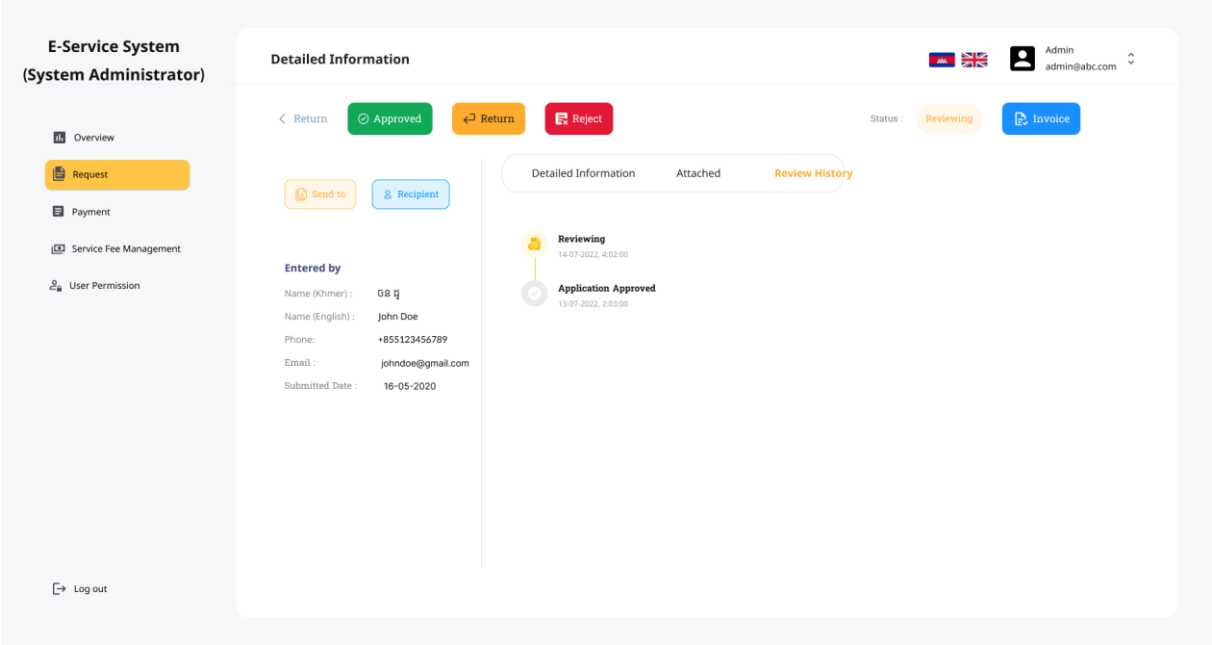


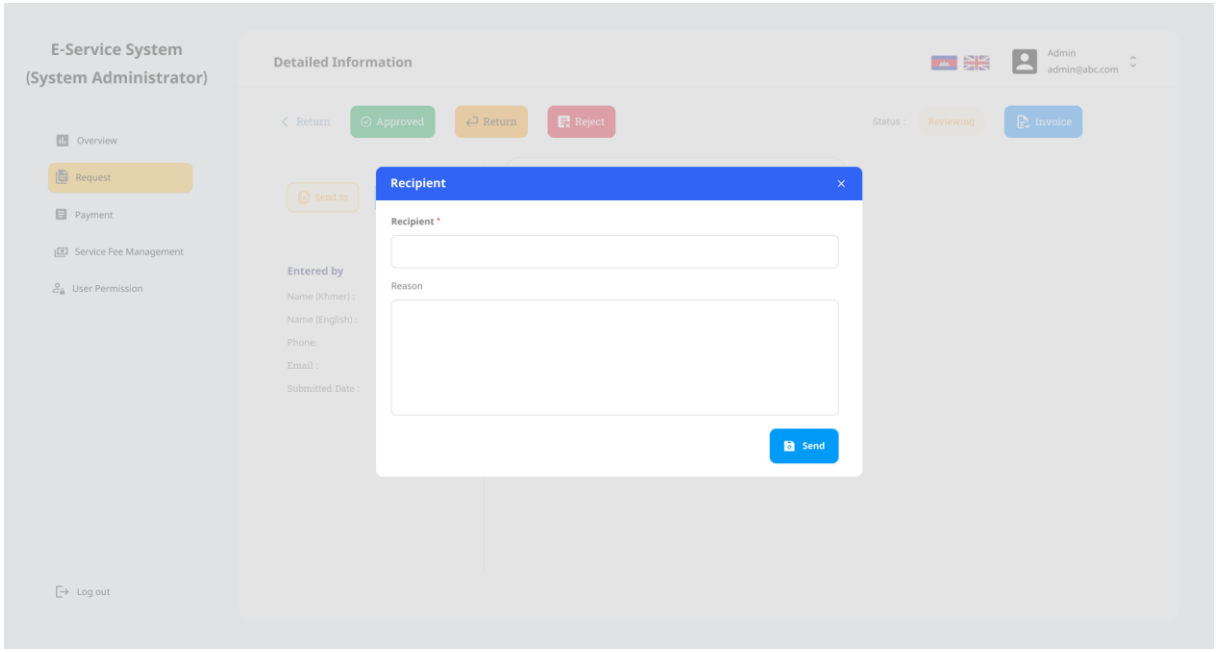
- **Interface Page 2:** A page displaying the request that has been paid for and is ready for review. It includes a feature to forward the application to relevant reviewing officers and a feature to return it to the applicant for corrections or additional information. This page will also provide an option to reject a request if serious legal errors are found according to the laws. The reviewing officer will be able to enter comments for internal record-keeping, and to notify the applicant about additional requirements for the request. Additionally, the reviewing officer with the authority to approve can approve the request upon review. The request history, including edits, request status, and comments from the relevant reviewing officers, will also be displayed on this page.

