



Study on deployment of key Internet standards in the EU

EU Internet Standards Deployment Monitoring Website

28 November 2023 - Swedish IPv6 Forum

Cybersecurity strategy 2020 of the EU

Section 1.6

"The Commission will also, in liaison with Member States and industry, accelerate the uptake of key internet standards including IPv6 and well-established internet security standards and good practices for DNS, routing, and email security"



<https://digital-strategy.ec.europa.eu/en/library/eus-cybersecurity-strategy-digital-decade-0>

Cybersecurity strategy 2020 of the EU

Goal: accelerate the uptake of key internet standards

- IPv6 and well-established internet security standards and good practices for DNS, routing, browsing and email security
- In close cooperation with Member States and industry
- Monitor progress

Promote the implementation of standards in partner countries

- Supports the development of the global and open Internet
- Countering the rise of closed and control-based models of the Internet

Internet standards

- Following and contributing (EU stakeholders) to the development of internationally agreed internet standards, fostering their deployment is key for the objective of the EU to maintain an open, secure and resilient global Internet.
- Objectives
 - Foster the development of important performance and security features (e.g. IPv6, DNSSEC, secure routing)
 - Not leave space to incompatible visions of the internet
 - Enhance trust in resilience and security of the internet as a critical infrastructure
 - Foster the development of new applications and technologies.

Study on internet standards

- In collaboration with scientific team from Commission's Joint Research Centre (JRC)
- Monitoring and acceleration of key Internet standards within the EU
 - Selection of most relevant Internet standards for policy monitoring (robust technical criteria)
 - Synthesis and comparison of available data; additional data collection
 - Definition, monitoring and assessment of Key Performance Indicators (KPIs)
 - Analysis of main deployment barriers, consequences of lack of progress
 - Identification of instrumental stakeholders
 - Gathering and sharing of best practices
 - Policy development, definition of policy targets
 - Give visibility

EU Strategy on standardization

Section IV

"The Commission will... foster the development and deployment of international standards for a free, open, accessible and secure global internet and establish an EU internet standards monitoring website"



Brussels, 2.2.2022
COM(2022) 31 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

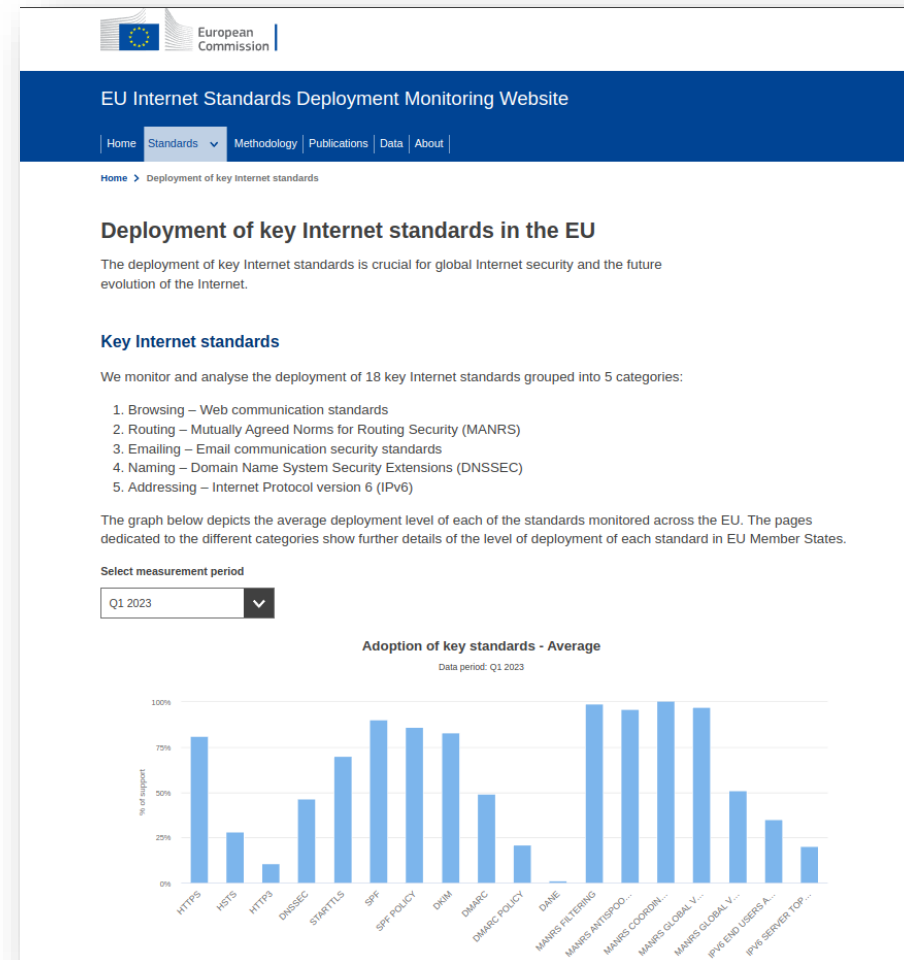
**An EU Strategy on Standardisation
Setting global standards in support of a resilient, green and digital EU single market**

