Digital Solution Centre Feasibility Study:

Final Report

To:
UN ESCAP

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Disclaimer

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Table of Contents

1. Introduction 1

1.1. Background 1

1.2. Purpose of the Feasibility Study 1

1.3. Summary methodology 2

2. Is there Demand for Digital Solutions in the Asia Pacific Region? 3

3. The Eco-system of Digital Solution entities 5

3.1. Entities operating in this area 5

3.2. UN and ESCAP Institutions 8

3.3. Regional Banks and National Agencies 10

4. Rationale and Scope of a new Centre 12

4.1. The option of Bi-Lateral Exchanges 12

4.2. Comparing the DSC package and other Centre activities 12

4.3. Potential benefits 14

5. Vision, Mission and Scope of the DSC 15

5.1. DSC Vision for the Future 15

5.2. DSC Mission/Outcome Sought 15

5.3. Principles of Operation 15

5.4. DPI and DPG 16

5.5. Geographical Scope 17

6. Technical, Operational, and Financial Modalities Feasibility 20

6.1. Technical Feasibility 20

6.2. Operational Modalities 22

6.3. Coordination, Collaboration and addressing Duplication 24

7. Staffing, Governance and Financial Feasibility 26

7.1. Staffing 26

7.2. Governance 26

7.3. Financial Feasibility 26

8. Risk Assessment 30

9. Conclusions and Recommendations 31

9.1. Summary and Conclusions 31

9.2. Recommendations 34

Annex 1: Methodology 36

Annex 2: Estimated DSC Budget for five years 38

Annex 3: Kazakhstan Digital Solutions 42

Acronyms

ADB:	Asian Development Bank
APCICT:	Asian and Pacific Training Centre for Information and Communication Technology and Development
APCTT:	Asia and Pacific Centre for Transfer of Technology
APDIM:	Asian and Pacific Centre for the Development of Disaster Information Management
BDT:	Telecommunication Development Bureau (Bureau de développement des télécommunications) (ITU)
CDPI:	Centre for Digital Public Infrastructure
DAAS:	DPI as a packaged Solution
DPG:	digital public goods
DPGA:	Digital Public Goods Alliance
DIA:	Digital Impact Alliance
DPI:	Digital public infrastructure
DSC:	Digital Solutions Centre
EGDI:	E-Government Development Index
ESCAP:	Economic and Social Commission for Asia and the Pacific (UN)
FAO:	Food and Agriculture Organisation (UN)
ITU:	International Telecommunications Union (UN)
KazAid:	Kazakhstan Agency for International Development
KII:	Key Informant Interview
LDCs:	Least Developed Countries
MDDIAI:	Ministry of Digital Development, Innovations and Aerospace Industry (Kazakhstan)
NITEC:	National Information Technologies Joint Stock Company
NRL:	Non-Refundable Loan
RI:	Regional Institutions (ESCAP)
SDG:	Sustainable Development Goal
SONCA:	Subregional Office for North and Central Asia (ESCAP)
TNA:	technology needs assessment
UN:	United Nations
UNDP:	United Nations Development Programme
UNECE:	United Nations Economic Commission for Europe
UNGA:	United Nations General Assembly
UNTB:	United Nations Technology Bank for Least Developed Countries

1. Introduction

1.1. Background.

The Government of Kazakhstan, during the Fourth session of the *Economic and Social Commission for Asia and the Pacific's* (ESCAP's) *Committee on Information and Communications Technology, Science, Technology and Innovation* in September 2022, offered to establish a *Digital Solutions Centre for Sustainable Development* (DSC) to provide practical digital solutions in Central Asia and beyond.

The *Astana Ministerial Declaration on Digital Inclusion and Transformation in Asia and the Pacific*[1] in September 2024 requested the Executive Secretary to commission an independent feasibility study on the role, structure and financing of the proposed DSC. It was also to establish an Ad Hoc Working Group, open to all members and associate members, to review the outcome of the feasibility study and to recommend a road map for strengthening the sharing of practical digital solutions for the Asia-Pacific region. The need to avoid duplication of efforts of ESCAP regional institutions (RIs) and specialised organisations was stressed. The Ad Hoc Working Group is to report on its progress to the Commission at the Commission's eighty-first session.

1.2. Purpose of the Feasibility Study

The purpose of the study is to inform the deliberations of this ad hoc working group in relation to the road map as well as the deliberations of ESCAP members and associate members on the proposed establishment of the DSC. The objectives of the feasibility study are to:

Assess the role of the proposed DSC: Assess the potential contributions of the DSC in fostering digital innovation for sustainable development in the Asia-Pacific region. This includes, among other matters, defining its mandate, purpose, strategic focus, identifying target beneficiaries and positioning the centre within the broader landscape of regional and subregional organisations offering digital solutions.

Define the structure: Propose an organisational structure for the centre that facilitates effective operations, stakeholder engagement, and alignment with ESCAP's mandate and priorities.

Analyse financing options: Estimate the expected institutional and programme resources required for the proposed centre to ensure financial sustainability in the medium and long term and identify financing mechanisms, including potential contributions from the host government and other members and associate members of ESCAP.

Recommendations: Based on the above, provide recommendations on the role, structure, and financing of the proposed digital solutions centre for sustainable development to be established in Kazakhstan under the auspices of ESCAP.

[1] https://www.unescap.org/sites/default/d8files/event-documents/2400314E.pdf

1.3. Summary methodology

Annex 1 contains more detail on the methodology, including a list of those consulted. The research combined desk research with Key Informant Interviews (KIIs), online and during two Field Visits to ESCAP in Bangkok and to Almaty and Astana in Kazakhstan.

The financial analysis was undertaken by Ualikhan Didarbekov, an international consultant based in Kazakhstan, at the request of ESCAP.

KIIs, totalling just under 50 people mostly on-to-one and in person, covered a variety of stakeholders:

- Senior ESCAP management and experts across several Divisions
- In Kazakhstan: Vice-Minister, Ministry of Digital Development, Innovations and Aerospace Industry of Kazakhstan (MDDIAI); Ministry of Foreign Affairs; KazAid; Astana Digital Hub; Almaty City government, United Nations Economic Commission for Europe (UNECE) & Subregional Office for North and Central Asia (SONCA), UN Resident Coordinator
- All ESCAP Regional Institutes (RIs)
- Additional UN agencies, centres and Commissions
- Ten ESCAP Member State representatives and/or Ministries

Early in the research, it became evident that considerably more conceptual development and practical planning was underway by the Kazakhstan team working on the DSC than was apparent from the documentation available. The Consultant has therefore worked closely with the team, and with senior officials, to assess and document these ongoing developments and concepts.

The Field Visit to Kazakhstan was particularly useful in this regard since it offered an opportunity to engage in in-depth discussions with senior politicians, government policy officials and experts, to visit the proposed location and premises for the DSC, and to view first-hand the range of digital solutions in Kazakhstan including their use by members of the public in accessible public centres.

2. Is there Demand for Digital Solutions in the Asia Pacific Region?

Is there demand among member states for the services that the DSC proposes to offer, one that cannot be fulfilled from their own resources?

The process of digital transformation is sweeping across the world, bringing with it significant changes to economics, politics, society and culture. Driven by the world's most powerful corporations and their host governments, this process does not always put the public interest to the fore. Many smaller and economically weaker countries are finding it difficult to navigate a course that, in some respects, is being forced upon them by the speed of developments and internal and external pressures. There is a significant risk that these countries are losing any real agency and autonomy in the process of transformation, particularly where they are being offered ready-made proprietary solutions to problems they were not even aware they faced.

Virtually all those interviewed, experts and institutional and member state representatives, agreed that, in principle, there is major potential, especially among least and less developed UN ESCAP member states, to further digitalise their public and government services, and to enhance interoperability between systems and countries.[2] Many have taken just a few tentative steps, while others have already launched a growing set of applications. At the same time, many of those interviewed stress that maximising the contribution to priority SDGs depends on a carefully targeted implementation process. This issue is also emphasised in the literature[3] – the digitalisation process can vary hugely in terms of where the benefits accrue, between different stakeholders within a given country but also in terms resources and wealth, including data, being extracted from a country.

In terms of maximising the potential benefits, smaller and less economically developed member states have capacity gaps across a number of relevant areas. These can include some or all of the following:

- Technical expertise in the design of standards and interoperability frameworks required
- Technical expertise in application development and deployment
- Cyber-security and safety
- Policy, regulatory and legislative frameworks
- Multi-departmental project management
- Translating identified needs into potential solutions
- Inclusion, human rights, and impact assessment of digital applications

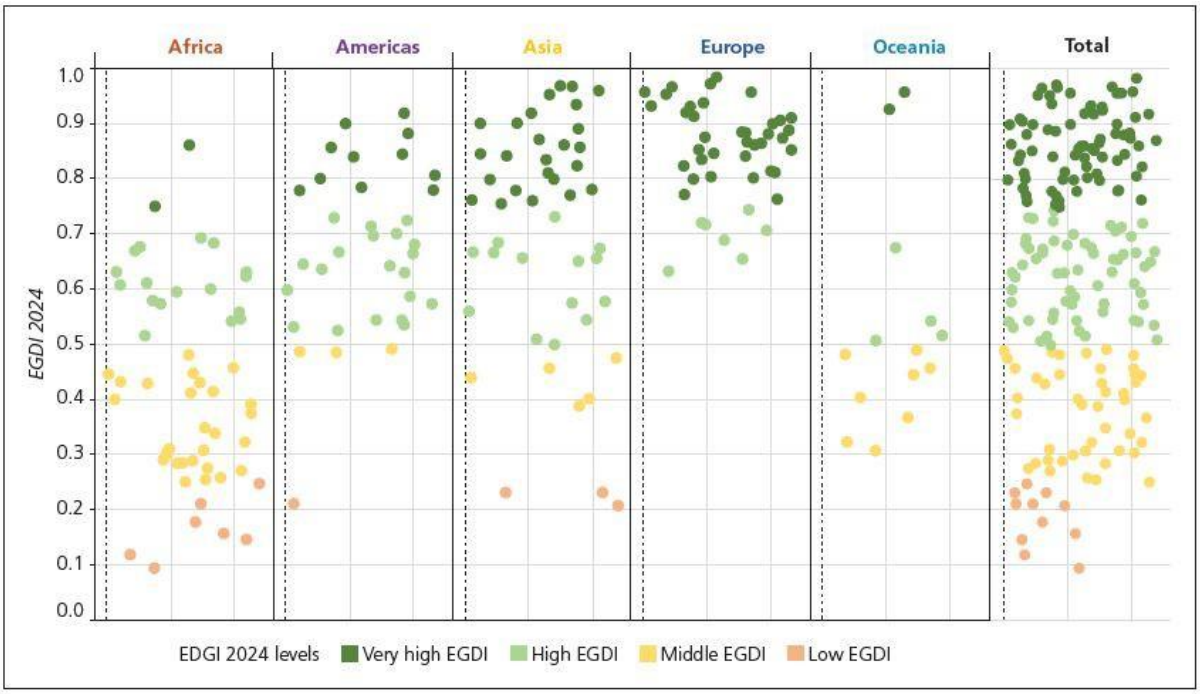
The UN DESA e-government survey offers a comparative analysis of the level of development of e-government services across the global regions. The table below is a snapshot of the overall EGDI (E-Government Development Index)[4]:

[2] A compendium of evidence of the benefits of implementing digital public infrastructure is here: https://www.codevelop.fund/publications

[3] See for instance: Recovering the 'Public' in India's Digital Public Infrastructure Strategy 2025: https://itforchange.net/sites/default/files/2025-02/Recovering_the_%E2%80%98public%E2%80%99_in_India%E2%80%99s_Digital_Public_Infrastructure_0.pdf

[4] https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2024

Figure 1: Regional Snapshot of countries by EGDI level, 2024 (Source: UN E-Government Survey 2024)



Although the countries do not precisely coincide with Asia Pacific member states, a cursory examination reveals that Asia and Oceania combined have the greatest regional spread along the spectrum from the lowest to highest. This suggests that the greatest potential for exchanging digital solutions between countries lies in the Asia Pacific region.

