Deploying the Cybersecurity Capacity Maturity Model for Nations in Iceland: findings and recommendations

Dr. Maria Bada, Lead Researcher
Global Cyber Security Capacity Centre
University of Oxford
Maria.Bada@cs.ox.ac.uk
@MariaBadaOxford

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Cybersecurity Capacity Maturity Model for Nations (CMM)
The 5 DIMENSIONS of Cybersecurity Capacity

D 1 Cybersecurity Policy and Strategy
D 2 Cyber Culture and Society
D 3 Cybersecurity Education, Training and Skills
D 4 Legal and Regulatory Frameworks
D 5 Standards Organisations, and Technologies
Stages of Maturity

Start-up
Formative
Established
Strategic
Dynamic
Dimension 1

D1.1 National Cybersecurity Strategy
D1.2 Incident Response
D1.3 Critical Infrastructure (CI) Protection
D1.4 Crisis Management
D1.5 Cyber Defence Consideration
D1.6 Communications Redundancy
Dimension 2

D2.1 Cybersecurity Mind-set
D2.2 Trust and Confidence on the Internet
D2.3 User Understanding of Personal Information protection online
D2.4 Reporting Mechanisms
D2.5 Media and Social Media
CYBERSECURITY EDUCATION, TRAINING AND SKILLS

Dimension 3

- D3.1 Awareness Raising
- D3.2 Framework for Education
- D3.3 Framework for Professional Training
LEGAL AND REGULATORY FRAMEWORKS

Dimension 4

- D4.1 Legal Frameworks
- 4.2 Criminal Justice System
- D4.3 Formal and Informal Cooperation Frameworks to Combat Cybercrime
STANDARDS, ORGANISATIONS AND TECHNOLOGIES

D5.1 Adherence to Standards
D5.2 Internet Infrastructure Resilience
D5.3 Software Quality
D5.4 Technical Security Controls
D5.6 Cybersecurity Marketplace
D5.7 Responsible Disclosure
Methodology

Hosted by Iceland’s Ministry of Transport and Local Government (MoTLG)
Over the period 21–23 June 2017

• In-country focus group discussions with key stakeholders
• 10 sessions over 3 days
• Research team from the GCSCC
CMM Review in Iceland
Findings
Overall representation of the cybersecurity capacity in the Republic of Iceland.
Published the Icelandic National Cyber Security Strategy 2015-2026

Established CERT-IS as national point of contact

CERT-IS and Nordic National CERT collaboration & conducting cs exercises

CI asset list developed but not disseminated to all stakeholders

Ad-hoc vulnerability disclosure for CI & Government
No official risk assessment plan

Cyber Defence considered in terms of National Cyber Resilience

In contact with NATO CCDCOE – Tallinn Manual Use – Participation to Trident Juncture exercise

Emergency response assets in place

Cybersecurity Policy and Strategy
High levels of “blind” trust online

E-government & E-commerce services established

General knowledge on privacy and protection of personal information online

Some reporting mechanisms exist on incidents online

Ad-hoc media coverage of cybersecurity and incidents online
Awareness-raising programmes developed but no national level programme

General executive knowledge of cybersecurity issues

University level courses in cybersecurity-related fields but no cybersecurity courses offered

Informal agreement with NTNU for collaboration and movement of students

CYBERSECURITY EDUCATION, TRAINING AND SKILLS
ICT professional certification available

Not sufficient expertise among educators in cybersecurity

Ad-hoc provision of courses for CEOs in cybersecurity and risk management
Provisions on cybersecurity in ICT legislative and regulatory frameworks

Work underway towards the implementation of NIS Directive and GBPR

Fundamental human rights recognised in Icelandic Law (freedom of speech, freedom of information etc.)

Adopted Child Protection legislation

Data Protection Legislation implemented
LEGAL AND REGULATORY FRAMEWORKS

- Substantive cybercrime legal provisions in criminal law (Budapest Convention)
- Limited capacity on cybercrime investigation
- Formal international cooperation mechanisms established with Interpol / Europol / Nations
- Informal communication channels between government & criminal justice & ISPs & law enforcement
ICT security standards and good practice adopted in public & private sector

Ad-hoc software quality assessment

Varying adoption of technical security controls

Lack of understanding of such controls by general public

Limited market provisions of cybersecurity and cyber insurance products
Limited market provisions of cybersecurity and cyber insurance products

No official vulnerability disclosure framework at place

STANDARDS, ORGANISATIONS AND TECHNOLOGIES
CMM Review in Iceland
Recommendations
CYBERSECURITY POLICY AND STRATEGY

Recommendations

• Encourage the implementation of the National Cyber Security Strategy across government and other sectors.

• Conduct regular scenario cyber exercises that provide a picture of national cyber resilience.

• Form a multi-stakeholder research cluster to work on national cyber resilience.

• Promote cooperation between stakeholders and other nations to increase incident response capacity (Nordic National CERT Collaboration).
CYBERSECURITY POLICY AND STRATEGY

Recommendations

• Develop a national risk assessment plan.
• Strengthen formal coordination regarding CNI protection.
• Promote information sharing between public & private sector.
The Icelandic online culture is described by “blind” trust.

Promote data protection online.

Coordinate reporting mechanisms on child abuse and other online incidents.

Apply security measures to establish trust in e-commerce services.

Encourage discussions about cybersecurity on social media.
CYBERSECURITY EDUCATION, TRAINING AND SKILLS

Recommendations

• Develop a National Cybersecurity Awareness programme.
• Create cybersecurity education programmes.
• Establish cooperation agreements with European/International Universities.
• Establish cybersecurity training programmes for professionals.
• Develop a central platform for sharing training information for experts.
LEGAL AND REGULATORY FRAMEWORKS

Recommendations

• Coordinate work towards the implementation of NIS Directive and GDPR.
• Identify international trends to inform the amendment of data protection laws.
• Ensure procedural law provisions on cross-border investigation of cybercrime cases.
• Enhance training and education of prosecutors and judges on cybercrime and data protection.
• Enhance informal cooperation mechanisms between ISPs, law enforcement, government & criminal justice.
STANDARDS, ORGANISATIONS AND TECHNOLOGIES
Recommendations

• Promote cybersecurity standard adoption in all sectors.
• Conduct regular assessments of processes on national information infrastructure security & critical services.
• Promote user understanding of deployment of security controls.
• Develop a responsible vulnerability disclosure framework with all stakeholders involved.
Thank you!

Global Cyber Security Capacity Centre
Oxford Martin School, University of Oxford
34 Broad Street, Oxford OX1 3BD, UK
Phone: +44(0)1865 287903
cybercapacity@oxfordmartin.ox.ac.uk

www.oxfordmartin.ox.ac.uk/cybersecurity