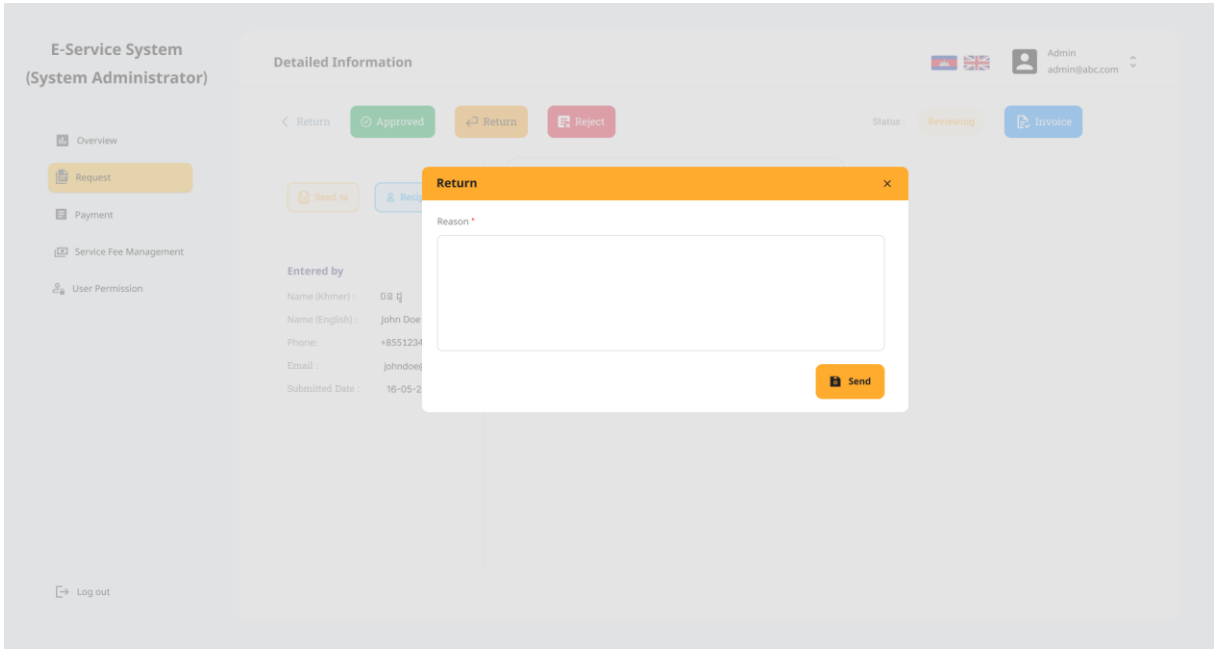

E-Service System
(System Administrator)
Request
Admin
admin@abc.com
Overview
Request
Payment
Service Fee Management
User Permission
FIND
Sort
No
Company Name (Khmer)
Company Name (English)
Type of Company
Status
Activity
01
អេប៊ីស៊ី
ABC Company
Foreign Enterprise
Reviewing
02
អេប៊ីស៊ី
ABC Company
Enterprise
Approved
Log out