Asia is also advancing fast. The 2024 UN E-Government Survey also reports:

> "Asian countries have demonstrated remarkable performance in e-government development, as reflected in the 2024 EGDI results. Among the five global regions assessed, Asia has achieved the most rapid advancement in digital development, driven by both established and emerging digital leaders."(Page 110)

Singapore, the Republic of Korea and Japan are long recognised as frontrunners. But Kazakhstan, Türkiye and China are also singled out for their impressive progress.

> "These nations have invested heavily in digital infrastructure, embracing new technologies such as AI, blockchain and the Internet of Things (IoT) to revolutionize public administration and services delivery. Their commitment to digitalization has been further accelerated by national strategies that prioritize ICT development and digital literacy." (page 110)

Overall, there is little doubt concerning the high level of demand among Asia Pacific countries for effective digital solutions for government processes and public services, including to enhance participative and democratic structures and responsive user-focused services. Nor is this demand likely to fall in the foreseeable future.

For the DSC, more challenging questions relate to whether other entities are already capable of providing them, and whether its proposed solution addresses an area that is currently underserved.

3. The Eco-system of Digital Solution entities

In presenting the rationale for the creation of the DSC, it can be assumed there is demand for digital services among ESCAP member states. If the DSC can offer digital solutions, in a cost-effective, timely and efficient manner, there are very likely to be countries to take up the offer. However, a prior question is: What is the availability of such services already?

3.1. Entities operating in this area

Which existing regional and subregional institutions and mechanisms promote digital solutions for sustainable development, and enhance the capacity of countries to develop and implement them?

The focus here is first on those entities that overlap significantly with the proposed activities of the DSC. These include global, regional and sub-regional institutions involved in the introduction into third countries of specific digital applications in e-government and public services broadly defined, including one or more of:

- identification of digitalisation needs most relevant to the recipient country's priority SDGs;
- specifying and building national frameworks within which digital solutions can be integrated;
- facilitating or enabling the transfer of specific digital solutions;
- ensuring that recipient countries can autonomously implement and further develop these solutions.

These criteria deliberately limit the range of relevant institutions. While numerous organisations and entities support the digitalisation process as a whole, and some will be relevant as partners (see further on), only those that engage in similar activities are considered here.

It is notable that many of the comparable entities have crystallised around the concept of a digital public infrastructure (DPI) and digital public goods (DPG)[5].

GovStack https://www.govstack.global/

GovStack most closely resembles the proposed DSC, although there are some important differences. Gov Stack is a joint programme of ITU, German and Estonian governments, and the Digital Impact Alliance, and its scope is global. In their own words:

> "GovStack scales the proven best practice experiences from digital champions such as Estonia, India, and Singapore. GovStack takes these national best practices and outlines an open-source whole-of-government stack for the digitization of public services… Our focus is to enable countries to kick-start their digital transformation journey by adopting, deploying, and scaling digital government services. Through the digital "building blocks" approach, governments can easily create or modify their digital platforms, services, and applications by also simplifying cost, time, and resource requirements."

[5] Both concepts, discussed later, are recognised by the Global Digital Compact. See https://www.un.org/global-digital-compact/sites/default/files/2024-09/Global%20Digital%20Compact%20-%20English_0.pdf

GovStack's goal is to ensure that smaller and less developed countries maintain *agency* in their digital transformation in relation to government services, can decide for themselves what they want and need and develop at their own pace.

At the core of their work, they support less developed countries to build, using 23 distinct building blocks, a technical framework for the complete digitalisation of government and public services[6]. Conceptually, they begin with a macro-level framework, and consider individual applications within that context. Their support will vary according to the starting point of each country. Key principles include interoperability, open standards and open source (though countries are free to deploy compatible proprietary systems), user-centred design and building for sustainability. To achieve this, they provide countries with expert support, from their own team members and bringing in others, usually over a sustained period of time.

In terms of specific applications -the 'digital solutions' to be integrated into the framework - they do not directly provide them or offer specific recommendations. However, they maintain a list[7] (or 'market') of applications and technical assistance providers whose services and products they have reviewed to ensure their compatibility with the GovStack framework.

The **Digital Public Goods Alliance** https://www.digitalpublicgoods.net/

The DPGA is a UN-endorsed multi-stakeholder initiative that facilitates the discovery, development, use of, and investment in open-source solutions that adhere to open standards and best practices and are relevant to achieving the SDGs. It facilitates the development of standards in DPGAs, and supports knowledge-sharing and coordination among its current 43 members, among whom are sixteen governments and government agencies; UNDP, ITU and FAO; Rockefeller; Asia Development Bank (ADB); Gates and Open Knowledge foundations; NGOs such as Creative Commons and Open Future; and private companies such as Github.

Their work includes advocacy to "align international leadership around DPGs"; convening expert groups and communities of practices; mobilising existing funding structure towards ODA-eligible countries[8] for DPGs; enabling the UN system to better support DPG implementation in countries; and providing tools and resources to government to help them build DPGs.

Further flagship activities include developing *DPG standards*[9], based on the UN Secretary General's *Roadmap for Digital Cooperation*[10]. These standards are the baseline for inclusion on their *registry of DGPs*[11]. The DPG Registry - sorted into Open AI systems, Open Content, Open Data and Open Software - contains a large number of solutions across virtually all domains, all of them verified and based on compatible GDP standards. From the Registry, the providers can be identified and contacted directly.

[6] See https://govstack.gitbook.io/specification
[7] See https://www.govstack.global/companies/
[8] i.e. those in the OECD DAC list of ODA recipients: https://www.oecd.org/en/topics/sub-issues/oda-eligibility-and-conditions/dac-list-of-oda-recipients.html
[9] See https://www.digitalpublicgoods.net/standard
[10] See https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap_for_Digital_Cooperation_EN.pdf
[11] See https://www.digitalpublicgoods.net/registry

As an example, OPENCRVS[12] is an open source civil registration and vital statistics package. It supports the process of registering events, such as births and deaths, while ensuring offline functionality for remote areas, robust data security, and adherence to global standards. Developed in the UK, it is tailored for low- and middle-income countries.

In 2024 it also launched a set of DPGs that can specifically be used as a component of a DPI.

Co-Develop (https://www.codevelop.fund/)

Co-Develop is another initiative to promote DPI, supported by a group of philanthropic foundations. Their vision of a DPI is that it must be 1) inclusive, 2) foundational, 3) interoperable, and 4) publicly accountable; and that it deploys open-source software, open data, and open AI systems.

Co-Develop offers a global non-profit fund to "unlock bottlenecks in developing solutions using a shared infrastructure approach" with a focus on inclusion, on demonstrating early successes, and gathering and disseminating evidence on DPI (including the above-referenced compendium).

Co-develop directly finances the development of individual e-government solutions. Implementing countries in Asia-Pacific include Cambodia, India, Indonesia, Kyrgyzstan, LAO PDR, Philippines, Singapore, South Korea, Sri Lanka and Thailand. Each pilot has been extensively documented, as part of Co-Develop's dissemination and learning activities, with videos and Case Studies.[13]

Co-Develop also organises a global DPI Summit to bring key stakeholders together and showcase developments. The most recent was in October in 2024, in cooperation with ITU, UNDP and others.

Centre for Digital Public Infrastructure (CDPI) (https://cdpi.dev/)

CDPI operates as a centre of the *International Institute for Information Technology* in Bangalore, India. It is global in scope and its international team provides pro-bono, technology-neutral advice, on the development of DPI and services. It organises in-country workshops and conferences, and provides training and capacity building.

Among its services, the CDPI team of about 13 experts promotes *DPI as a packaged Solution* (DaaS)[14]. DaaS in intended to facilitate rapid deployment of DPI, through upgrading existing infrastructure, instead of engaging in greenfield implementation, avoiding the delays, costs and uncertainties associated with normal procurement routes. CDPI claims that DaaS differs from conventional pilots since the infrastructure is built for population-scale from the beginning, using existing country resources and capacity, and can reach full coverage in a matter of months. DaaS applies only to minimalist layers, such as authentication on top of existing ID.

The **Digital Impact Alliance (https://dial.global/)**

This Alliance is a founding member of GovStack, but also has its own services. Its focus is primarily on policy and regulatory frameworks for data. Its goal is to support countries to "implement effective policies to unlock data in ways that prioritize the benefits to all individuals and communities, rather than a handful of powerful actors".

[12]https://www.digitalpublicgoods.net/r/opencrvs
[13] See: https://www.codevelop.fund/about-dpi-exemplar-stories
[14]https://docs.cdpi.dev/initiatives/dpi-as-a-packaged-solution-daas/daas-in-a-nutshell

It is funded by a group of government aid agencies and foundations, along with UNDP. They support Fellowships and have a team of about 30 experts. They have developed a *Digital Impact Exchange*[15] that "simplifies digital transformation efforts by providing online tools, products, and resources from trusted sources to help government technology users, development actors, and decision makers do their jobs better." The Exchange serves "as a one-stop shop, featuring over 500 digital tools, products and opportunities for government technology decision makers, IT developers, and product vendors."

The Digital Impact Exchange contains three types of entries:

- "Use Cases" which include non-technical descriptions of specific examples of digital solutions, including workflows and data sets developed;
- "Building Blocks" that offer ready-made, reusable software components that perform specific functions. Each block documents technical specifications needed to implement use cases. They can be open source or commercial off-the-shelf products, or freely available with data open access.
- "Products", which contains almost 700 solutions, providing an overview of each, the licensing, vetting if any, and any building blocks that may be supported by the products.

3.2. UN and ESCAP Institutions

Several UN agencies already engage with digitalisation processes in different ways. The DSC must consider whether there is any overlap of activity, or whether potentially one of these might more appropriately house a facility to undertake this work. These include the ESCAP Regional Institutions (RIs) and the UN Technology Bank for the Least Developed Countries (UNTB).

Here, the focus is on identifying areas of overlap of their mandate and activities.

Asian and Pacific Training Centre for Information and Communication Technology and Development (APCICT) (https://www.unapcict.org/)

Based in Incheon, Korea, the mandate of the APCICT is to build the capacity of ESCAP member states through ICT training programmes for socio-economic development. APCICT focuses on three pillars, training, knowledge-sharing, and multi-stakeholder dialogue and partnership. All three pillars are relevant to the proposed centre. Both organisations would engage in training in ICTs, knowledge-sharing and multi-stakeholder dialogue.

Differences and contrasts emerge in the overall objectives, and in the specifics of these three activities. APCICT's remit is very broad and covers the full range of ICT/digital activities. Priorities at any one time are selected in close consultation with member states from this broad range. The DSC, on the other hand, is focused narrowly on specific digital solutions, and within these on matching identified needs within one ESCAP member state with available options in another. Thus the DSC capacity building, knowledge-sharing and promotion of dialogue would focus exclusively on specific digital solutions identified for transfer, while the APC ICT can identify priorities from a much wider range.

