



CEIR/EIR: How Standards Become Real Change

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Our CEIR/EIR Platform Experience

Supplying EIRs from 2011
20+ successful installations
9 countries

BTRC Bangladesh — CEIR,
Proof-of-Concept, 2020



Advisory services for regulatory
bodies of different countries.

ITU-T SG11 Associate member



Signaling requirements,
protocols, test specifications
and combating counterfeit
products

CEIR/EIR services monetization
examination

Supplied CEIR
platform: Uzbekistan



Experience with GSMA
since 2006



Supplying EIRs:



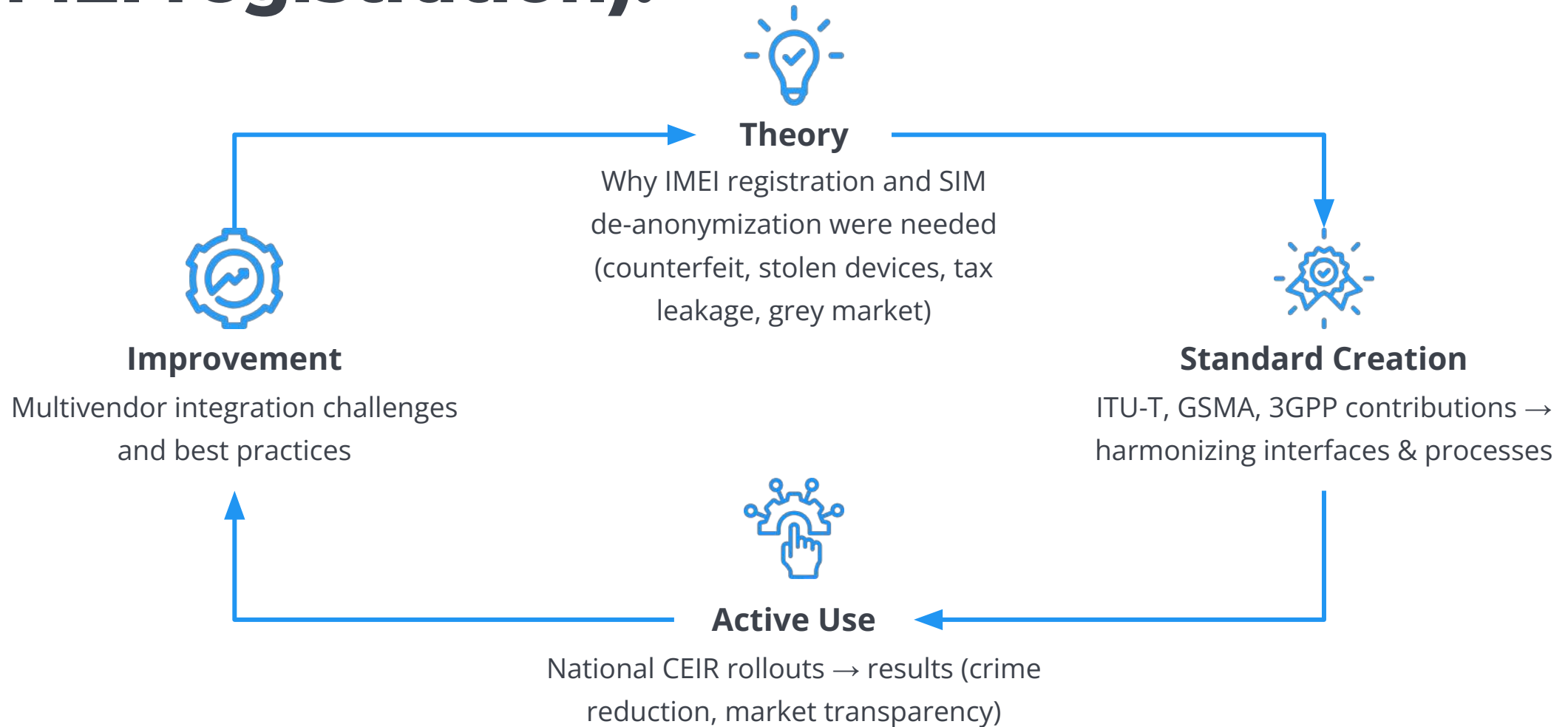
Including EIRs customized according
to the communications regulators'
requirements in Moldova, Tajikistan,
Kazakhstan, Uzbekistan, Afghanistan



What do we know about IMEI registration systems?