<https://ec.europa.eu/docsroom/documents/48598>



Internet Standards Monitoring Website

- The website provides periodic measurements of key internet standards using both third-party sources and data collected by the JRC
- Visualizes the deployment indicators of 18 key Internet standards
- Provides access to the collected data and the published technical reports



<https://ec.europa.eu/internet-standards>

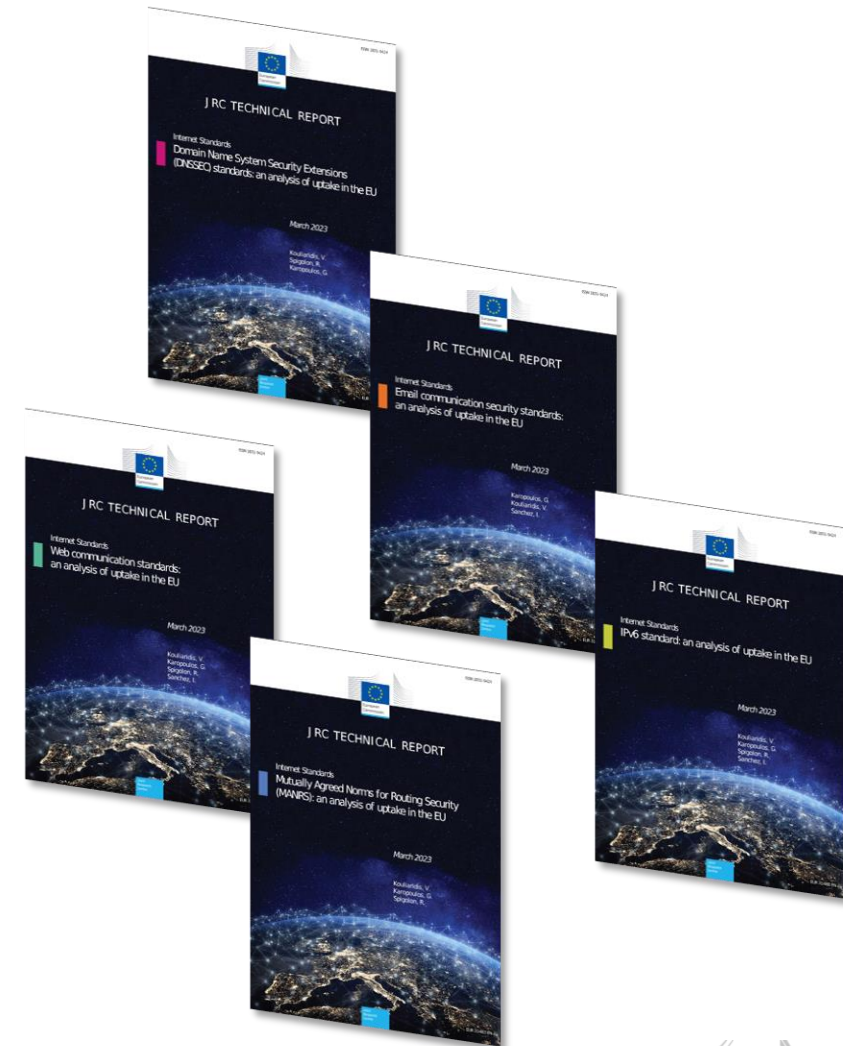
Series of JRC technical reports on Internet Standardization