[15] See description at https://dial.global/work/digital-impact-exchange/ The Exchange is at: https://exchange.dial.global/

APCICT focuses on building long-term digital capacities by equipping policymakers and institutions with the skills needed to drive sustainable digital transformation. While DSC focuses on exchanging specific digital solutions, APCICT takes a broader approach, strengthening policies, institutions, and skills to create an enabling environment for digital development. One specific application is APCICT's WIFI DX programme, designed to enhance the digital skills of women entrepreneurs, and it includes various hands-on digital solutions.

Thus there may be some overlap with the proposed DSC over time, pointing to the need for close coordination. Although APCICT has no *specific* mandate to promote the exchange of digital software solutions, activities related to this can readily be interpreted as within the general mandate, opening the door for collaboration.

The Asia and Pacific Centre for Transfer of Technology (**APCTT)** (https://apctt.org/)

The goal of the APCTT is to strengthen the national capacity of ESCAP member states to develop national innovation systems, and to create an enabling environment for the development and transfer of technology. It also promotes regional cooperation in Science Technology and Innovation (STI), and publishes the Asia-Pacific Tech Monitor. Its scope is much wider than digital technologies, but a current focus is on innovative digital solutions for climate change, disaster mitigation and air pollution.

It does not itself directly engage in technology transfer of specific applications, though it does convene stakeholders, using various methodologies to assess the potential and possibilities for technology transfer. This can be by means of individual events, or a series of workshops with technical experts and policy makers.

APCTT is also in the process of establishing an *Asia Pacific Platform for Technology Transfer*, comprising a database of technologies and policies across the region, which will also include innovative digital solutions. The plan is to include a Help Desk.

The database and the methodologies in convening stakeholders are among potential areas for collaboration with the DSC.

Asian and Pacific Centre for the Development of Disaster Information Management (APDIM) (https://apdim.unescap.org/home)

APDIM's mandate is to reduce human and material losses due to natural hazards and contribute to the effective design, investment and implementation of disaster risk reduction and resilience policies. It serves as a *risk information and knowledge repository,* supporting Governments and other stakeholders in the region to build their capacities as well as facilitating regional cooperation on transboundary hazards in Asia and the Pacific.

Clearly, digital technologies and data feature strongly in its work. The Centre collects and collates disaster and socio-economic information data, information and knowledge, and analyses it across multiple dimensions and shares it. They also develop training modules (including one on ICT for Disaster Management) and technical reports.

For the moment, their focus, from their statute, is on the more vulnerable subregions of Asia and the Pacific, including South-East Asia, South and South-West Asia and North and Central Asia, though it may eventually cover the whole region.

United Nations Technology Bank for Least Developed Countries (UNTB):
(https://www.un.org/technologybank/)

Established in 2016 and directly under the UN GA, the UNTB is based near Istanbul with support from the Turkish government. It has an exclusive focus on LDCs to strengthen their science, technology and innovation (STI) capacities.

Their interventions begin with a technology needs assessment (TNA) in LDCs using a multi-stakeholders approach (14 have been completed so far[16]) to identify sectors in which transfer would be most beneficial. A follow-up focus to the TNA process is to work with the countries to identify a small number of investment opportunities and to develop investment proposals for development banks and private banks.

They also build capacities to adopt and scale up technologies. Their mandate includes digital technologies – digital skills development is included in one of their four current thematic areas - and most of their TNAs include a digital component.

Their statute extends to opening regional centres, hosted in Asia or Africa at the request of member states, enabling them to work more closely with member states. No plans are in place for this at the moment.

International Telecommunications Union (ITU)(https://www.itu.int)

Apart from its central role in GovStack, the ITU supports a network of 17 *ITU Acceleration Centres*[17], one of three programmes under the ITU BDT's *Innovation and Entrepreneurship Alliance for Digital Development.*[18]The goal of the Alliance is to "help strengthen countries' capabilities to integrate ICT innovation into national development agendas and build human and institutional capabilities at the country level where it is most relevant and sustainable." Launched in 2023, the Acceleration Centres' goals are to undertake research and capacity building that focus on moving digital transformation forward. They have developed a set of methodologies based on an "ecosystem-thinking approach that combines the best of three recognized methodologies: Sense Making, Systems Thinking and Design Thinking." The Centres are based mostly in existing innovation institutions, and include two in China, and one in Pakistan and Philippines.

In addition, the ITU also supports an *Innovation Centre* in New Delhi, which is global in scope and covers several digital themes.[19]

3.3. Regional Banks and National Agencies

As noted earlier, numerous other entities, including global and regional development banks and government agencies, are involved in supporting and promoting the digital transformation process within and across national boundaries. Some are dedicated specifically to the provision of digital services to the public and for government use, while others engage in a wide range of development

[16] Many can be seen here: https://www.un.org/technologybank/technology-needs-assessments
[17] https://www.itu.int/en/ITU-D/Innovation/Pages/ITU-Acceleration-Centres-Network.aspx
[18] https://www.itu.int/itu-d/sites/innovation-alliance/
[19] See https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Pages/v2/RD's%20Corner/Project%20Pages/ITU%20Innovation%20Center/ITU-Innovation-Center.aspx

activities. There is no need to describe these in detail as they overlap only marginally in terms of their specific activities and mandates. Some, however, are relevant as potential partners and collaborators with the proposed Centre. The following are examples:

The Asia Development Bank Institute (ADBI), an arm of the ADB, funds technical assistance projects in the area of government-to-public digital services, to improve the quality of the services and to enhance access for marginalised communities. For instance, in selected states in India, ADBI provides technical assistance to improve delivery and access of government to citizen digital services at various levels of government including local government. It sponsors regional events, for instance one with CAREC to analyse digital gaps between Central and West Asian countries.

At national level, many countries established agencies, some several decades ago during the initial growth wave information and communication technologies. The following are a few, including that one in Kazakhstan.

- National Information Society Agency in Koreahttps://eng.nia.or.kr/site/nia_eng/main
- GovTech in Singapore: https://www.tech.gov.sg/our-capabilities/
- NITEC in Kazakhstan: https://www.nitec.kz/en

Some overlap with the proposed DSC can be seen where these centres engage directly with third countries in providing technical assistance in implementing specific digital solutions that are already established in their own.

4. Rationale and Scope of a new Centre

Does the need exist for a new Centre in this domain of activity?

Bearing in mind the above analysis, would the DSC fill a *specific identifiable gap* within the array of existing organisations and services available i.e. is the Centre proposing to implement individual actions or a combination of actions that are currently not being supplied by other entities within the Asia Pacific region?

Before addressing this, another question can legitimately be posed: *Would it not be simpler and more efficient for member states to engage in bilateral exchanges of digital solutions?*

4.1. The option of Bi-Lateral Exchanges

Could a given country in need of a digital solution approach another that has already developed and implemented one and, based on a relatively simple set of protocols and procedures, come to an arrangement for that country to install it? Indeed, some of the entities outlined earlier are predicated on such simplified interactions.

Certainly, there is nothing to prevent countries from engaging in these kinds of activities. Kazakhstan is already supporting Uzbekistan to implement some of its digital solutions. Such interactions draw on the political relationships between the countries, and may be undertaken in the context of bilateral ODA. There may also include an element of promoting the national digital industry externally, which can include proprietary solutions. But these factors also differentiate this approach from that of the DSC. The DSC proposes to offer, under the UN umbrella, a neutral service – politically and in terms of the technical solutions offered - in which the recipient country has the choice of all solutions offered by the centre and will have the capacity thereafter to maintain and develop the service further. The fact that there are potentially multiple recipient countries to a given specific solution may also introduce economies of scale, for instance in the capacity building process.

The fact that the DSC is actively supporting countries to identify their specific needs, and seeking out solutions that are available from across Asia Pacific, also introduces an active dynamic to the process that is more likely to see these transfers taking place. It is also worth mentioning that the specific goal of the DSC, unlike that of bilateral exchanges, is to ensure that the digital solutions found are contributing to achieving priority SDGs and promoting inclusive digital societies, as well as ensuring the long-term capacity of the recipient countries, features that may not be present in bi-lateral exchanges.

4.2. Comparing the DSC package and other Centre activities

Returning to the question of whether the DSC would duplicate the activities of other centres, the following table offers a summary of the activities of the entities outlined above that overlap in distinct ways with the proposed DSC.

Table 1: Comparative Table of Proposed DSC and other Centre Functions

	Digital Solutions Centre	GovStack	DPGA	Co-Develop	CDPI	DIA	UNTB
Contributing to national needs assessments of digital solutions	X	X			X		X
National Frameworks for digitalisation		X			X		
Standards for digital solutions		X	X				
Digital Solutions database/ registry	X	X	X			X	
Supporting access to ready-made solutions	X						X
Funding new digital solutions/ applications				X			
Supporting for localising/installing specific digital solutions	X				X		
Capacity building for future proofing ongoing use and expansion	X				X		

The table is rudimentary, and does not take into account potential future activities of some of these centres, or indeed all of their current ones. Rather, it focuses on those functions that are within the broad spectrum proposed for the DSC.

Nevertheless, it does suggest an offering that is unique to the DSC: *As a neutral platform offering integrated support for all stages, from identification of existing digital solutions, enabling and supporting their direct transfer, through to embedding them in recipient countries including future-proofing their ongoing use and expansion.*

Other entities engage in several of these steps, but not across the full spectrum.

What DSC does not do, that some others do, is standards development (identifying and agreeing standards that will ensure interoperability and compatibility); and it doesn't directly develop national frameworks within which digital solutions can be inserted. It also doesn't directly fund new digital solutions, though it does provide technical support for the installation of existing ones.

Thus, it is reasonable to conclude that the package of actions that the DSC proposes to offer is a unique one. It is offering to see the process of delivering existing digital solutions to a third country from: needs assessment of potential recipient countries in terms of solutions that contribute most to SDGs, through to identifying solutions from donor countries that currently successfully deploy them, to ensuring that these are appropriate for exchange, and providing technical assistance for the exchange and the capacity building needed for their deployment in recipients countries now and into the future. As a unique package, however, it also faces unique challenges.

A critical question remains concerning the need for the DSC. Could, and should, the same finances be more efficiently and effectively directed towards existing entities, building new partnerships between existing Centres, or towards creating a new sub-c entre within an existing one?

Before proceeding, it must be acknowledged that this is, in one key sense, a moot question: the funding offered by the Kazakhstan government is earmarked for the DSC, and is not available for alternatives.

Thus the issue can be reformulated into several legitimate questions:

1. Would the proposed DSC expand the overall capacity in the Asia Pacific region to fulfil the needs of UNESCAP member states in an efficient and effective manner?
2. Under what circumstances, and with what modalities, could the DSC utilise this funding effectively and efficiently to achieve this goal?
3. What actions and features of the DSC would minimise the risk in inefficient and ineffective funding, and maximise the potential of this investment towards achieving its goal?

These questions are addressed, inter alia, in the following sections.

4.3. Potential benefits

It is important not to assume that a process of digitalisation in itself brings benefits, and more specifically, that it can (compared to other investments) hasten the achievement of the SDGs. This is by no means certain; it must be stressed that any investment in digital transformation needs to be carefully planned not just to the local circumstances but to *deliberately target those SDGs that can contribute most to inclusive development*. Thus, the DSC would have to build-in this to every stage in the process of needs assessment, design, exchange and capacity building.

In the longer term, the DSC has the potential to contribute to a further core ESCAP goal, that of enhancing regional integration. This the DSC would have in common with most of the other entities outlined above: the promotion of full interoperability, nationally, regionally and internationally.