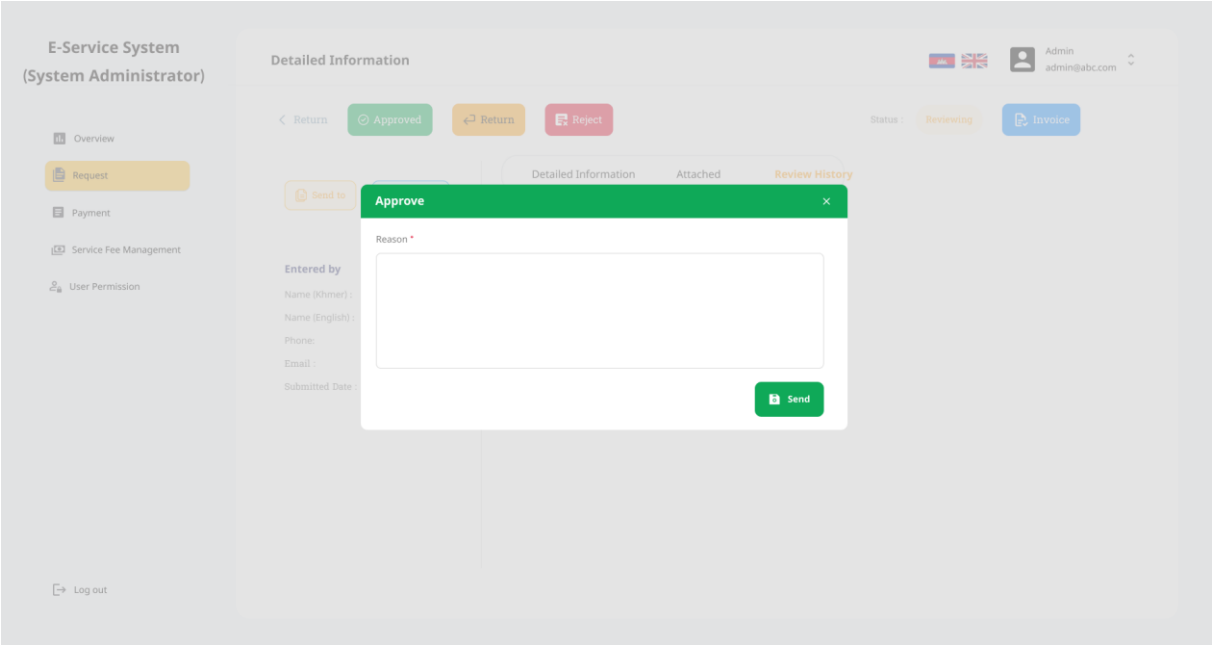

E-Service System
(System Administrator)
Detailed Information
Admin
admin@abc.com
Return
Approved
Return
Reject
Status:
Reviewing
Invoice
Overview
Request
Payment
Service Fee Management
User Permission
Detailed Information
Attached
Review History
Send to
Recipient
Review Application
Has your business registration been done through the CamDX system?
Yes
Entered by
Name (Khmer) :
Name (English) :
John Doe
Phone:
+855123456789
Email :
johndoe@gmail.com
Submitted Date :
16-05-2020
Registration Number
123456
Registered Date
03-07-2024
Surname and Name
John Doe
Sex
Male
Position
Shareholder
Company
ABC
Telephone
+855123456789
abc@abc.com
I have read the "Disclaimer" and agree to comply with the instructions above.