Quantitative survey of the status of key Internet communication standards in the EU

- Third party data
- Own measurements

Follow-up analysis and recommendations

- Consequences of lack of progress in the deployment of key Internet standards
- Main barriers for the selected Internet standards in the EU
- Recommendations to accelerate the uptake of selected Internet standards in the EU



Key Internet standards

- E-mail
 - STARTTLS
 - Sender Policy Framework (SPF)
 - DomainKeys Identified Mail (DKIM)
 - Domain-based Message Authentication, Reporting and Conformance (DMARC)
 - DNS-based Authentication of Named Entities (DANE)
- Web-communication
 - HTTPS
 - HTTP Strict Transport Security (HSTS)
 - HTTP version 3 (HTTP/3)
- Domain Name System (DNS)
 - Domain Name System Security Extensions (DNSSEC)
- Mutually Agreed Norms for Routing Security (MANRS)
- IPv6

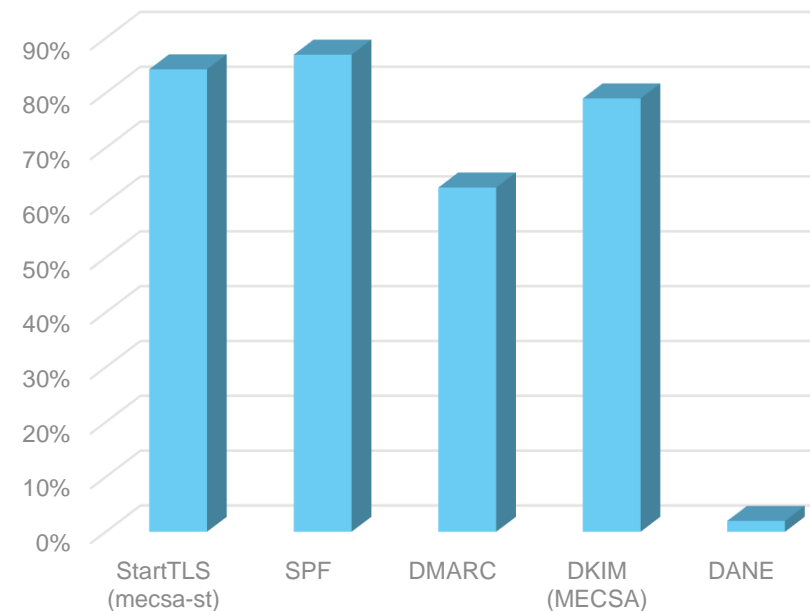
Modern e-mail security standards

STARTTLS, SPF, DKIM, DMARC, DANE – Q3 2023

There are significant gaps in the level of adoption that do not close organically over time.

This is particularly prominent for some standards.