It's not just a technical project, it's about reducing crime, protecting citizens, and enabling digital economies

The journey of CEIR / EIR (IMEI registration):



The journey of Uzbekistan

37+ mln

Population

32+ mln

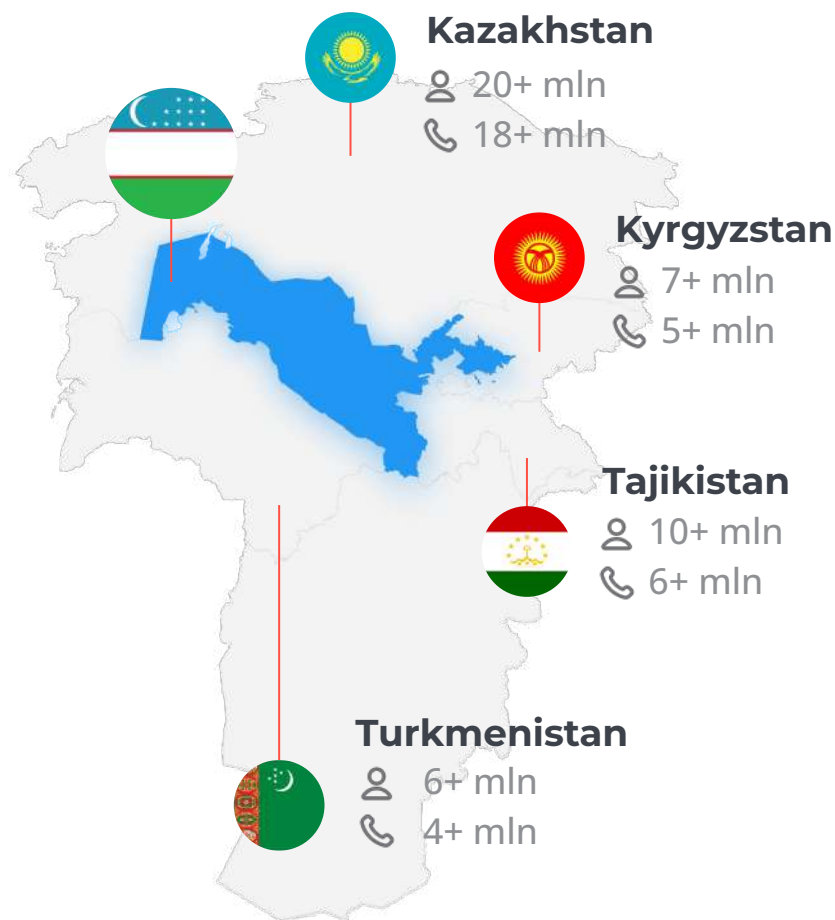
Number of mobile subscribers

Local operators

Ucell  Beeline®

 UZMOBILE

mobiuз HÜMÄNŞ



Objectives of CEIR Implementation:

- Decrease of the share of illegal device imports (which amounted to over 98% in 2018)
- Increase in state budget revenues (estimated potential losses - up to 85 million USD per year)
- Combating crime related to mobile devices
- Ensuring national security