In this context, the Bangkok Declaration on Regional Economic Cooperation and Integration in Asia and the Pacific (resolution 70/1)[20], adopted at the ESCAP's Seventieth session in 2014, is relevant. In this member states resolved to work together to pursue (II.1(b)):

> "The development of seamless connectivity across the region in the areas of transport, energy and information and communications technology, among others, including through the full realization of key regional initiatives;"

Thus, interoperability of digital system is central feature of regional economic cooperation and integration (RECI). In2017, a follow-up report[21] notes the following:

> "The focus of RECI on seamless connectivity aims to develop connectivity that enables the freer movement of people, goods, energy and information. The current state of infrastructure in several countries of the region is below par compared with similar countries in other regions. This disproportionately affects the poor and rural people and impedes poverty reduction efforts."

Thus a further consideration in selecting and developing these digital solutions is the extent to which they can contribute to such regional interconnectivity.

[20]https://digitallibrary.un.org/record/3882377?v=pdf
[21]https://www.unescap.org/sites/default/d8files/knowledge-products/RECI%20Report%20ebook-%20Final%2013Nov2017.pdf20Final%2013Nov2017.pdf

5. Vision, Mission and Scope of the DSC

Clear descriptions of the vision, role and scope of the proposed Centre are preconditions to assessing its feasibility. While definitive statements are, necessarily, a work in progress, the following are based on existing documentation and discussions.

5.1. DSC Vision for the Future

The Vision of the DSC may be stated as follows:

> "That Asia Pacific countries are implementing digital solutions in government applications and services to citizens that maximise impact on their priority SDGs and enhance regional interoperability, through sharing best practice solutions regionally and ensuring all countries have the agency, expertise and institutions to drive this process into the future."

5.2. DSC Mission/Outcome Sought:

A summary of the DSC's mission and outcomes sought is as follows:

> "The DSC, as a trusted and neutral centre under the UN umbrella, is facilitating UN ESCAP member states to identify priority needs in digitalisation of public and government services, is matching these with best-practice digital solutions from ESCAP member states, and is enabling the transfer of these in a manner that in a timely, cost-effective and sustainable and gives long-term agency to recipients states in their future evolution."

The outcomes sought include that:

- the digital solutions selected will contribute to their priority SDGs and interoperability;
- they are embedded within an appropriate legal, regulatory and institutional framework;
- they are deployed in a manner that ensures digital inclusivity;
- member states have the knowledge, tools and rights to adapt, maintain, update, further develop and reapply these solutions into the future.

5.3. Principles of Operation

A set of principles will help to guide the work, and to inform those interacting with it. The following are based on the broad objectives of the CSD and on best practice among other entities:

1. Give countries agency: All solutions and processes are designed, from conception, to implementation to follow-through, to empower countries with sovereign policy space, to make their own decisions based on their determined needs, with control over their resources – natural and digital – in the public interest.
2. Offer countries an informed choice of solutions: The DSC aims to make a *choice of solutions* available for a given purpose, from different source countries; each suited to different circumstances, and each described using a set of agreed parameters that can give an initial indication of what is needed to make it implementable, maintainable and sustainable
3. Target priority SDGs: The Centre supports countries to implement digital solutions that contribute most to their priority SDG targets.

4. Tailor to each eco-system and user: Solutions are tailored each country's unique configuration of needs, potential, resources and current level of digitalisation, and designed with users to target needs and accessibility.
5. Seek out Partnerships and Collaboration: The Centre seeks out partnerships and collaboration in all its activities, among other entities, the free and open source communities globally, in order to extend and sustain its impact, to eliminate duplication, to maximise public value and to expand the innovation base.
6. Use open standards: All digital solutions embody open source, open data and DPI and DPG standards (see below), ensuring the implementing country has full rights to adapt, revise, update, extend and repurpose.
7. Secure and private: Digital solutions, from their architecture to code to implementation modalities, are authenticated for security and privacy.
8. Internal, regional and global interoperability: All solutions and technical frameworks are designed and configured for full national, regional and global interoperability and integration, adopting common standards and access codes.
9. Support International Human Rights Standards: As a UN centre and to fulfil its core mandate, all digital solutions are designed and reviewed to ensure they adhere to and contribute to strengthening international human rights standards.

5.4. DPI and DPG

The DPI/DPG framework is highly relevant to the work of the proposed Centre, and is the subject of considerable research and activities in recent years. Closely related to the idea of a digital commons[22] some see it as a "fundamental shift in how we think about infrastructure in the 21st century" [23], with India seen as a frontrunner[24].

The framework is pursued by many of the entities described above, and strongly endorsed by the Global Digital Compact (GDC), which devotes a section to it. It is worth quoting at length (page 5):

> "Digital public goods and digital public infrastructure
>
> 14. We recognize that digital public goods, which include open-source software, open data, open artificial intelligence models, open standards and open content that adhere to privacy and other applicable international laws, standards and best practices and do no harm, empower societies and individuals to direct digital technologies to their development needs and can facilitate digital cooperation and investment.
>
> 15. Resilient, safe, inclusive and interoperable digital public infrastructure has the potential to deliver services at scale and increase social and economic opportunities for

[22] "Digital Commons as Providers of Public Digital Infrastructures In depth literature review and five case studies". Open Future, November 2023. https://openfuture.eu/publication/digital-commons-as-providers-of-public-digital-infrastructures/

[23] *Redefining Infrastructure in the Digital Age: The Rise of Digital Public Infrastructures.* Bertelmann Stiftung, October 2024. https://www.reframetech.de/en/2024/10/23/redefining-infrastructure-in-the-digital-age-the-rise-of-digital-public-infrastructures/

[24] "The India Stack: Opening the digital marketplace to the masses", Financial Times 20 April 2023. https://www.ft.com/content/cf75a136-c6c7-49d0-8c1c-89e046b8a170

all. We recognize that there are multiple models of digital public infrastructure, and that each society will develop and use shared digital systems according to its specific priorities and needs. Transparent, safe and secure digital systems and user-centred safeguards can promote public trust and use of digital services.

16. We consider such digital public goods and digital public infrastructure to be key drivers of inclusive digital transformation and innovation. We recognize the need to increase investment in their successful development with the participation of all stakeholders."

A key value of the DPI and DPG is that they offer a better opportunity for countries of the global south to maintain agency in relation to digital transformation, at least initially in the area of public services, with potential also for developing private sector services

The proposed Centre is fully compatible with the core features of DPI, and as part of the UN system has a clear mandate to support it. Adoption of the terminology and standards would also facilitate cooperation with these entities, contribute to interoperability globally and regionally[25], and enhance a coherent public perception and visibility. A key feature of DPI and DPGs is their interoperability, which means that countries can select solutions from different sources, and be reassured that they will operate effectively together.

5.5. Geographical Scope

As an ESCAP RI, the proposed DSC must, in principal and in practice, cover the entire Asia Pacific region. At the same time, it could focus initially on a specific sub-region for operational, financial or other reasons.

Before considering this in more depth, it is important to distinguish two distinct elements of geographical scope for the DSC: the source and the destination of the digital solutions.

Member states as sources of digital solutions

The digital solutions offered through the DSC will be sourced from ESCAP member states in which they are already implemented and in use, and which are willing to enable their implementation in a third country. Kazakhstan has indicated that it is ready to offer 23 specific digital solutions. At the same time, a core feature of the Centre must be that it can enable the delivery of digital solutions from *all member states willing and able to offer them*. The goal of the DSC, and underpinning its long-term sustainability, must be to have a constant throughput of solutions from multiple member states.

As a UN centre, it is essential that the DSC is not, by design or in practice, offering digital solutions from just one member state. This would be regarded as selectively promoting the solutions of one country, which runs counter to the principles of the UN. It is also a matter of offering reassurance to potential recipient member states: the concept is that the Centre acts as a neutral space under the auspices of the UN, and this would not sit well with offering solutions from a single country.

[25] The ITU is leading the development of standards in this area. https://www.itu.int/hub/2024/10/defining-and-building-digital-public-infrastructure-for-all/

More important, however, a failure of the Centre to identify additional countries to share their solutions would risk undermining a core assumption of its rationale: i.e. that other ESCAP member states have digital solutions that are suitable for implementation elsewhere, and that they are willing to support such a process at least by actively providing access to these.

Unless this assumption is borne out i.e. that more than one ESCAP member state (preferably several) has suitable digital solutions and is ready and able to share them, the rationale for developing a Centre specifically as a UN ESCAP Regional Institute can be called into question.

Furthermore, several digital solutions are also likely to be addressing similar topics, and to have similar or overlapping functionality. The DSC should welcome diverse solutions to a similar challenge, since they are likely to suit different circumstances better. However, it is also vital that the DSC can offer potential recipient countries a clear understanding, in advance and using an agreed set of parameters, a clear and detailed deception of the

Thus a core feature of the DSC is that it can secure the participation of multiple member states as providers of digital solutions. This process should be underway, and commitments entered into, at the earliest stage of the DSC's development.

Geographical Scope of Recipient Countries

All ESCAP members and associate members must be welcome, in principle, to participate in the activities of the Centre.

Given the objectives of the Centre, certain sub-groups of members and associate members are more likely than others to be interested in implementing the digital solutions available. These would include least developed countries, of which there are nine and most are at the early stages of digitalisation in public services; landlocked developing countries and small island developing states.[26]

Sub-regional Level: Advantages and Disadvantages

Are there advantages and disadvantages of beginning with a sub-regional approach?

The ESCAP centre APDIM deals with disasters and mitigation strategies impacting across multiple contiguous countries. Because of the nature of its work, there are significant advantages to beginning with a set of countries bordering each other, and hence their initial focus on a sub-region has benefits to it.

The situation for the DSC is different: The advantages of the provision of digital solutions in geographically contiguous territories are more limited. Cultural affinities between countries can be an advantage, including language, particularly at implementing the user interface. However, the technical language of software development in most of Asia Pacific is almost always English. The likely advantages of beginning with a culturally-linked sub-region of contiguous countries are therefore less for the DSC than in the case of APDIM.

Furthermore, as noted above, it will be critical from the outset that the DSC can offer digital solutions from more than one member, to avoid appearing to favour the solutions of one over others and to affirm its status as neutral in relation to any specific member or associate member.

[26]ESCAP has a Special Body to address challenges of these member states, among the goals of which are to leverage digitalisation. https://www.unescap.org/our-work/countries-special-situations/special-body

Thus the cultural or language affinity argument is weakened in cases where multiple members of the centre offering solutions though the centre are (as would be desirable) from different sub-regions.

In short, there are only limited benefits to beginning with one sub-region, and some good arguments for why it would be preferable to begin in at least two, if not more. While such a Centre would inevitably take time to extend, in practice, its scope and operations to the entire Asian Pacific region, it is advantageous that it should begin in more than one sub-region or location.

There are several options for initial priorities. For instance, it might focus on those with the greatest need first; or it might prioritise short-term gains. A process of demand assessment and readiness to engage, at an early stage, could allow the DSC to weigh these options.

6. Technical, Operational, and Financial Modalities Feasibility

6.1. Technical Feasibility

Kazakhstan as a host country

As an ESCAP RI, the DSC would be independent of the country from which it operates, and its core staff would be recruited on the basis UN requirements and guidelines. At this level, the host country's wider technical and skill capacities are not relevant, at least not directly.

However, ESCAP RIs require sustained support from the host country, which in turn is a function of, and reinforced by, the commitment this country has to the theme in question. There are also cases – though these are not obligatory - in which the RI can take advantage of its host country's wider expertise and specialisms. For instance Non-Refundable Loans are sometimes provided in the form of national experts seconded to the Centre to supplement UN staff.