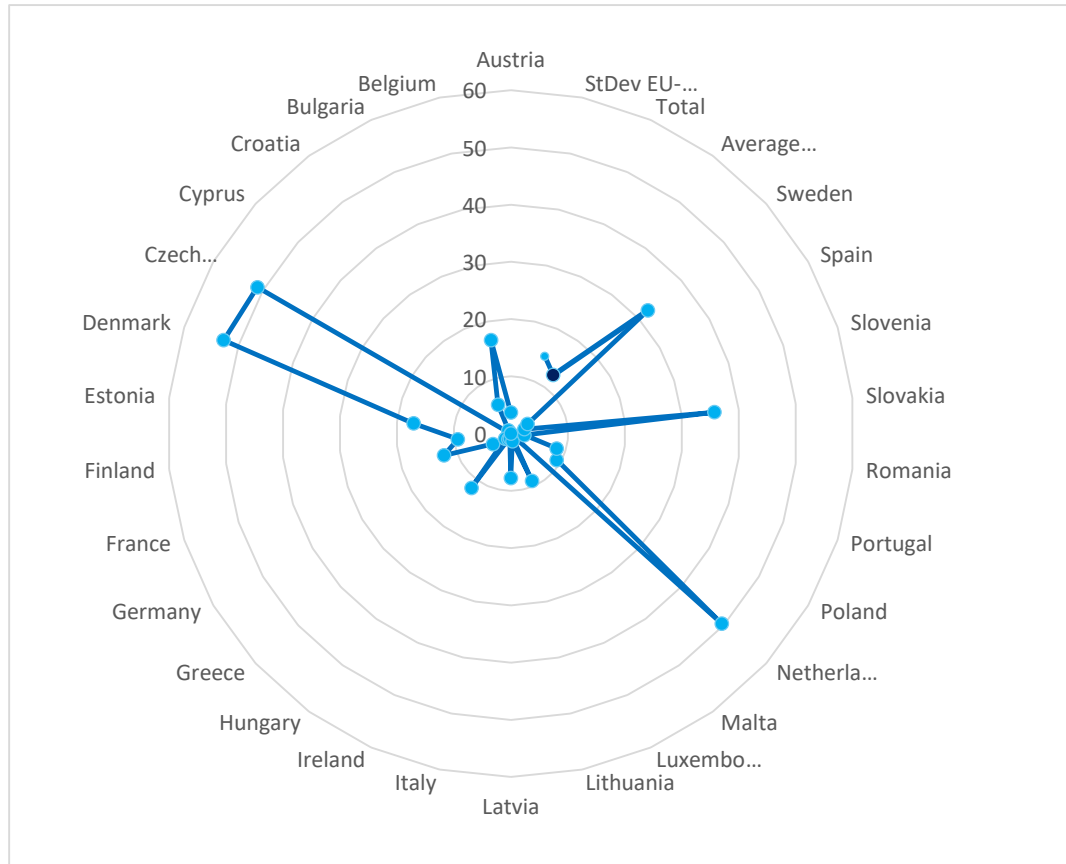
The level of adoption of standards is also often uneven across EU member states and sectors.