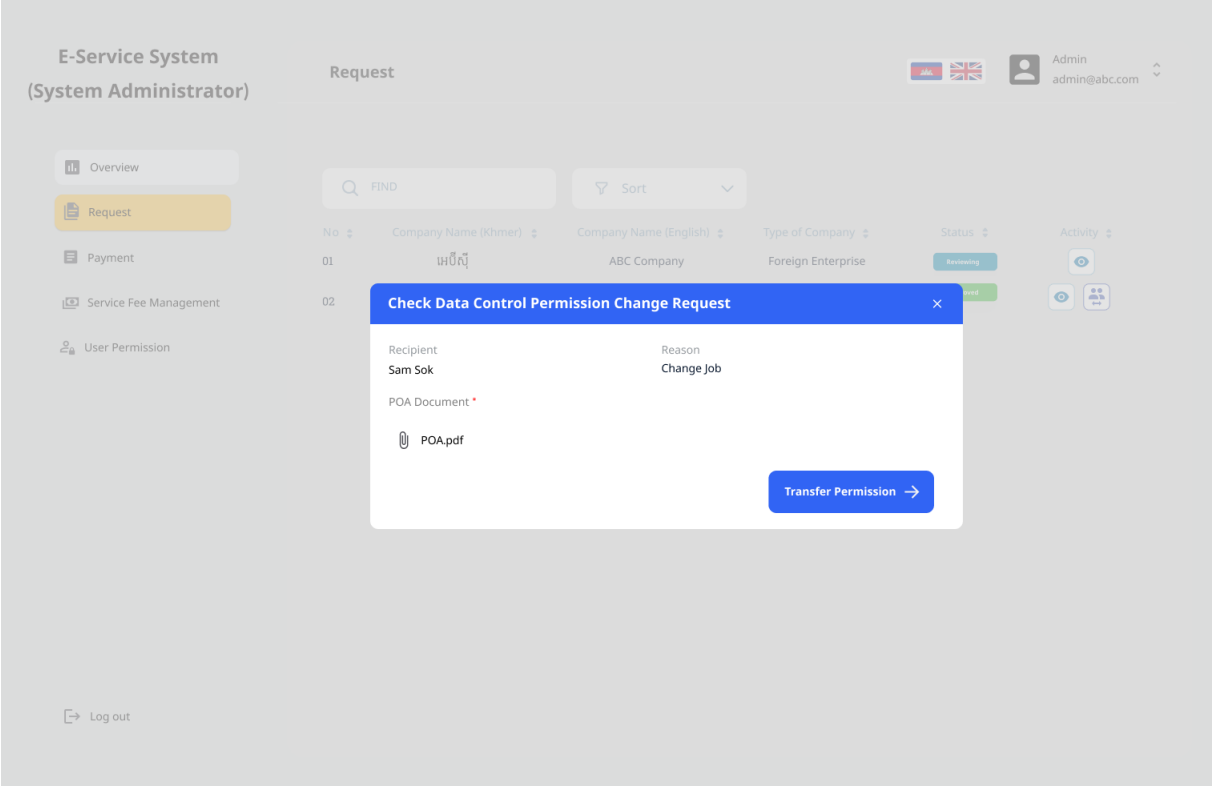

E-Service System
(System Administrator)
Overview
Request
Payment
Service Fee Management
User Permission
Log out
Detailed Information
Admin
admin@abc.com
Return
Approved
Return
Reject
Status:
Reviewing
Invoice
Detailed Information
Attached
Review History
Send to
Recipient
4x6 Photo of the License Owner
Location Confirmation Letter
Entered by
Name (Khmer) :
Name (English) :
John Doe
Phone:
+855123456789
Email :
johndoe@gmail.com
Submitted Date :
16-05-2020

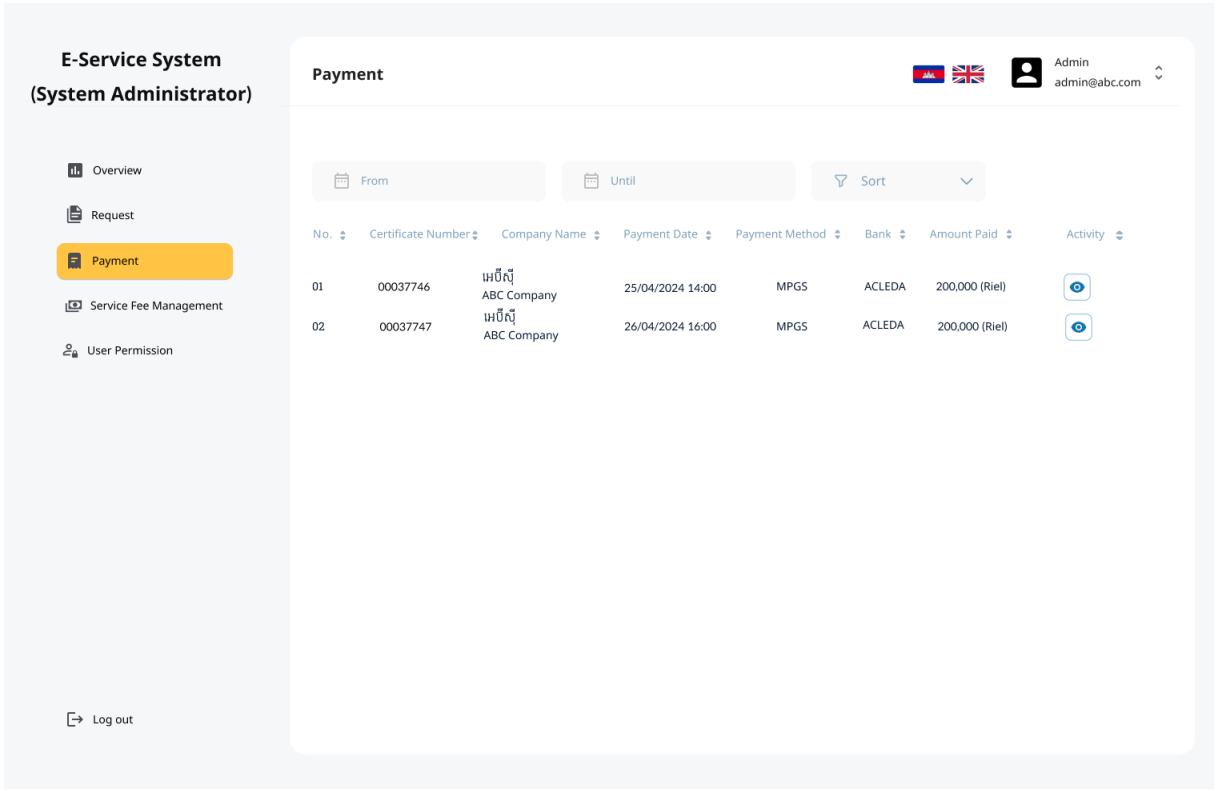

E-Service System
(System Administrator)
Overview
Request
Payment
Service Fee Management
User Permission
Log out
Detailed Information
Admin
admin@abc.com
Return
Approved
Return
Reject
Status :
Reviewing
Invoice
Detailed Information
Attached
Review History
Send to
Recipient
Reviewing
14-07-2022, 4:02:00
Application Approved
13-07-2022, 2:03:00
Entered by
Name (Khmer) :
Name (English) :
John Doe
Phone:
+855123456789
Email :
johndoe@gmail.com
Submitted Date :
16-05-2020