Thus, in practice, the case for the proposed DSC is affected by the presence or otherwise of a strong commitment to the level and type of digitalisation in Kazakhstan, as the host country.

For a couple of decades, Kazakhstan has prioritised the development of its digital infrastructure, services development and expertise. It is, by some distance, the most advanced in this regarding in the Central Asia region. Digital Kazakhstan[27] in 2017 guided the national digital vision to 2022. The Ministry of Digital Development, Innovations and Aerospace Industry of Kazakhstan (MDDIAI)[28] leads the development, and the National Information Technologies Joint Stock Company (NITEC)[29] develops and operates the ICT and e-Gov services for the Kazakhstan Government. It also operates the National Artificial Intelligence Platform.

One result has been the steady ascent of Kazakhstan up the UN E-government survey ratings. Kazakhstan in 2024 came 24th in the E-Government Index Globally, and 9th among ESCAP countries. Leaving aside ESCAP members and associate members outside Oceania and Asia (UK, USA, France and Netherlands), they come in at sixth with only Australia, Japan, New Zealand, Republic of Korea and Singapore ahead of them. The report notes:

> "Kazakhstan's e-Gov platform provides thousands of online services, increasing government transparency through online access to public budgets and digital initiatives like E-License and SmartData Ukimet. The 2023-2029 digital transformation concept focuses on improving public services, accelerating public administration transformation, and developing the economic sector. The goal is to create a digitally advanced and inclusive society by leveraging technology and focusing on citizen-centered services. Page 112 E-Gove Survey)

Thus Kazakhstan can be regarded is a leader in the area of digitalisation across government and public services, and launched its first e-gov portal in 2006. It is characterised, especially more recently, by a user-centric approach to digital solutions and some of the e-gov services visited during

[27] See https://egov.kz/cms/en/digital-kazakhstan
[28] See https://www.gov.kz/memleket/entities/mdai?lang=en
[29] See https://www.nitec.kz/index.php/en?q=/index.php/en

the field trip for this research can be regarded as examples of best practice in this regard. A few of these solutions point towards a commitment to using digital services to address exclusion of marginalised groups. A current example is building on the Digital Family Card that compiles data from numerous sources to assess the well-being and circumstances of families down to a granular level. This enables a pro-active approach to offering and delivering the services available from multiple sources, that might assist these families. Efforts are now underway to combine the digital data with qualitative research, to discover the deeper causes behind high levels of poverty and disadvantage in some areas.

Nevertheless, overall, achieving the SDG targets, particularly those SDGs related to exclusion, is not explicitly prominent in the objectives of the digitalisation plans and strategies in Kazakhstan, an area which is at the heart of the proposed DSC. This need not be a disadvantage *per se* since, as noted, the Centre would not directly rely on the national expertise or objectives. But it is important that the focus on SDGs is prominent during the design phase.

Premises and Logistics of a Digital Solutions Centre

Kazakhstan has identified and committed to making available a suitable, high-quality, premises within the UN district in Almaty, adjacent to other regional and international bodies. It will be fully renovated and appropriately equipped (see budgets below), with extensive possibilities for expanding the number of personnel. Almaty has the necessary high-speed digital and data infrastructure sufficient to meet any demands from the Centre. It also serves as a hub for UN regional programmes. More recently, a GA resolution was adopted by consensus on setting up a UN regional SDG centre, in the same premises (See Section 7.3 below).

Kazakhstan as a provider of Digital Solutions

Kazakhstan is offering to host and support the DSC, but it is also committed to offering an existing set of 23 digital solutions[30] for implementation in other countries of Asia Pacific. They include public services, cloud document management, taxation, customs procedures, and much more, and all have a multiyear successful track record and proven reliability.

In the Centre's modalities, outlined below, enabling the transfer of these digital solutions to other ESCAP countries would require, on the part of experts who have developed and implemented the services in Kazakhstan, a high level of expertise and total familiarity with the technical elements. Leaving aside for the moment the methods by which this expertise would be passed on to recipient countries, Kazakhstan certainly already has these skills, having designed, developed and implemented the digital solutions already for their own use.

Kazakhstan also has some experience of enabling the implementation of digital solutions in other countries. They are currently working bilaterally with Sierra Leone and Togo in Africa, with the support of KazAid, the Kazakhstan aid agency, to implement a limited set of digital solutions there; and they have had an intensive cooperation for over two years with Tajikistan to implement and provide training for over 100 engineers on four platform services. Kazakhstan therefore has, *prima facie*, the skills and experience needed to implement their digital solutions in another country.

[30]Many, though not all of them, can be seen on this unified platform: https://egov.kz/cms/en See Annex 3

Transfer and ongoing development of Skills and Expertise

The DSC, however, also has an additional challenge i.e. to enable those with the skills and expertise in one country *to transfer them* to those in another country – the ability, materials and tools, to train others, such that the latter can in the future maintain and further develop the solutions there.

The solutions must be implemented and maintained on an ongoing basis, and must be sustainable into the future with further development; hence there are various stages of capacity building and skills development. This challenge will apply equally to DSC operations in relation to all countries willing to transfer their digital solutions, and the contribution of the DSC itself may comprise reinforcing the skilled trainers and pedagogic tools for the process, rather than implementing the training itself.

The DSC proposes to make available appropriate premises, technologies and methodologies that can enable intensive skills development and transfer in the Centre itself, facilitated (though not necessary implemented) by Centre staff. This might be most relevant at the initial implementation stage, and particularly for those solutions that are being offered by Kazakhstan. Initial skills transfer for solutions with origins in other countries may best be done in those countries (where the expertise lies), or in the recipient country, with support from the DSC.

Security Issues

Questions were raised during the research concerning IT security, certification and the legal responsibility for any problems that might arise, in the future, in relation to the digital solutions.

Does UN ESCAP, including the proposed Centre, have the technical and legal capacity to deal with security breaches? For instance, what would be the response to a situation where malware provided by the DSC is found to be present in a given solution, or where a weakness in the system might mean that security could be compromised and malware inserted at some point?

These are legitimate concerns. The first point is to establish the level and type of responsibilities of the DSC itself, as distinct from the other parties involved in the transfer of the digital solutions.

In the modalities proposed below, the DSC and hence ESCAP would, essentially, act as a broker between a donor country and a recipient country. The details of respective responsibilities would comprise a critical part of the Model Contract that is outlined below. As a broker, the DSC would have responsibilities to assess the software, and to ensure it complies with the standards of interoperability and also review the security issues, but it would not itself take ownership of the digital solutions at any point. This would limit its liabilities in this area.

Further detailed legal and technical work is required here, based on the specific parameters of the proposed broker position. In the UN system, the ITU is the agency most closely involved in, and with the expertise for, issues around cyber security and authenticating digital solutions, and could have a role in this regard.

6.2. Operational Modalities

Several member states interviewed queried the precise manner in which the Centre would enable the transfer of a digital solution from one country to another. The following offers a preliminary overview of the main steps involved in achieving the DSC goals.

Steps to Sharing Digital Solutions

The core function of the DSC is to enable one country with a digital solution to successfully transfer to, and implement it in, another, along with the skills, expertise and support needed to maintain and ensure its sustainable development into the future.

In this exchange process, the DSC would adopt an *active broker relationship* between the parties. The DSC Library would not physically take possession of the solutions: the DSC Library is virtual. Rather, the Centre would *fully enable every step of the interaction* between the parties.

The DSC envisages its operations as rolling out through the following steps:

1. **Identify and secure agreement of donor countries**

   The DSC would *identify potential donor countries* and *secure their agreement in principle*, for instance with a detailed memorandum. It would then review the digital solutions proposed, following an agreed framework and set of criteria to ensure that they are appropriate for such an exchange.

   This step is critical, and would involve a detailed set of parameters that are designed to achieve a number of things. It would begin with a comprehensive description of potential uses, and the technical requirements and infrastructure needed to implement them. Much more would be needed to enable another country to decide whether they might be appropriate, for instance: the extent to which they have been tested and used; their scalability; the availability of source code; the level of skill needed to implement and maintain them; any constraints on their future use (which would have to remain in open source); whether AI has been used in their development (a factor which affects troubleshooting); the impact of a shutdown of service; and the likely need for accompanying regulation and legislation. Developing a common set of parameters would be central role for the DSC, to be completed by member states wishing to provide digital solutions, and have them registered in the virtual DSC solutions library.

2. **Identify potential beneficiary countries, and explore potential**

   In parallel, the DSC would identify *potential beneficiary countries.* The above set of parameters, available from the DSC solutions library, would be vital to enable member states to identify whether they, in a preliminary stage, are interested in becoming involved in the process. Each interested country could compile a shortlist of potential solutions and undertake an initial exploratory assessment.

   A possibility here is to implement sub-regional Digital Solutions Events, combining a conference for discussion with all countries, and a set of week-long Workshops for countries expressing a preliminary interest, that would explore all the options for these countries.

3. **Develop National Digital Solutions Action Plans**

   Based on an agreed methodology, the DSC would then *support those host countries* interested in proceeding further to undertake a thorough assessment as to which solutions might be most effective for them to achieve their priority SDGs, and to develop a detailed *Digital Solution for SDGs Action Plan* as a roadmap for implementation.

   This could be completed by a dedicated multi-stakeholder working group at national level, with high-level political support. It would assess the costs, the gain for SDGs, and the requirements

(including skills development) and challenges involved, including the technical skills, regulatory changes, infrastructural needs, institutional arrangements, and future-proofing. It would also consider how the DSC solutions could be combined with those of other entities, including GovStack, DPGA and others. It would identify the appropriate actions at national level, examining for instance which public institution or private-sector actors might be most appropriate for intensive skills development that would carry through with implementing, maintaining and sustaining the system into the future.

4. **Host/donor/DSC country model contract agreement**

   The DSC would provide the *model contractual agreement* that details the responsibilities of the donor and host countries regarding agreed solutions, as well as of the DSC itself.

   Key sections of the agreement would cover the parties (public and/or private sector) and modalities involved in skills development initially, and then later for maintenance, troubleshooting and future development; any specific rights involved in the open source development; and sources of finance, actual and proposed. It could engage further partners to underpin such agreements into the future, for instance the ITU in relation to standards, interoperability and security.

5. **Oversee and support capacity building and implementation**

   The Centre would, through its network of partners, focal points and experts (including those in Kazakhstan), provide a framework for the technical and skills training needed, at each stage of deployment and future development.

   Donor country digital institutions, that originally developed and supported the solutions, could have the choice of delivering the training for these in the Centre in Almaty and/or at another location. For instance, in the case of the Kazakhstan solutions, training in Almaty led by NITEC engineers and experts could be followed by in-country training with partners later on.

6. **Assist in securing additional financing**

   The DSC, with the host country and partners, would seek the additional financing required to implement fully the Digital Solution Action Plan, liaising with the UN Resident Coordinators nationally, ODA from relevant countries, and financial institutions.

7. **Follow up and support sustainability**

   The Centre would follow up on the implementation to assess ongoing needs, ensure embeddedness and sustainability of the solutions.

Thus, key elements of the overall process are the facilitation of bilateral agreement between the donor and the host countries; agreement with partners (such as the entities above) to minimise duplication; and developing relationships with entities that can enable the additional programme funding required.

6.3. Coordination, Collaboration and addressing Duplication

Prior to embarking on implementation, the new Centre would have to establish structured relationships with key entities active in the sector, in order to assess the potential for partnerships and cooperation and eliminate any wasteful duplication.