Socio-Economical Impact



Security

Reduced mobile-related crime, safer digital identify



Tax and transparency

Simplified collection, reduced leakage, fairer competition



Affordability and Access

Devices becomes more affordable, services more advanced and personalized



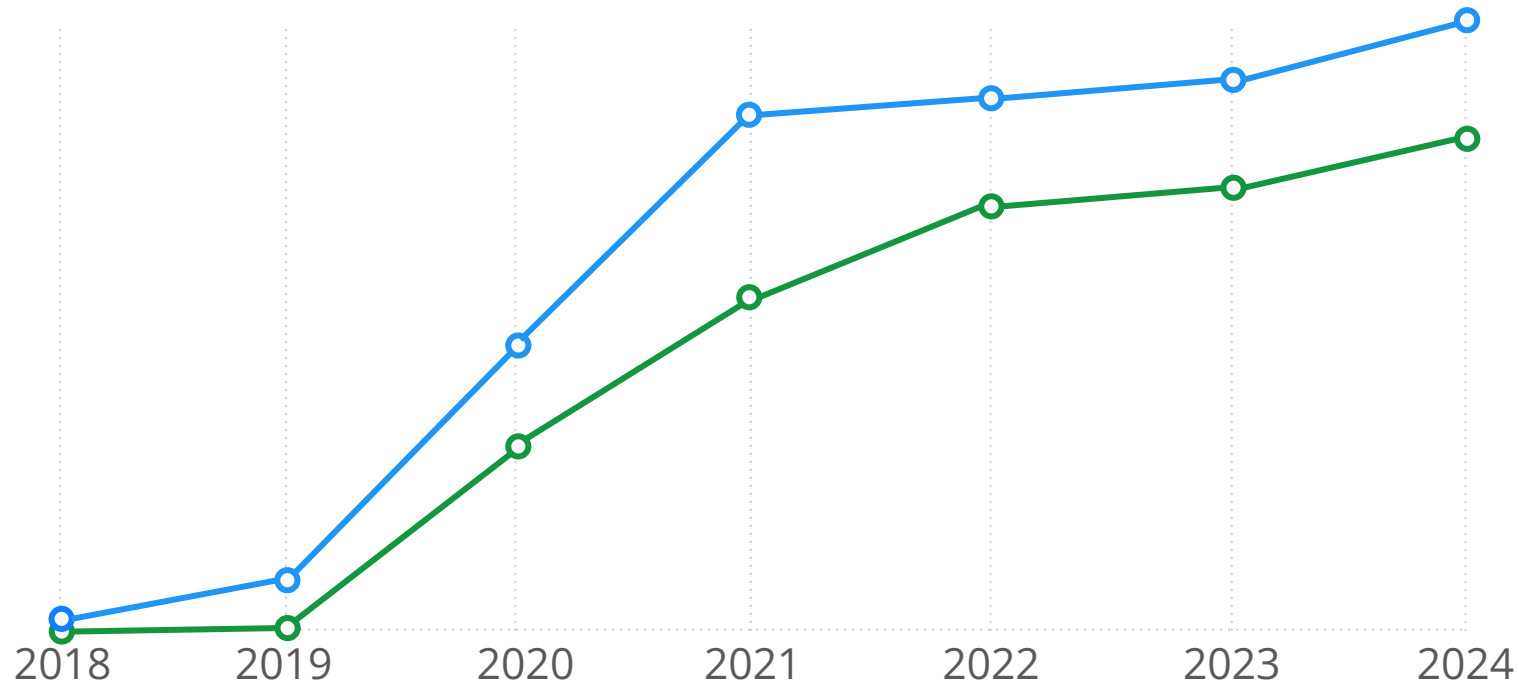
Digital Economy

Easier onboarding for businesses and citizens, faster digital transformation

Results of CEIR implementation

● Increase in tax revenues

● Volumes of legal import



x100
increased tax revenues

x70
increased volumes of legal imports
of mobile devices

The challenge

When implementing the CEIR type of projects at a national scale, it is often necessary to integrate various systems of multiple vendors. The cycle of approvals for each interface with each of the vendors can take a significant amount of time and labor costs.

