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Measuring E-resilience

Contents of the presentation:

1) Introduction to E-resilience

2) Policy recommendations by country
Introduction to E-resilience (1/2)

https://www.unescap.org/projects/e-resilience
E-resilience background

- E-resilience is under the Connectivity for All pillar of Asia-Pacific Information Superhighway (AP-IS) Action Plan 2022-2026
- Toolkit on e-resilience is aimed to support and accelerate the AP-IS 2022-2026 Action Plan
- **E-resilience** is: “the ability of ICT systems to withstand, recover from and change in the face of an external disturbance”
- In practical terms, e-resilience is illustrated through 5 interconnected pillars
Pillars of e-resilience assessment

**Infrastructure**
Infrastructure is the backbone and the most crucial resource for e-resilience. It is a baseline enabler of the society to utilize ICTs for resilience to external threats.

**Policies**
Policies influence e-resilience via building multi-stakeholder consensus on creating an enabling environment for ICT systems to be able withstand a blow and adapt to new conditions.

**New Systems and Apps**
New systems and apps act as a proxy for the capacity of a society to innovate and create new forms of preparedness and response in the face of a crisis.

**Digital Data**
Digital data is the measure of the extent with which the society can utilize digital tools on a day-to-day basis, which today is indispensable for maintaining the normal way of life and avoiding economic downtime, while also providing valuable public response tools.

**Hazard & Exposure**
Hazard & Exposure is showing how much attention the society puts on disaster resilience in all of its forms, be it preparedness, response or recovery.
### Indicator set per pillar: scope of scoring

#### Infrastructure
- Mobile cellular subscriptions per 100 inhabitants
- Percentage of Individuals using the Internet
- Fixed (wired) broadband subscriptions per 100 inhabitants
- Active mobile-broadband subscriptions per 100 inhabitants
- Mobile tariffs
- Handset prices
- Computer software spending
- Percentage of households with Internet access at home
- Percentage of Households with a computer
- 4G mobile network coverage
- Fixed-broadband subscriptions, >10 Mbit/s

#### Policies
- Ease of doing business
- Legal framework’s adaptability to emerging technologies
- E-commerce legislation
- ICT Regulatory Environment
- Secure Internet servers
- Cybersecurity
- Regulatory quality
- Adult Literacy
- Mean year of schooling
- Public trust in politicians
- Government effectiveness
Indicators set per pillar: scope of scoring

Hazard & Exposure

Inform Risk Index

New Systems and Apps

- ICT PCT patent applications
- Firms with website
- R&D expenditure by businesses
- Government promotion of investment in emerging technologies
- Investment in emerging technologies
- Adoption of emerging technologies
- Use of a mobile phone or the internet to buy something online
- High-tech and medium-high-tech manufacturing
- High-tech exports
- Prevalence of gig economy
- Apps developed per person

Digital Data

- Online Service Index
- GitHub commits
- Wikipedia edits per million of population
- Availability of local online content
- Use of virtual social networks
- ICT skills
- Publication and use of open data
- Use of a mobile phone or the internet to access a financial institution account in the past year
- E-Participation
- Gender gap in Internet use
- Rural gap in use of digital payments
- Socioeconomic gap in use of digital payments
Main considerations

- Measurement is intended for self-review, and is not suitable for country comparisons.
- Measurement to utilize existing indicators.
- The idea is to create a starting point for future work involving partners with a clear and simple methodology.
- The index is envisaged as an evolving tool, and it will change accordingly to the needs of the Member States.
Policy recommendations (2/2)

E-resilience Monitoring Dashboard | ICT & DRR Gateway
Pillar highlights: Kazakhstan

- A 10% growth for Active mobile-broadband subscriptions is observed, most of which is of high speed (<10 Mbit/s)
- A significant improvement of 4G mobile network.
- Kazakhstan global leadership positions in Affordability of mobile tariffs have weakened by some degree.
- Scores for both Legal framework’s adaptability to emerging technologies and ICT regulatory environment have decreased.
- Significant increase in Apps developed per person score (72 in 2019 and 93 in 2021), caused by rapid digitization of services amid the Covid-19 pandemic.
- Decrease in both High-tech and Medium-high-tech manufacturing, and High-tech exports - evidence of the disruption brought by pandemic on the production and cross-border trade.
- Use of a mobile phone or the Internet to access a financial institution account has increased by 114%.
- Showcase of a fundamental shift in the pattern of greatly expanded Internet use to maintain normal economic activity and all the other aspects.

(updated on 25 August 2022)
Policy recommendations: Kazakhstan

- Build upon the trend to transition to mobile broadband
- **Support the emerging digital ecosystems**
- **Develop regionally significant services and applications.**
- **Support the affordability of mobile tariffs,** while taking into account the economic situation and challenges of mobile network operators.
- Increase flexibility of the legal framework and its adaptability to new circumstances via **regulatory sandboxes,** **policy exchanges in the region** and other tools.
- Pay special attention to **security issues and data management** in the light of expanding social media use and fintech adoption.

(Updated on 25 August 2022)
Pillar highlights: Kyrgyzstan

- During the pandemic, the **Percentage of individuals using the Internet** score has risen by more than 12%, crossing the 50% mark as compared to the global situation.

- The **Percentage of households with a computer** have decreased significantly, reflecting the clear choice of Kyrgyz consumers for mobile devices.

- Affordability of **Mobile tariffs** has slightly improved, but remains alarming, and requires utmost attention.

- Indicators for **Legal framework’s adaptability to emerging technologies, ICT regulatory environment and Regulatory quality** are all showing a decline.

- Significant drop in **Apps developed per person** (from 65 to 45 between 2019 and 2021) – in a stark contrast with the other countries analyzed.