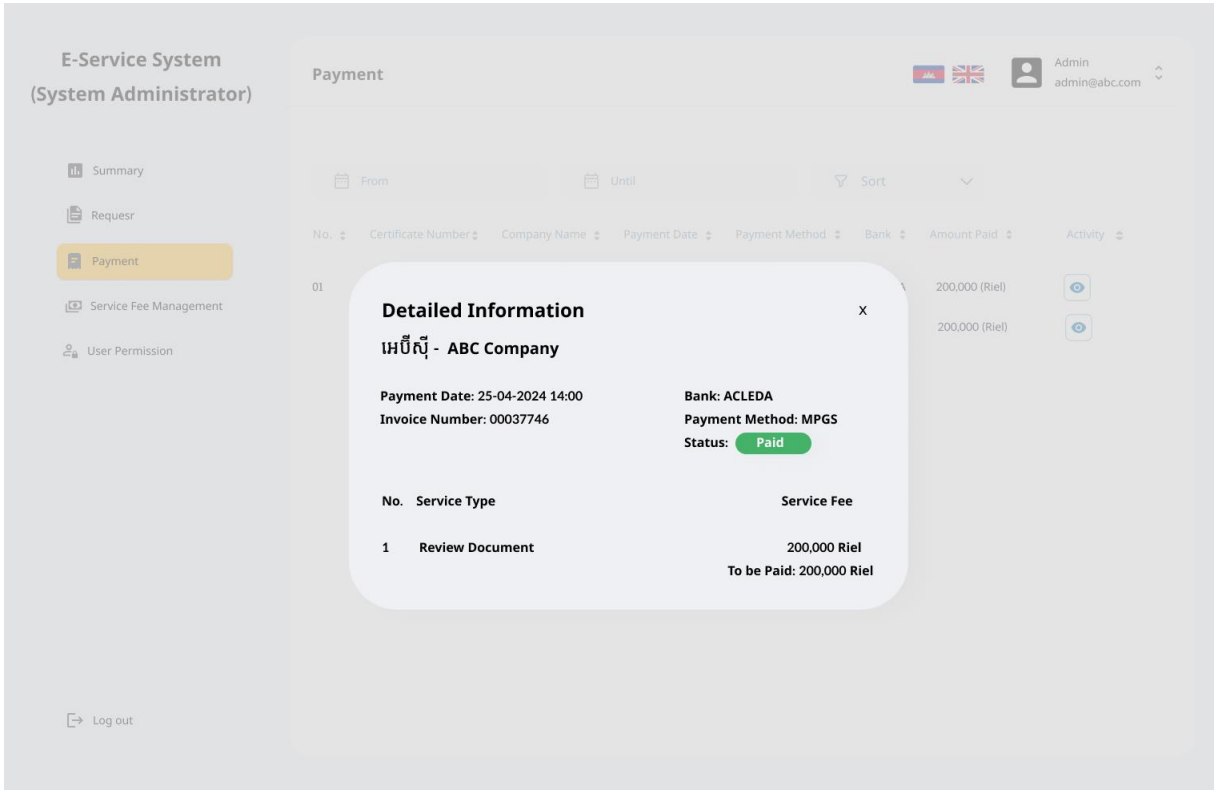

E-Service System
(System Administrator)
Detailed Information
Admin
admin@abc.com
Return
Approved
Return
Reject
Status :
Reviewing
Invoice
Overview
Request
Payment
Service Fee Management
User Permission
Send to
Recipient
Recipient *
Reason
Entered by
Name (Khmer) :
Name (English) :
Phone:
Email :
Submitted Date :
Send
Log out