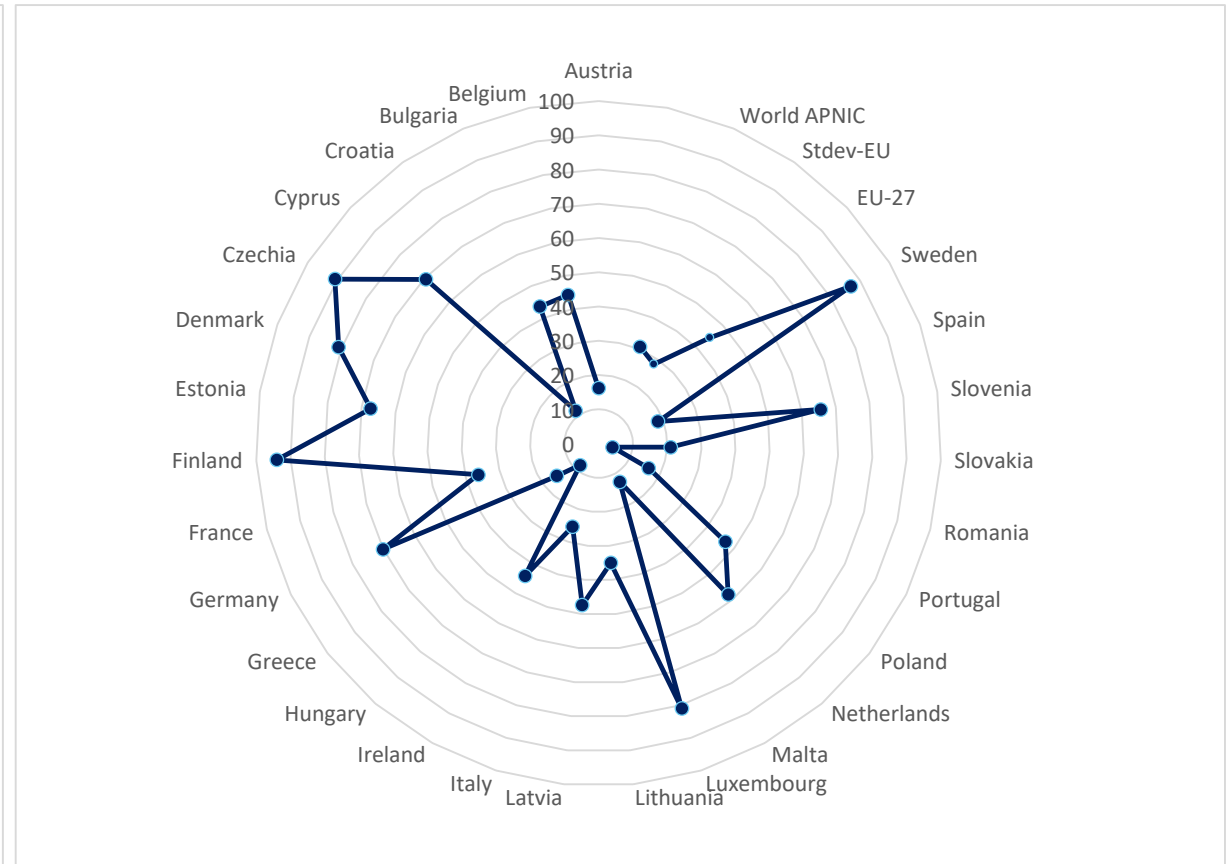
DNS

DNSSEC – Q3 2023

Service-side adoption

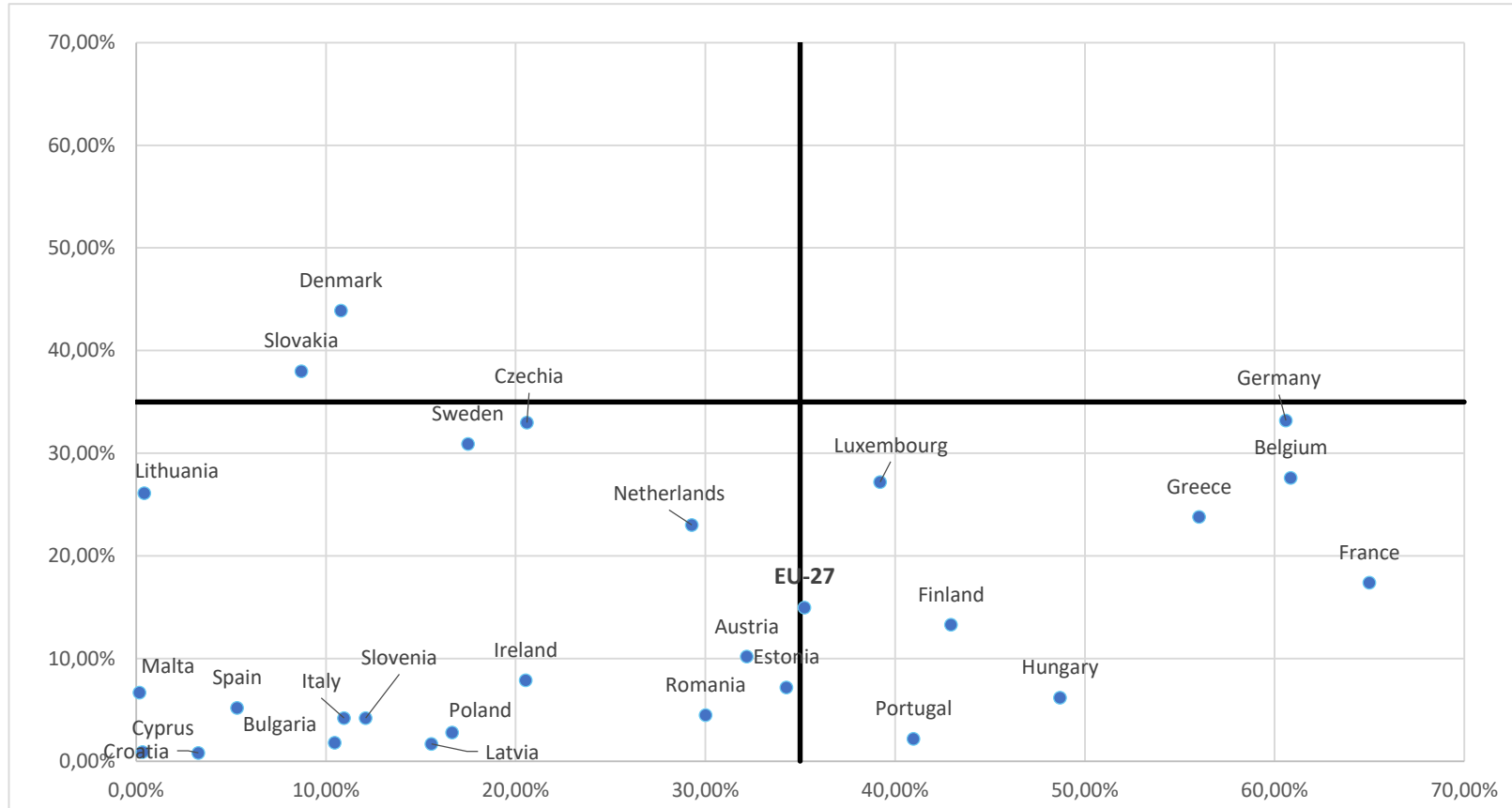


DNSSEC Validation Rate



IPv6 – Q3 2023