- Scores for **GitHub commits per 1000 population** and **Availability of local online content** have decreased, in line with the drop in **Apps developed per person** scores.
Support affordability of internet access by promoting competition in fixed and mobile broadband markets.

Streamline mechanisms for regulatory action with a goal to increase the flexibility of the legal framework and its adaptability to new circumstances.

Hold open policy discussions and consider a feedback mechanism with the domestic ICT industry.

Participate in regional cooperation and policy exchanges.

Pay greater attention to skills development and support for digital content production, both of which can help reverse the negative trend under the pillars of New Systems and Apps, as well as Digital Data.
Pillar highlights: Mongolia

- The trend for mobile is also dominant here, as there has been an 8% decline for **Fixed (wired) broadband subscriptions**.

- Situation with the **Handset prices** has worsened dramatically, reflecting the disrupted global chains of supply during COVID-19. The **Affordability of mobile tariffs** however has improved, crossing the 50% mark.

- Numbers are down for **Legal framework’s adaptability to emerging technologies**, **ICT regulatory environment** and **Regulatory quality**.

- **Cybersecurity** indicator is up by 3 points as observed by the ITU Global Cybersecurity Index.

- Considerable decline in the **Share of High-tech exports** since 2019, while **Apps developed per person** has increased in numbers by more than 5 points in the same period - manifestation of Covid-19 effects.

- During the pandemic, the supply of digital platforms failed to keep up with the demand for **Mobile apps**.
Policy recommendations: Mongolia

- Ensure that the population and operators have access and financial means to obtain mobile equipment, and end-user devices.

- Introduce changes to facilitate regulatory adoption and improve legal framework flexibility for better management of crises and uncertainty.

- Ease the regulatory framework for launching and operating a digital business to allow for greater supply of digital platforms.

(updated on 25 August 2022)
Pillar highlights: Tajikistan

- Situation with the **Handset prices** has improved dramatically, owing both to low base effect, and possible regulatory action.
- Rise in terms of **Active mobile-broadband subscriptions** used by population to maintain normal operation during the crisis is observed.
- Legal framework’s adaptability to emerging technologies, ICT regulatory environment and Regulatory quality scores decreasing, with ICT regulatory environment remains as a gap for urgent action.
- Decline in **High-tech and medium-high-tech manufacturing** (by 3 points) in line with the global slowdown of this indicator.
- Very significant increase in scores for **GitHub commits, Wikipedia edits per million of population**, as well as in **Use of virtual social networks (472%)** explained both by the low base effect, and demand for e-services in times of pandemic.

![Tajikistan Infrastructure, Policy, Hazard & Exposure, Digital Data, New Systems and Apps](image)
Policy recommendations: Tajikistan

- Continue to support the growing trend towards a better affordability situation with the prices for mobile devices and mobile broadband subscriptions.
- Double down on efforts to coordinate regulatory activities and harmonize the legal framework for ICTs in different sectors of the economy in order to create supportive and resilient environment for digital development;
- Strengthen regulatory approaches to data management in light of the significant increase in the Digital Data pillar.
Change framework reference model

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Components of E-Resilience Monitoring Dashboard

E-Resilience Monitoring Dashboard Pillars

- ICT policy in different sectors
  - build the foundation for e-resilience modelling
- ICT's role in setting up new systems and applications
  - is important in e-adaptation and recovering from the pandemic
- ICT's role in data management
  - leads to actions and policies which influence disaster resilience and adaptability
- ICT infrastructure as a physical foundation
  - supports above pillars and accelerates the digital transformation for all

E-resilience levels by score and colors

- LOW
  - Least Network ready
- HIGH
  - Most Network ready
# Project on E-resilience Monitoring Dashboard

## E-Resilience Monitoring Dashboard

### Country Group
- Kazakhstan
- Kyrgyzstan
- Mongolia

### Pillar
- ICT infrastructure as a physical foundation
- ICT policy in different sectors

#### Name
- 4G mobile network coverage (0-100 % max)
- Active mobile-broadband subscriptions per 100 inhabitants (0-100 % max)
- Computer software spending (0-100 % max)
- Fixed (wired) broadband subscriptions per 100 inhabitants
- Fixed broadband subscriptions, >10 Mbit/s, % of total fixed-broadband subscriptions (0-100 % max)
- Handset prices (%monthly GDP per capita) (0-100 max)
- International Internet bandwidth per Internet user (Kbps)
- Internet access in schools (0-100 % max)
- Mobile cellular subscriptions per 100 inhabitants (0-100 max)
- Mobile tariffs (%monthly GDP per capita) (0-100 % max)
- Percentage of Households with a computer (0-100 % max)
- Percentage of households with Internet access at home (0-100 % max)
- Percentage of individuals using the Internet (0-100 % max)
- Adult Literacy (0-100 % max)
- Cybersecurity (0-10 times)
- DRR Implementation (0-10 (max; worst))
- Ease of doing business (0-100 max)
- E-commerce legislation (0-4 max)
- Government Effectiveness (-2.5 - 2.5 (max))

### Indicator
- Year: 2020

### Interactive Map
- Hazard & Exposure

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### Data Table

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<th>Pillar</th>
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**Note:** The table values are hypothetical and for demonstration purposes. Actual data would be provided by the respective organizations.
Partnerships for success

We invite all interested parties to contribute to this work, to share ideas and needs, to gradually improve and make this index more mature, and more tailored to specific needs of our countries.

You can participate by sharing your opinion, helping to collect the data on a national level, telling a co-worker about this initiative or writing an academic review.

Your perspectives and good will create a broad consensus necessary for change. With your support we hope to create a good navigation device on the road to an e-resilient Asia-Pacific.
THANK YOU

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