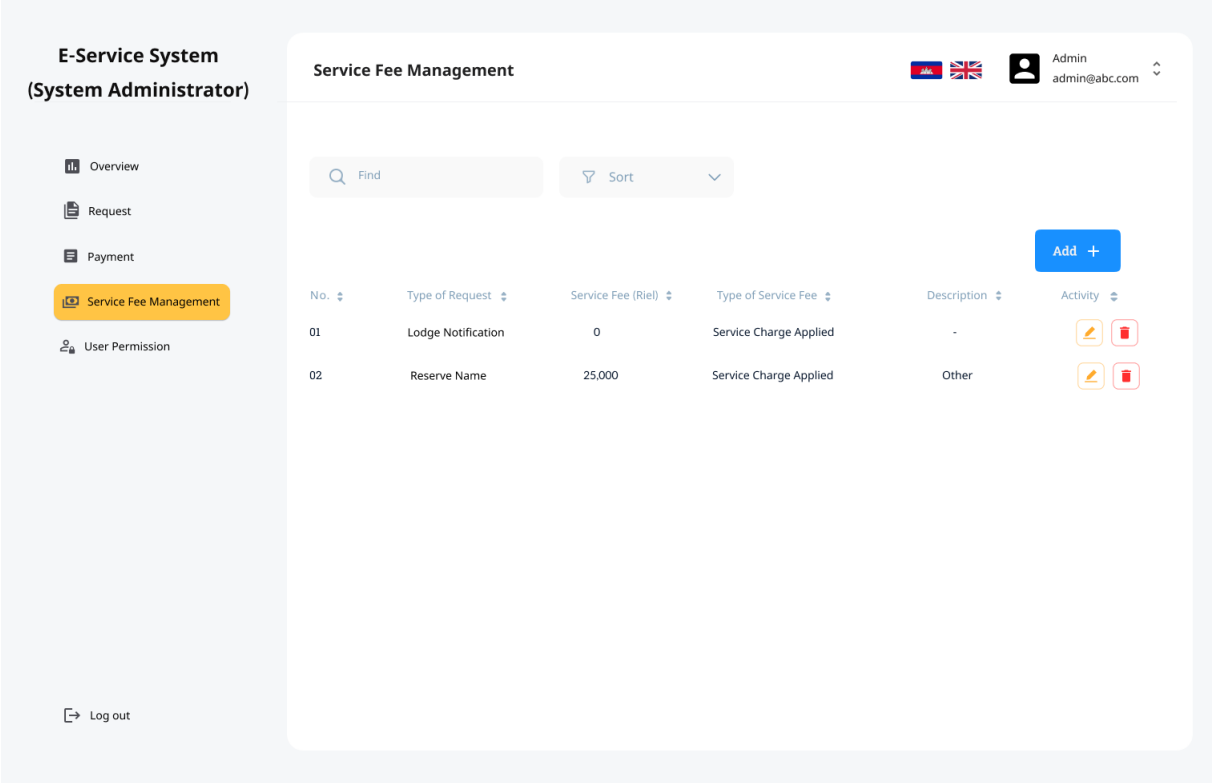

E-Service System
(System Administrator)
Detailed Information
Admin
admin@abc.com
Return
Approved
Return
Reject
Status :
Reviewing
Invoice
Overview
Request
Payment
Service Fee Management
User Permission
Send to
Return
Reason *
Entered by
Name (Khmer) :
Name (English) :
John Doe
Phone:
Email :
Submitted Date :
Send
Log out