IPv6 Adoption in the EU

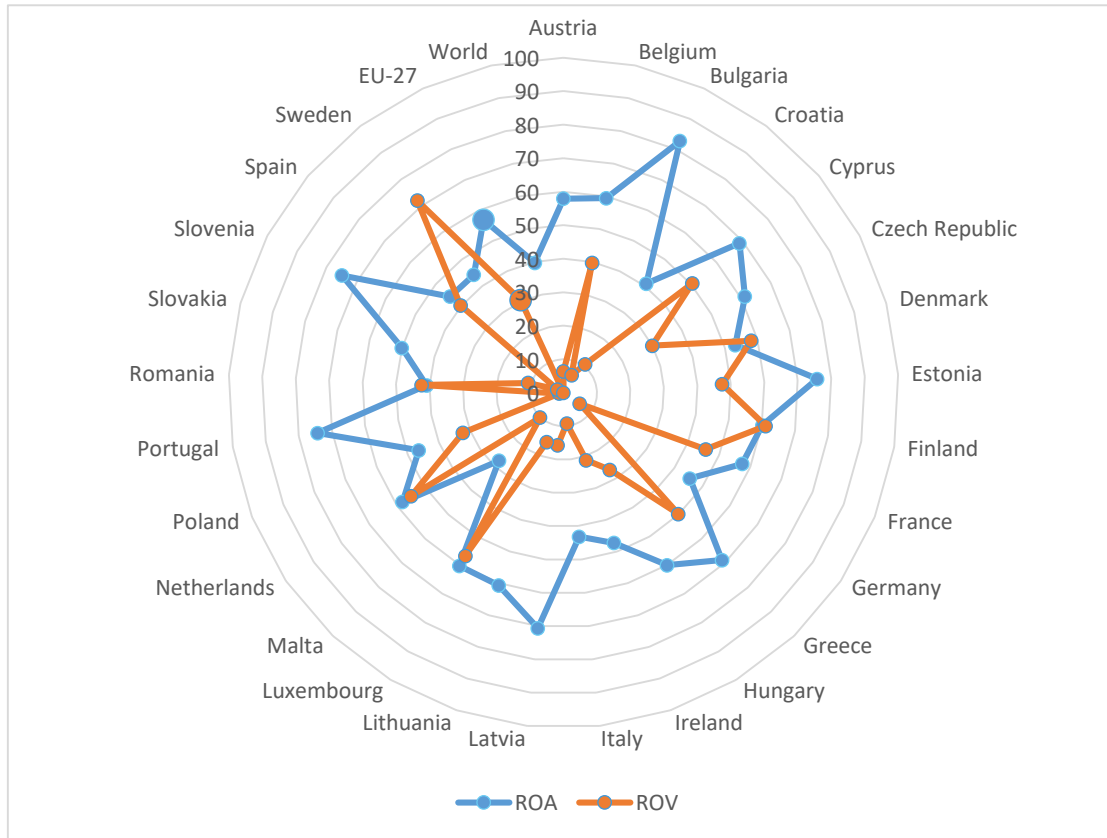


Yaxis: IPv6-enabled services, Xaxis: IPv6-enabled users

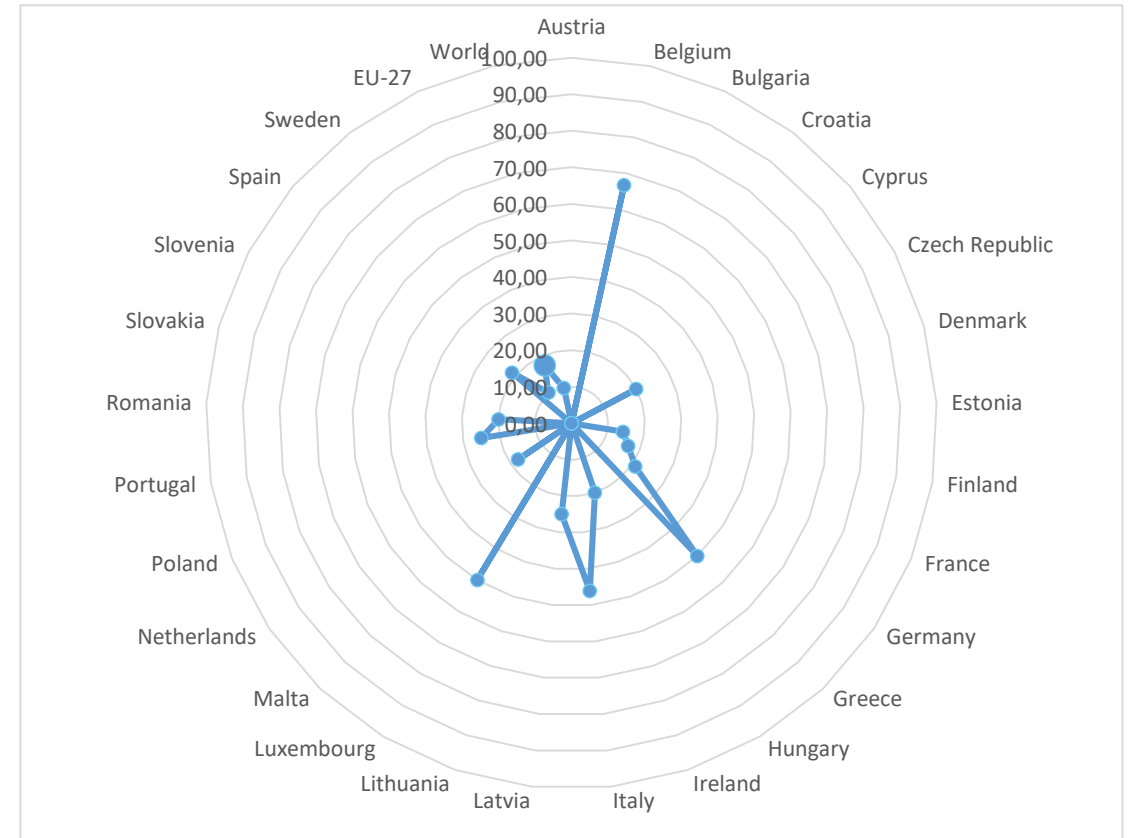
Routing

Mutually Agreed Norms for Routing Security (MANRS) – Q3 2023

RPKI ROA and ROV adoption in EU-27 MSs



Participation in MANRS of IXPs located in the EU



Thank you