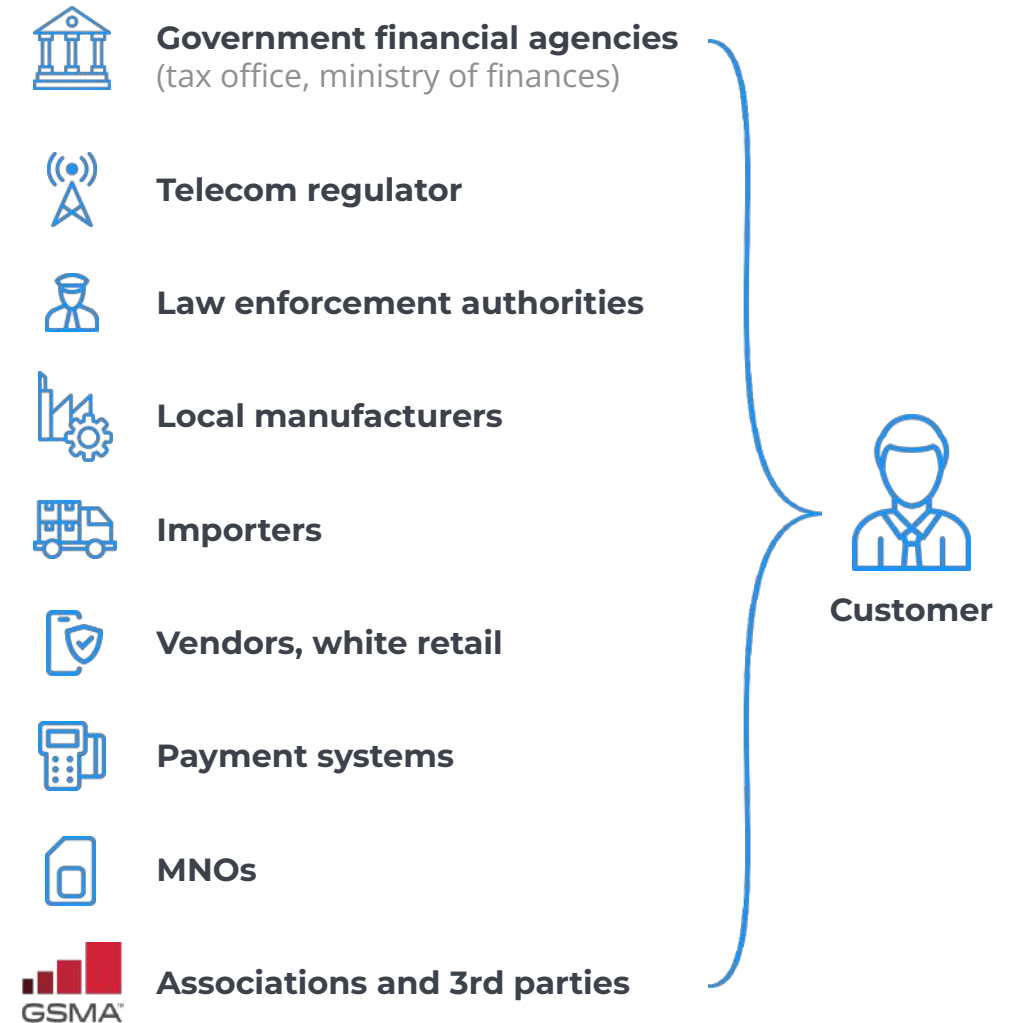
Let's briefly list what integrations you may need



The challenge:

Interaction with numerous stakeholders and IT systems

These integrations are unpredictable and are often the most difficult part of the project, as these organizations usually do not deal with new integrations as often and only sometimes have a team to develop IT solutions



Key technical & integration Lessons

⚠️ Potential sources of challenges

1. Multivendor environment leads to complexity
2. Importance of APIs
 - CEIR ↔ EIR
 - CEIR ↔ digital portal
 - CEIR ← external systems and data sources





The solution

✓ Recommendations

1

Definition of operator requirements upfront

2

Plan early with government IT systems

3

Start small, expand later

1: Integration between CEIR and each EIR

- The implementation of a common IMEI registry in the country will not be effective if the lists formed in the central database are not used in the operators' networks
- A mechanism is required to transfer lists or information for each individual IMEI from CEIR to EIR. You may also need to transfer data from the EIR to the CEIR
- The SG11 working group prepared a Supplement 76 to the recommendations ITU-T Q.5050 that describes common approaches and interfaces for data exchange between the central equipment identity register and the equipment identity register

Supplement ITU-T Q Suppl. 76 (10/2023)