Cooperation would be at several levels, building into a network of focal points in countries in which the DSC is active from the beginning.

An initial stage, requiring direct communication and interaction with entities active in this area (including those entities outlined earlier), would determine the relevance of each organisation and the potential partnership role they could play. The above steps already point to several areas for cooperation.

- Step 1involves assessing when digital solutions are appropriate for exchange, and could draw on the GovStack 'market' of solutions, and DPGA and its registry.
- Steps 2 and 3 regarding mapping country needs could draw on the experience and expertise of APCTT and UNTB; as well as GovStack on the standards and interoperability, CDPI and ADBI for technical assistance.
- Step 4 concerning the model contract between donor and recipient countries, could interact with ITU on issues of standards and security, and with GovStack on the review process that can ensure compatibility.
- Step 5, implementing the solutions, is highly relevant to APCICT, and APDIM might also be relevant in terms of compatibility of data systems.
- Step 6 could draw on Co-Develop for some initial funding in bottleneck areas; and ADB for further funds. Securing additional funding is likely to be one of the most challenging areas for the DSC.

Several of the above steps might be able to attract additional in-kind and other forms of support, which would require further partnership building and networking.

The above are only initial considerations on partnerships, and the core task early on would be to develop these possibilities, and to explore different ways in which practical cooperation could take place. For instance, the selection of host countries, in particular, could coincide with priorities and strategic plans of different entities, so that it becomes a true collaboration, possibly leading to the expansion of the scope of the services offered in certain countries.

Cooperation can also be in the other direction. For instance, UNTB is continuing with its series of TNAs in least developed countries. Expertise from the DSC could assist in drawing up the digital elements of these plans.

7. Staffing, Governance and Financial Feasibility[31]

7.1. Staffing

It is too early to provide a definitive outline of staff requirements, but approximate level of staffing is possible to estimate, the minimum that would enable a Centre such as this to launch and begin its work, bearing in mind the initial funding that is available to it.

As a UN ESCAP Centre, the core team would comprise UN staff, and be recruited, remunerated and administered accordingly. It is important to emphasise that the host country can have no input into the recruitment or HR aspects of the Centre.

Based on the initial funding from the Government of Kazakhstan, the current proposal is for five UN (International IS Grades) staff at the Centre, a Director at D1 level and four experts at P3, P4 and P5 level. The annual cost of salaries, estimated for over a five year period, is USD 1.3 million (see below).

Options are being examined for supplementing the core staff, for instance secondments from recipient member states to work directly on relevant digital solutions; and the Non-Refundable Loan scheme by which government staff can in effect be assigned at no cost to the Centre. For the government, the advantage of the latter is the international and UN experience gained by these staff members. Fellowship schemes as well as UN volunteers may also be options.

7.2. Governance

The governance structures of RIs follow a standard approach, potentially with some variations. This includes the election, from ESCAP members and associate members, of a Governing Board. In addition some Centres have decided to have another expert advisory group, with no executive role but in a position to provide advice to both the Governing Board and the Centre Director. Such a group could also play a role in coordinating with other Centres, but details remain to be examined.

7.3. Financial Feasibility

The financial feasibility will depend initially on the level and strength of commitment from the Government of Kazakhstan, and in the medium term on the Centre's capacity to mobilise additional sources of support and funding. The experience of other RIs is that this is not an easy task, depending in part on the specific thematic area covered. Several of those interviewed believe that despite digital transformation being an area of major investment generally, it is difficult to raise funding that targets development in the digital sphere. Much of the investment is corporate in nature and many of the 'traditional' donors are, directly or indirectly, promoting their own corporate sectors. They do not necessarily attribute a high priority to supporting less and least developed countries in developing their own capacities.

It need hardly be added that the general environment for raising funds for UN activities has also deteriorated in recent times.

[31]This section is drawn mainly from the work of Ualikhan Didarbekov, an international expert based in Kazakhstan, contract by ESCAP to undertake the financial aspect of the work.

Nature of Kazakhstan Government's Commitment

The Kazakh Government, through the DFA and the MDDIAI, is committing USD 15 million over five years to cover the operation of the DSC. This is a generous commitment, and exceeds what would be the norm at the launch of a Centre such as this.

The strength of commitment of the Kazakh government for the DSC is based on two things.

First is its long term strategic commitment to digital transformation as a centrepiece of its economic diversification strategy; and it is also becoming more central to its strategy for social development and inclusion. The long-term nature of this commitment is demonstrated over the last decades, and it shows no sign of weakening.

Second is the state's commitment as an active member of the multi-lateral system, a high point in the last decade being its election in 2016 to the UN Security Council. This is partly motivated by its location between Europe, and emerging economic powerhouses of Asia, and the complex relationships with each. In Almaty, the government has supported the development of significant regional and global multilateral activities, as host to numerous bodies with sub-regional and sometimes wider coverage.

Most recently, on March 4 2025, the UN General Assembly adopted by consensus, a resolution establishing a *United Nations Regional Centre for the Sustainable Development Goals for Central Asia and Afghanistan* (res A/79/L57), to be based in Astana. The Centre will develop a comprehensive action plan with "concrete regional projects aligned with national priorities and plans of programme countries, including as reflected in the Sustainable Development Cooperation Frameworks". It will also collaborate with UN SPECA, and ECE and ESCAP on capacity-building and economic development issues. This might offer concrete opportunities to collaborate with the proposed DSC (which it would share a building with) within the sub-region.

Both considerations above suggest that the commitment of Kazakhstan is currently strong, and likely to remain so. Yet establishing a new RI is likely to require firm support from the host government for an extended period, probably beyond five years, as well as ongoing and indefinite support thereafter. That resolve may be tested given that the experience of some existing Centres is that it can take longer than initially anticipated to fully devise its mandate, and to gain the active support and participation of a sufficient number of member states and other actors.

Budget based on existing Kazakhstan government commitments.

A draft budget has been prepared for the Centre, based on the existing commitment of the Government of Kazakhstan. It is presented in detail in Annex 2.

In summary, it covers the following.

1. **Capital Expenditure: USD 4,725,000, Year 1**.

The initial capital cost of USD 4.75 million is, it should be noted, based on up to 130 people working in the Centre, and that it would house a high level of technical capacity in terms of server storage, cyber security systems, special IT labs and sophisticated conference rooms. This is *contingent on the adoption of certain modalities for the Centre*, ones that have not been taken for granted in this feasibility study, and that are by no means certain. Specifically, it includes a model that would house a large number of mainly engineers from others countries, a model that has not been determined as

optimal for the feasibility of the Centre. It also presupposes the need to handle large-scale data processing and storage, the need for which has not been determined as yet.

The actual capital costs, depending on the most feasible model for the Centre, might be considerably less, leaving much more funding available for programme costs over the full five year period.

2. Salaries and Benefits for five fixed staff at UN level: USD 1,300,000 Annually for five years.

As noted, these are employed as UN staff with all associated expenses, including one at level D1 and four at P3/P4/P5 levels.

3. Premises, Operations and Utilities: USD 155,000 annually for five years.

The largest proportion of this, at USD 105,000 is for IT infrastructure; cloud services and software subscriptions, which is based on a large number of staff and a significant technical capacity. This may not be required, depending on the final modalities adopted.

4. International Travel, Events and Conferences: USD 400,000 annually for five years.

Essentially, this can be seen as programme funding.

5. Contingency & Miscellaneous: USD 200,000 annually for five years.

A summary table is below:

Table 2: Summary DSC Budget five years

	Annual (USD)	Five years (USD)
Capital Expenditure: Premises & technology	(year 1) 4,725,000	4,725,000
Salaries and Benefits: five UN staff	1,300,000	6,500,000
Premises, Operations and Utilities	155,000	775,000
International Travel, Events & Conferences:	400,000	2,000,000
Contingency & Miscellaneous	200,000	1,000,000
Total:		**15,000,000**

Other Potential Sources of Funding

As noted above, other sources of funding are not readily available, and the current funding environment is difficult.

The proposed DSC modalities do offer opportunities at several key points to engage with other donors. For instance, Step 2 could involve events and extended Workshops with potential recipients and donor countries, hosted by the DSC, and additional partners could be sought to organise these, including ESCAP member states as co-host, development banks and UN agencies.

Developing National Digital Solutions Action Plans in Step 4 could attract ODA support, and comparable projects have been funded in the past.[32] Implementation of digital solutions, even with the technical support of the DSC, will also undoubtedly require additional funding. Here, the DSC and recipient countries may be looking to financial institutions and ODA.

Thus, success in the medium term will require that the DSC team builds expertise in the field of fundraising and develops a strategy and partnerships across a wide range of organisations and entities.

[32]For instance, UNESCO Bangkok supported numerous National Master Plans for ICT in Education across Asia Pacific over the last 20 years. Each convened stakeholders under high level political oversight into a Task Force, and deployed a systematic methodology supported by the UNESCO team, to develop a multi-pronged Master plan to implement in ICT in the national education system. In separate programmes, they were funded by Japan funds-in-trust and Korea funds-in-trust.

8. Risk Assessment

Launching a new Centre faces several serious risks. Among them are the following.

1. The initial committed funding from the host country is not forthcoming in a timely manner.

Kazakhstan, as noted elsewhere, has a strong strategic commitment to both digital solutions within the government and public service sectors, and to the multilateral system, related respectively to their national economic strategy and to geo-economic and political factors. Those interviewed and active across the UN system, and in digital developments, in Kazakhstan have indicated that they believe that this commitment is secure for the foreseeable future. The Kazakhstan sources of revenue are also considered secure.

Risk level: Low

2. There are few potential DSC members with digital solutions appropriate for sharing.

This is a real risk and its likelihood should be assessed without delay. Mitigation is possible through initial expressed commitments from other ESCAP members and associate members to share their solutions, pending ore detailed examination.

Risk level: Medium to High

3. Potential members of the DSC find it difficult to engage with the transfer modalities and solutions proposed for a given recipient country, including technical but also non-technical aspects such as regulation and legislation needed.

To mitigate this, the DSC would develop comprehensive methodologies to assess the readiness of a given country to receive digital solutions, and the suitability of solutions proposed before a specific solution is agreed.

Risk level: Low

4. Recipient Countries would be unable to develop the capacities and resources, and to mobilise the institutional requirements and commitments, to fully implement and maintain the solutions.

A couple of steps are essential to mitigating this risk. The first is a coherent methodology needed for the implementation of a multi-stakeholder Action Plan in the receiving country for the solutions proposed. The capacity building plan for actual implementation is then brought into play to ensure that appropriate skills are there, combined with the regulatory, legal and institutional requirements.

Risk level: Low to Medium

5. The implementation of at least some digital solutions will require additional resources, beyond those of the Centre and DSC members. Securing finance, from loans or ODA, is likely to be challenging.

Mitigation strategies could involve working directly with potential collaborators, donors and lenders from the earliest stage, at a regional level but also at the national level during the development of the Digital Solution Action Plan. The UN Country Coordinator may be relevant here.

Risk level: Medium

9. Conclusions and Recommendations

9.1. Summary and Conclusions

A full and comprehensive determination of the feasibility of the DSC requires additional concept elaboration and analysis, as well as further clarity and developments on contributions from, and relationships with, other entities. The recommendations below points to what is required for this, and final deliberations on the feasibility of the proposed Centre, and its capacity to deliver cost-effective, digital solutions that target real needs, in an efficient manner, will await these.