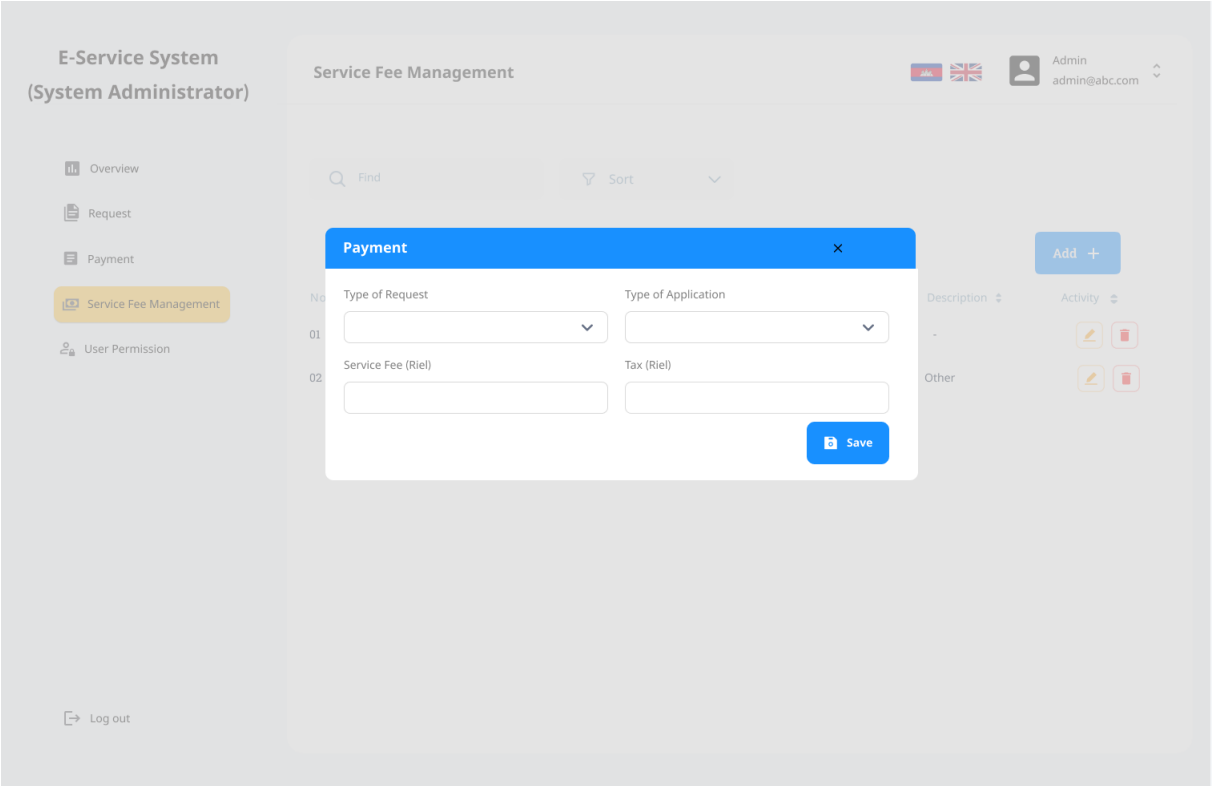

E-Service System
(System Administrator)
Detailed Information
Admin
admin@abc.com
Return
Approved
Return
Reject
Status :
Reviewing
Invoice
Overview
Request
Payment
Service Fee Management
User Permission
Detailed Information
Attached
Review History
Send to
Approve
Reason *
Entered by
Name (Khmer) :
Name (English) :
Phone:
Email :
Submitted Date :
Send
Log out


E-Service System
(System Administrator)
Request
Admin
admin@abc.com
Overview
Request
Payment
Service Fee Management
User Permission
FIND
Sort
No
Company Name (Khmer)
Company Name (English)
Type of Company
Status
Activity
01
ABC Company
Foreign Enterprise
Reviewing
02
Check Data Control Permission Change Request
Recipient
Sam Sok
Reason
Change Job
POA Document *
POA.pdf
Transfer Permission
Log out


E-Service System
(System Administrator)
Overview
Request
Payment
Service Fee Management
User Permission
Log out
Payment
Admin
admin@abc.com
From
Until
Sort
No.
Certificate Number
Company Name
Payment Date
Payment Method
Bank
Amount Paid
Activity
01
00037746
ABC Company
25/04/2024 14:00
MPGS
ACLEDA
200,000 (Riel)
02
00037747
ABC Company
26/04/2024 16:00
MPGS
ACLEDA
200,000 (Riel)