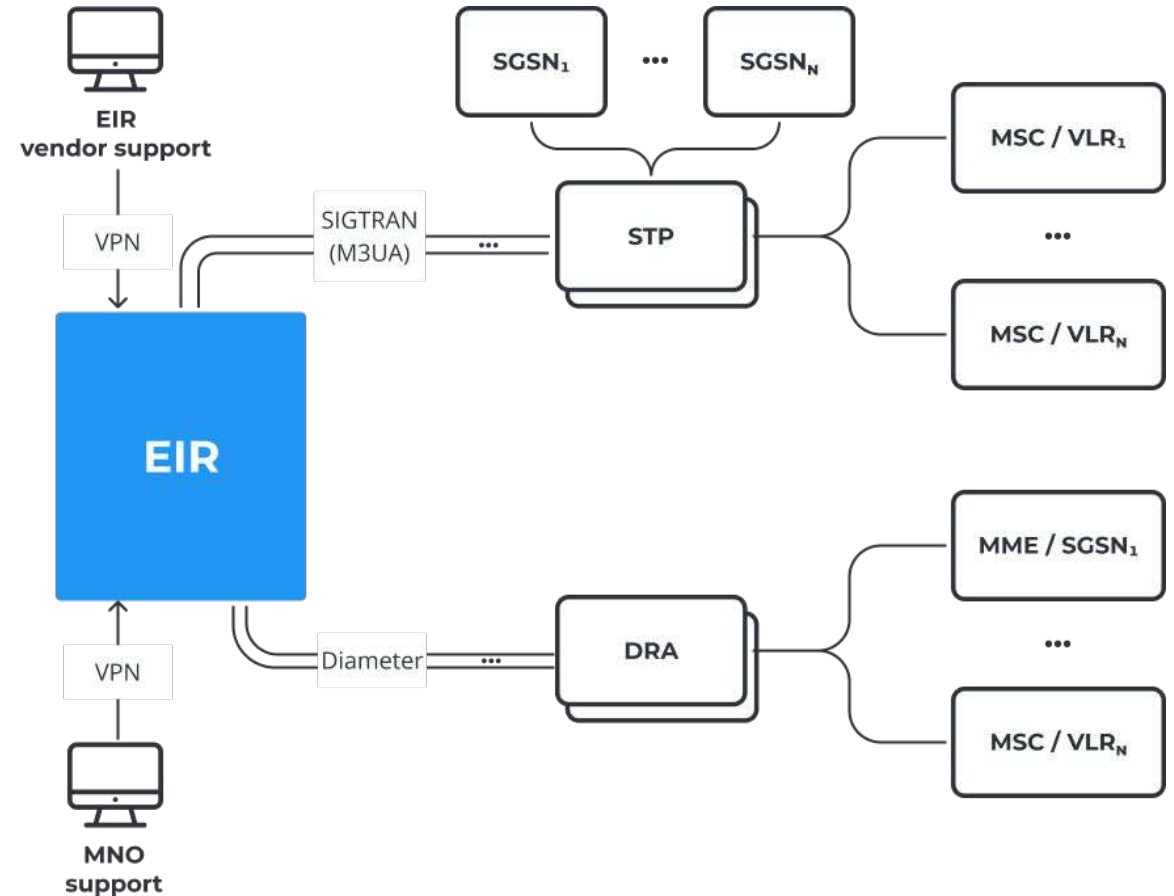
SERIES Q: Switching and signalling, and associated measurements and tests

Supplements to ITU-T Q-series Recommendations

Common approaches and interfaces for data exchange between the central equipment identity register and the equipment identity register

2: EIRs shall interact with the operator's switching equipment

To manage real-time registration of mobile devices This task is solved by the **3GPP/3GPP2** standards, which describe the interfaces and commands for requesting IMEI checks



3: Notifications from EIR and CEIR

- Consumer information is noted in **Q.5050 «Framework for solutions to combat counterfeit ICT devices»** as an essential factor in the fight against counterfeit ICT devices
- The standardized SMPP protocol, which is supported by many solutions in the ICT industry, is well-suited for sending notifications



4: The CEIR shall communicate with GSMA on the list of TAC Codes and blocked IMEIs

1. GSMA provides two options for obtaining a list of TAC codes. The CEIR might need to support the implementation of these options:
 - API
 - Transferring a List to a File
2. It is also possible, but not necessary, to receive a worldwide blacklist from the GSMA. To obtain the blacklist and make entries to it, the file format described in the **GSMA SG.18** standard is used