However, based on the research undertaken here and on existing documentation, some conclusions can be drawn with reasonable certainty at this time, responding to the three main objectives to this study.

Role and Contribution of the DSC

Is there a need among the member states of ESCAP for digital solutions in e-gov and for the delivery of public services?

There is no doubt that digital solutions are in demand among member states of ESCAP. However, the process of digital transformation is not linear. The challenge for countries is not just about obtaining financing and implementing these systems; it is about selecting the right ones that can contribute most to their priority SDGs and to inclusion, and ensuring that these are developed and implemented in a manner that gives agency and autonomy to the member states, enabling them to steer their transformation in directions they choose, in a sustainable manner, using their own capacities and resources.

Is there a unique niche for the DSC, and a need for what the concept promises?

Against a backdrop of huge corporate investment driven by enormous profits in the digital sector, a plethora of organisations are promoting digital transformation, and not always with the wider public interest in mind. Some, however, draw attention to the risks involved especially for poorer countries, and a few focus on developing frameworks and applications that promote the public interest and enable governments to deliver better services and enhance inclusion, referencing the SDGs and other UN instruments. Can the DSC find a unique place in this digital transformation ecosystem?

This research concludes that the proposed DSC overlaps with several entities striving to achieve similar and compatible goals. However, it also has a unique offering, that – if it proves to be feasible in terms of efficiency and effectiveness – is distinct:

The DSC would comprise a neutral platform offering integrated support for all stages, from identification of existing digital solutions, enabling and supporting their direct transfer, through to embedding them in recipient countries including future-proofing their ongoing use and expansion.

The DSC has the potential to enhance the agency and autonomy of these countries in their process of digital transformation, and – subject to further analysis – to offer cost efficient and effective and secure long-term solutions in terms of e-gov solutions that contribute to the SDGs.

Potentially, depending on building the appropriate relationships and partnerships, this niche is complementary to what other entities currently offer (or are planning to), and can reinforce and strengthen what is available in the Asia Pacific region, especially to poorer countries. There is some overlap and potential for duplication, but these can most likely be addressed through a process of close coordination, cooperation and collaboration as appropriate.

The Vision, Mission and Principles of Operation

The Vision and Mission are in the process of refinement. The following conforms to current thinking on the DSC's Vision:

> "That Asia Pacific countries are implementing digital solutions in government applications and services to citizens that maximise impact on their priority SDGs and enhance regional interoperability, through sharing best practice solutions regionally and ensuring all countries have the agency, expertise and institutions to drive this process into the future."

The Mission is conceived broadly as follows:

> "The DSC, as a trusted and neutral centre under the UN umbrella, is facilitating UN ESCAP member states to identify priority needs in digitalisation of public and government services, is matching these with best-practice digital solutions from ESCAP member states, and is enabling the transfer of these in a manner that in a timely, cost-effective and sustainable and gives long-term agency to recipients states in their future evolution."

Principles of Operation are critical to guide the strategy and choices made. Currently, nine are articulated, based on best practice among other centres and entities:

1. Give countries agency
2. Offer countries an informed choice of solutions
3. Target priority SDGs
3. Tailor solutions to each eco-system and user
5. Seek out partnerships and collaboration
6. Use open standards
7. Ensure security and privacy of digital solutions
8. Support internal, regional and global interoperability
9. Support and strengthen International Human Rights Standards

Related to the principle of open standards above is the adoption of a DPG/DPI framework. This is endorsed by the Global Digital Compact and other UN instruments, and is being widely pursued in a development context and among several of the entities described above.

Scope and Modalities

In principle, the scope of the DSC can cover the entire Asia Pacific region.

The early commitment of three or more major digital-solution donor countries, ready to and capable of delivering appropriate digital solutions, will be critical to success even in the short-term.

In terms of recipient member states, early efforts are needed to target certain countries and sub-regions and to secure their interest, based for instance on need and the likelihood of rapid positive outcomes. Early expressions of interest from such countries are critical to positive outcomes.

Technical Requirements

Kazakhstan has developed a high level of expertise in the development and delivery of e-gov and of government services to its citizens. It has demonstrated a long-term commitment to this, based on the need to diversity its economy. Having Kazakhstan host a centre that promotes digital solutions can benefit from this commitment; indeed such a sustained commitment from the host country can be regarded as a precondition for this. It also has suitable premises identified and readily available within the UN district of Almaty, with a commitment to upgrading to the technical and operational level needed.

Kazakhstan, as an ESCAP member state, is also offering 23 digital solutions for immediate transfer, all of them fully implemented and tested there. It has the institutional experience and expertise, in NITEC, to provide training in these, and to support their implementation. They also have some limited experience of implementing them in third countries, in the Central Asian sub-region and in least developed countries in Africa. The DSC would have to carefully consider the risks associated with digital security. The fact that its modalities define its core activity as, essentially, that of an active broker does not absolve it entirely of responsibilities in this area, and consultation and possibly partnership with relevant organisations such as ITU would be important.

Modalities of operation and cooperation

The core function of the DSC is to enable one country with a digital solution to successfully transfer it to another, along with the skills and expertise needed to maintain and develop it into the future. Such a process demands a carefully planned series of steps, flexibly implemented according to the different circumstances of each country. These steps are:

1. Identify and secure agreement of donor countries
2. Identify potential recipient countries, and actively engage in exploring potential
3. Develop National Digital Solutions Action Plans in recipient countries
4. Facilitate a beneficiary/donor country contract agreement with the DSC
5. Oversee and support capacity building and implementation
6. Assist in securing additional financing
7. Follow up and support sustainability

A key operational modality is also a high and sustained level of cooperation and collaboration with existing entities and Centres. This should be begin at the earliest stages and adopt a structural form; there is a potential for collaboration at every stage, from strategy development through the digital solution implementation.

Staffing, Governance and Financial Feasibility

Kazakhstan has a strong record in supporting the multilateral system, and engaging with it directly at different levels. Almaty has become a regional hub of UN activities, and has recently been approved by the UNGA to establish a regional centre for SDGs.

The core staff is anticipated to be five, recruited and contracted to UN salaries and benefits (a requirement for RIs). This include a Director level (D1) and four staff (P4/P5 level). Following the experience of other RIs, this would be a minimum level required to undertake the core functions of such a Centre.

Governance would follow existing practice, within which variations are possible, for instance around the creation of an advisory group. The possibilities and requirements here will become clearer later, but it may include potential for enhancing ongoing cooperation with other entities engaged in similar activities.

Financial feasibility

The Kazakhstan government is committed to providing USD 15 million over a period of five years to the DSC, a generous initial level of funding. Although the detail is to be worked out, this funding appears to be flexible, covering initial capacity expenditure, ongoing core funding, and programmatic support. Such flexibility will be critical, given the number of uncertainties still associated with the DSC.

Nevertheless, the Centre would quickly have to develop a strategy to secure additional funding, from ODA, development banks, in-kind and other contributions. Several of the modalities might attract support to specific countries, or to sub-regional level actions.

9.2. Recommendations

The feasibility of the proposed DSC will depend on a number of factors, and the recommendations are associated with these.

1. A clear vision, objectives and core modalities.

It is essential that the Centre, without delay, develops a clear and consistent vision, objectives and goals, and a set of core modalities by which these will be achieved.[33] Without these, it is not possible for member states or others to fully assess the need and relevance, and their orientation towards this proposed new centre. As part of this, it will also have to clearly set out its perceived value-added in relation to the current constellations of entities involved in this area, and the need for what it is proposing among ESCAP member states. This feasibility study, which is completed working closely with the Kazakhstan team, is a step in this process of clarification.

2. Alignment with the Digital Public Infrastructure (DPI) approach.

Explicitly and firmly aligning itself with the DPI approach would bring several advantages to the DSC. DPI, and the related DPGs, have a clear and strong UN mandate from the GDC. Adopting its terminology and standards would facilitate cooperation with many other entities involved in this area, including Gov Stack, the DPGA, Co-Develop and the CDPI, streamlining the recognition and

[33]A full Theory of Change process can be valuable here. When properly done, this is an intensive process spread over several workshops and studies that begins with the vision and works backwards to objectives, outcomes and outputs. It identifies the preconditions, partnerships and actions that essential to achieving the outcomes sought, and builds a common understanding and consensus among the team and key stakeholders. Examples can be seen here: https://www.theoryofchange.org/what-is-theory-of-change/ Full disclosure: The current author is on the advisory board of this Centre and led a Theory of Change process for APDIM.

exchange of their products. It would also contribute to ESCAP's goal of enhancing interoperability regionally.

3. Secure Commitment of Donor Member States.

The DSC, as a UN Centre, cannot limit itself to the digital solutions of any one country, no matter how advanced and suitable they may be, and a constant throughput of innovative solutions must be the goal. Without delay, the Centre must secure the commitment of other member states who, potentially at least, have digital solutions they are willing to offer through this Centre. Developing detailed parameters, that can define which solutions are suitable for exchange and assist the process of selection by potential recipient countries, should be included at this early stage.

As for the DSC's host country, the experience of some RIs suggests that the length of time to fully establish itself and its modalities and outputs can extend to up to 10 years. Such a long-term commitment from the DSC host country, Kazakhstan, would be welcome, and would enable multi-annual planning.

4. An in-depth understanding of demand and needs.

There is little doubt concerning the need among many ESCAP member states for appropriate digital solutions to many challenges they face, including in achieving their SDG targets. An early goal must be to explore such demand concretely, in terms of the suitability of the solutions available, the modalities proposed by the Centre, and the steps involved in fulfilling these; and to secure expressions of interest from a number of countries.

5. Close consultation with, and learning from, existing entities

Close consultations with other entities involved in this area must be a priority. Several key topics can be discussed, including: An exchange of experience concerning the challenges involved in establishing a Centre such as this; the risk of duplication of effort and how to address this; and the potential for coordination, cooperation and collaboration based on mutual benefit of all the entities and of their targets beneficiaries.

The feasibility of the Digital Solutions Centre is likely to depend ultimately on the successful implementation of these recommendations.

6. Addressing Cyber-security and cyber-safety

Risks associated with cyber-security and cyber-safety are, rightly, to the fore among concerns of ESCAP member states, and it is not yet clear whether they can be fully addressed. These are thus key areas for further investigation and action, and demand a full response that would include learning from others, such as Govstack and ITU, developing partnerships, and designing and implementing technical and contractual components.

Annex 1: Methodology

Key Informant Interviews

Key Information Interviews (KII) were held with the following. Most were face to face, and those online are indicated.