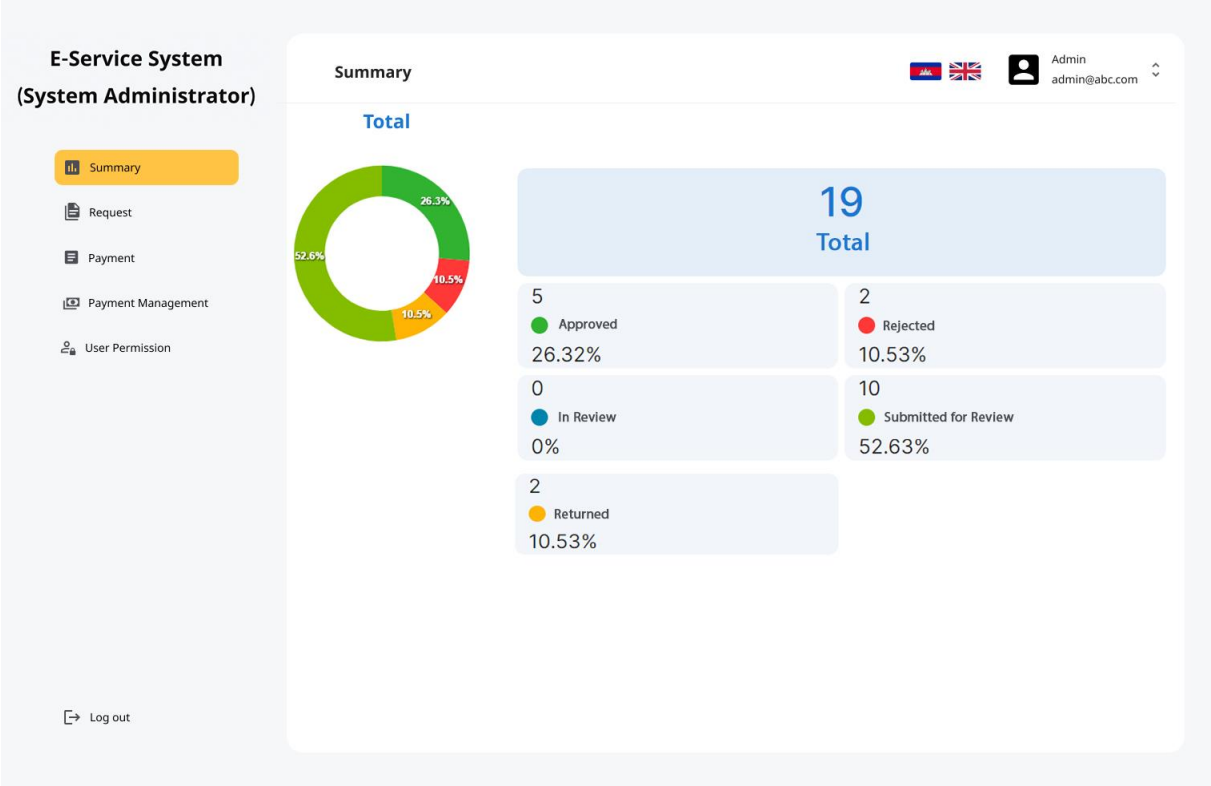

E-Service System
(System Administrator)
Summary
Requesr
Payment
Service Fee Management
User Permission
Log out
Payment
Admin
admin@abc.com
Detailed Information
x
ABC Company
Payment Date: 25-04-2024 14:00
Invoice Number: 00037746
Bank: ACLEDA
Payment Method: MPGS
Status: Paid
No.
Service Type
Service Fee
1
Review Document
200,000 Riel
To be Paid: 200,000 Riel



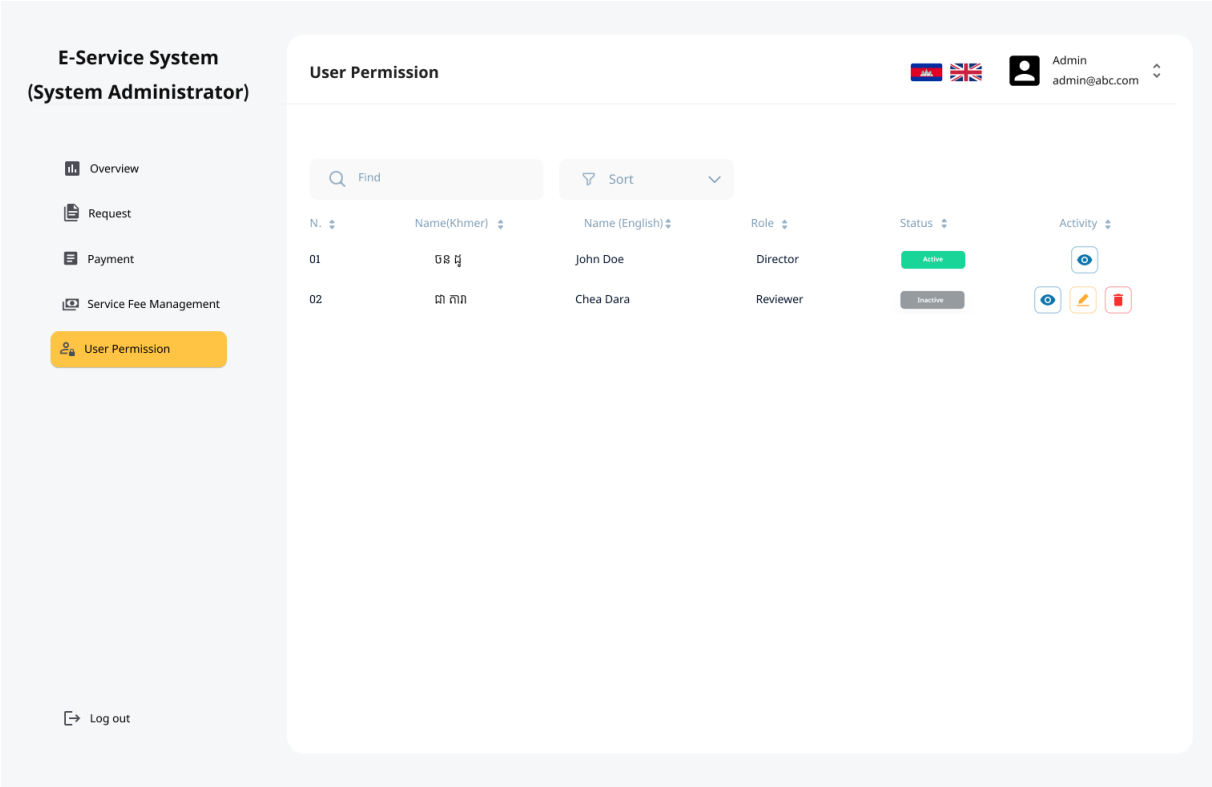


- **Interface Page 3:** Displays the generation of reports based on various conditions.

- **Interface Page 4:** Displays statistics, graphics, and a summary panel with detailed information on application submissions, receipts, reviews, and approvals, along with statistics on the status of the applications, etc.



- **Interface Page 5:** For setting user permissions for back-end system review.



- The back-end system should be designed to function on smartphones in the form of a mobile application or a website, adaptable to the screen size of the phone, allowing officers or management to approve requests or view reports and various statistics.

STRATEGY FOR THE DEVELOPMENT OF E-SERVICES FOR BUSINESS 2025-2028