OR



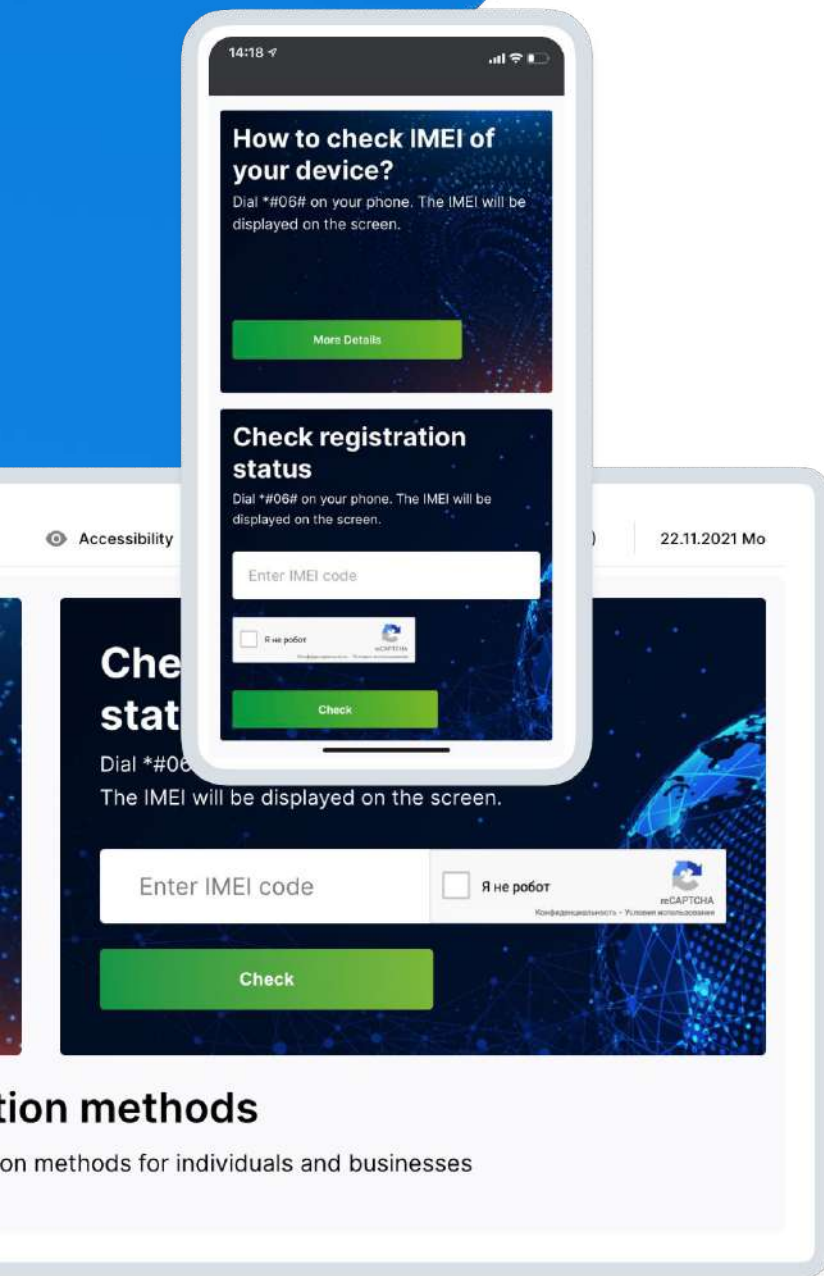
5: Integration of CEIR with payment systems and other financial organizations

Payment systems usually have their own well-documented API, as they are interested in effectively connecting with numerous customers

- + API are well documented
- APIs differ from one payment system to another

6: Integration with citizen's digital portal

- A public portal where you can check IMEI or register is not implemented on CEIR resources, for example, it is a separate website of the communications service's regulator
- Ability to register IMEI from the personal account of the system of public interactive services
- Ability to check IMEI and register IMEI from the importer's personal account in the customs IT system



tion methods

on methods for individuals and businesses

Key take-aways

1.

CEIR / EIR is more than a technology

– it is politically impactful project.

Small change – big impact

2.

Plan in advance

Careful planning and checking others experience helps.

Proven by practice

3.

Rely on the standards

And participate in creation of new ones



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Standards recommendations

1. Integration between CEIR and each EIR:
 - Q.5050 Sup.76
2. Integration of EIR with switching equipment:
 - 3GPP TS 22.016, 29.002, 29.272, 29.511
3. Notifications from EIR and CEIR:
 - SMPP 3.4, 5.0
4. GSMA Integration:
 - GSMA Get Handset Details API, TAC IMEI DB
 - GSMA SG.18