ESCAP secretariat: Bangkok Field Visit

1. Armida Salsiah Alisjahbana, Executive Secretary, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
2. Lin Yang, Deputy Executive Secretary for Programmes, ESCAP
3. Hirohito Toda, Deputy Executive Secretary for Partnerships and Coordination, ESCAP
4. Tiziana Bonapace, Director, ICT & Disaster Risk Reduction Division
5. Rupa Chanda, Director, Trade, Investment & Innovation Division
6. Adnan Aliani, Director of Strategy and Programme Management Division
7. Vikas Viswambharan, Chief, Information Technology Office
8. Tae Hyung Kim, Chief, ICT and Development Section, ICT & Disaster Risk Reduction Division
9. Gaston Maria Melo Felgueres, Associate Expert on ICT and Development, ICT and Development Section, ICT & Disaster Risk Reduction Division

ESCAP Regional Institutions: (online)

10. Letizia Rossana, Head, Asian and Pacific Centre for the Development of Disaster Information Management (APDIM)
11. Kiyoung Ko, Head, Asian and Pacific Training Centre for Information and Communication Technology for Development; Robert de Jesus, Hyangsuk Seong, (APCICT)
12. Nikolay Pomoshchnikov, Head, Subregional Office for North and Central Asia (SONCA),
13. Shailja Sharma, Head, Statistical Institute for Asia and the Pacific (SIAP)
14. Preeti Soni, Head, Asian and Pacific Centre for Transfer of Technology (APCTT)
15. Marco Silvestri, Deputy Head and Programme Officer, Centre for Sustainable Agricultural Mechanization (CSAM)

Kazakhstan Field Visit:

16. Dimitriy Mun, Vice Minister, Ministry of Digital Development, Innovations and Aerospace Industry (MDDIAI), Kazakhstan,
17. Ayazhan Mukanova; Director, International Cooperation Department, MDDIAI
18. Amanbek Kayierbayev, Head of Division, MDDIAI
19. Anuar Sarmantay, Deputy Director, Department of Multilateral Cooperation, Ministry of Foreign Affairs
20. Arken Arystanov. Board Chairman, Kazakhstan Agency for International Development (KazAid)
21. Olzhas Zhanabek, Head, Digitalization Department, Almaty City.
22. Stephen O'Malley, Head, UN Resident Coordinator in Kazakhstan; Kurmolla Abdulganiyez, Marat Shashkenov

Country Representatives to ESCAP and Ministries

23. Nabila Suria, Permanent Representative; Sophia Nayak-Luke, Deputy Permanent Representative, Embassy of the United Kingdom of Great Britain and Northern Ireland
24. Beatriz Inez Herrera-Davila, Deputy Permanent Representative, Embassy of the Republic of the Philippines
25. Yoshiko Motoyama, Deputy Permanent Representative, Embassy of Japan
26. Arman Issetov, Ambassador, Embassy of Kazakhstan to Thailand
27. Vitaliy Alexandrov, Deputy Permanent Representative, Embassy of Kazakhstan to Thailand
28. Ayşe Mehlika Yıldız Ersen, Deputy Permanent Representative, Embassy of the Republic of Türkiye
29. Medhi Rouzeh Gir, Deputy Permanent Representative, Embassy of the Islamic Republic of Iran
30. Oleg Shamanov, Deputy Permanent Representative, Embassy of the Russian Federation
31. Yang Jun, Deputy Permanent Representative, Permanent Mission of the People's Republic of China to ESCAP
32. Vipin Shukla, Mani, Dr. Anoop Singh, P.R. Hariharan, Ministry of Science and Technology, Department of Scientific and Industrial Research, India (Online)

Others: (online)

33. Christopher Athey, United Nations Economic Commission for Europe
34. Atsuko Okuda, Regional Director, International Telecommunication Union, Regional Office for Asia and the Pacific
35. Nobhyl Roy (Neil), Ashish Narayan, International Telecommunication Union, Regional Office for Asia and the Pacific
36. Nam Sang-yirl, Korea Information Society Development Institute, Republic of Korea
37. Vincenzo Acquaro, Chief, Digital Government Branch, Division for Public Institutions and Digital Government, United Nations Department of Economic and Social Affairs
38. Federica Irene Falomi, Project Manager; Burcu Morel, United Nations Technology Bank

Annex 2: Estimated DSC Budget for five years.

The following budget has been prepared by Ualikhan Didarbekov, an international consultant based in Kazakhstan, at the request of ESCAP.

It is based on the existing financial committed on the Government of Kazakhstan.

Summary Budget

1. CAPEX Estimate (One-Time Expenses)

500

Expense Category	Approximate Cost (USD)
IT Infrastructure & Equipment	
- High-performance Servers & Network Equipment	1,000,000
- Cybersecurity Systems & Firewalls	400,000
- Workstations (130 IT specialists & 5 UN staff, high-end computers)	400,000
- Cloud Storage & Software Licenses	350,000
- Digital Collaboration Tools (Zoom, MS Teams, etc.)	90,000
Office Setup & Furniture	
- Office Desks, Chairs, Meeting Rooms	385,000
- Conference Rooms (Large Screens, Sound Systems)	500,000
- Kitchen & Common Areas	100,000
- Special IT Labs & Innovation Rooms	700,000
Renovation & Construction Costs	
- Interior Remodeling & Office Setup	300,000
- Electrical & HVAC (Heating, Ventilation, Air Conditioning)	200,000
- Security Systems (CCTV, Biometric Access)	170,000
Miscellaneous	
- Office Supplies & Initial Inventory	80,000
- Legal & Administrative Setup Costs	50,000
Total CAPEX	**4,725,000**

2. Working Capital (WC) for 5 Years (Operational Expenses)

Expense Category	Annual Cost (USD)	5-Year Cost (USD)
Salaries & Benefits		
- 5 UN Staff (International IS Grades, Average Salary + Benefits)	1,300,000	6,500,000
Building Operations & Utilities		
- Utilities (Electricity, Water, Internet, Security)	20,000	100,000
- Office Maintenance & Cleaning	15,000	75,000
- IT Infrastructure Maintenance & Cloud Services	70,000	350,000
- Annual Software Subscriptions & Renewals	50,000	250,000
Logistics & Travel		
- International Travel & Visa Support (For IT Staff)	200,000	1,000,000
- Events & Conferences	200,000	1,000,000
Contingency & Miscellaneous		
- Miscellaneous Office Expenses	100,000	500,000
- Reserve & Emergency Fund	100,000	500,000
Total WC (Annual)	**2,055,000**	**10,275,000**

Total **15,000,000**

Detailed Budget

Budget Justification for Establishing a Digital Solutions Center (DSC) In Almaty, Kazakhstan

1. Introduction

The establishment of the Digital Solutions Centre (DSC) in Almaty, Kazakhstan, is a strategic initiative aimed at accelerating sustainable development through digital innovation. This document provides a detailed budget justification, outlining the necessity of each expenditure in alignment with international best practices and lessons learned from similar centres.

2. Capital Expenditures (CAPEX) – One-Time Setup Costs

The CAPEX covers essential investments required to establish a state-of-the-art DSC, ensuring it is equipped with the necessary infrastructure to foster innovation and collaboration.

IT Infrastructure & Equipment

Expense Category	Approximate Cost (KZT)	Approximate Cost (USD)	Justification
High-performance Servers & Network Equipment	500,000,000	1,000,000	To handle large-scale data processing and storage, facilitating advanced research and development activities.
Cybersecurity Systems & Firewalls	200,000,000	400,000	To protect sensitive data and maintain the integrity of digital operations, ensuring robust security against cyber threats.
Workstations (130 IT specialists & 5 UN staff, high-end computers)	200,000,000	400,000	To provide personnel with reliable and efficient tools necessary for high-quality output and productivity.
Cloud Storage & Software Licenses	175,000,000	350,000	To enable scalable storage solutions and access to essential software, promoting flexibility and efficiency in operations.
Digital Collaboration Tools (Zoom, MS Teams, etc.)	45,000,000	90,000	To facilitate seamless communication and collaboration among team members and with external partners.

Office Setup & Furniture

Expense Category	Approximate Cost (KZT)	Approximate Cost (USD)	Justification
Office Desks, Chairs, Meeting Rooms	192,500,000	385,000	To create a comfortable and professional environment that enhances productivity and collaboration.
Conference Rooms (Large Screens, Sound Systems)	250,000,000	500,000	To host virtual and in-person meetings, workshops, and conferences, facilitating knowledge sharing and stakeholder engagement.
Kitchen & Common Areas	50,000,000	100,000	To provide essential amenities that support staff well-being and foster a collaborative culture.
Special IT Labs & Innovation Rooms	350,000,000	700,000	To offer dedicated spaces for experimentation, testing, and development of innovative digital solutions.

Renovation & Construction Costs

Expense Category	Approximate Cost (KZT)	Approximate Cost (USD)	Justification
Interior Remodeling & Office Setup	150,000,000	300,000	To customize the space according to the specific needs of the DSC, ensuring functionality and efficiency.
Electrical & HVAC (Heating, Ventilation, Air Conditioning)	100,000,000	200,000	To provide a reliable and comfortable working environment, essential for maintaining high productivity levels.
Security Systems (CCTV, Biometric Access)	85,000,000	170,000	To ensure the safety and security of personnel, equipment, and sensitive information.

Miscellaneous

Expense Category	Approximate Cost (KZT)	Approximate Cost (USD)	Justification
Office Supplies & Initial Inventory	40,000,000	80,000	To equip the center with necessary supplies, ensuring smooth day-to-day operations.
Legal & Administrative Setup Costs	25,000,000	50,000	To cover expenses related to legal formalities, registrations, and other administrative requirements essential for establishing the DSC.

Total CAPEX: 2,362,500,000 KZT (4,725,000 USD)

3. Working Capital (WC) for 5 Years (Operational Expenses)

The WC budget encompasses recurring expenses necessary to sustain the DSC's operations over five years, ensuring its long-term viability and impact.

Salaries & Benefits

Expense Category	Annual Cost (KZT)	Annual (USD)	5-Year Cost (KZT)	5-Year (USD)	Justification
5 UN Staff (International IS Grades, Average Salary + Benefits)	650,000,000	1,300,000	3,250,000,000	6,500,000	To attract and retain highly qualified international professionals, bringing in global expertise and perspectives. Also, the salaries are based on the UN ESCAP salary scale.

Building Operations & Utilities

Expense Category	Annual Cost (KZT)	Annual (USD)	5-Year Cost (KZT)	5-Year (USD)	Justification
Utilities (Electricity, Water, Internet, Security)	10,000,000	20,000	50,000,000	100,000	To ensure continuous and reliable access to essential services, maintaining uninterrupted operations.
Office Maintenance & Cleaning	7,500,000	15,000	37,500,000	75,000	To keep facilities in optimal condition, a clean and well-maintained work environment.

IT Infrastructure Maintenance & Cloud Services	35,000,000	70,000	175,000,000	350,000	To cover ongoing software updates, server maintenance, and cybersecurity enhancements.
Annual Software Subscriptions & Renewals	30,000,000	50,000	150,000,000	250,000	To provide continued access to essential software for operations, development, and collaboration.

Logistics & Travel

Expense Category	Annual Cost (KZT)	Annual (USD)	5-Year Cost (KZT)	5-Year (USD)	Justification
International Travel & Visa Support (For IT Staff)	100,000,000	200,000	500,000,000	1,000,000	To facilitate knowledge exchange, global collaboration, and participation in international tech events.
Events & Conferences	100,000,000	200,000	500,000,000	1,000,000	To host industry events, hackathons, and networking opportunities that enhance the DSC's reach.

Contingency & Miscellaneous

Expense Category	Annual Cost (KZT)	Annual Cost (USD)	5-Year Cost (KZT)	5-Year Cost (USD)	Justification
Miscellaneous Office Expenses	50,000,000	100,000	250,000,000	500,000	To cover unexpected operational expenses.
Reserve & Emergency Fund	50,000,000	100,000	250,000,000	500,000	To ensure financial stability in case of unforeseen challenges.

Total WC (5 Years): 5,162,500,000 KZT (10,275,000 USD)

Grand Total Budget (CAPEX + WC for Five Years)

Category	KZT	USD
Total CAPEX (One-Time Investment)	2,362,500,000	4,725,000
Total WC (5 Years)	5,162,500,000	10,275,000
Grand Total	**7,525,000,000**	**15,000,000**

Annex 3: Kazakhstan Digital Solutions

Below is taken from the opening screen of Kazakhstan E-Gov services. https://egov.kz/cms/en

