

**Ελλάδα 2024-2030**

# **Ανθρώπινο Δυναμικό Κυβερνοασφάλειας**

**Γνώσεις - Δεξιότητες - Εμπειρίες - Ευκαιρίες - Προοπτικές**



**Γιώτα Παπαρίδου**

Πρόεδρος ΣΕΠΕ

**Δημήτρης Γκριτζαλης**

Καθηγητής ΟΠΑ



Co-funded by  
the European Union

## About CyberHubs

3-year EU project aiming to **enhance the CyberSec skills ecosystem** in EE.

Establish **7 Cybersecurity Skills Hubs** (BE, ES, GR, HU, LT, SL, ES) and a sustainable **European Network of Cybersecurity Skills Hubs**.

Develop **national cyber-security skills strategies**, create **innovative Cyber-Sec solutions**, and establish **long-term partnerships and collaboration**.

## Consortium

CyberHubs brings together **21 Full Partners** (11 EU Member States).

## Greece (Partners & Team)

Partners: **SEPE** and **Athens University of Economics and Business**.

Project Team (alphabetic order): **D. Gritzalis** (AUEB), **G. Iakovakis** (AUEB), **D. Kontopoulou** (SEPE), **A. Matsouka** (SEPE), **Y. Papparidou** (SEPE).



## Multi-method approach (quantitative & qualitative data)

### (a) Desk Research (GR)

- Supply Side (Universities, Colleges, Certifications, etc.)

### (b) Survey (GR)

- Online Questionnaire (in Greek)
- 140 Respondents

### (c) Job Vacancies

- Demand Side (Private Sector, Universities, etc.)
- EIT Digital Skills Academy Platform

### (d) Expert Focus Groups (GR)

- 1<sup>st</sup>: Cybersecurity Professionals (Private & Public Sectors)
- 2<sup>nd</sup>: Academics specializing in Cybersecurity (or related field)



## Universities (GR): M.Sc. degrees awarded in Cybersecurity (or similar)

University & postgraduate studies programme	2021		2022		2023		Total		
	M	W	M	W	M	W	M	W	M+W
<b>Athens University of Economics &amp; Business</b> Information Systems Security & Development	28	10	39	18	34	11	101	39	140
<b>University of Piraeus</b> Cybersecurity & Data Science	38	10	35	10	36	11	109	31	140
<b>University of Piraeus</b> Digital Systems Security	34	6	25	3	22	3	81	12	93
<b>University of the Aegean</b> Information & Communication Systems Security	19	6	13	5	12	3	44	14	58
<b>University of Western Attica</b> Cybersecurity	23	5	21	4	31	11	75	20	95
<b>International Hellenic University</b> Cybersecurity	7	1	5	2	10	2	22	5	27
<b>Total</b>	<b>149</b>	<b>38</b>	<b>138</b>	<b>42</b>	<b>145</b>	<b>41</b>	<b>432</b>	<b>121</b>	<b>553</b>



## Colleges (GR+UK): B.Sc. & M.Sc. Degrees awarded in Cybersecurity

College & Study Programme (undergraduate or postgraduate)	2021		2022		2023		Total		
	M	W	M	W	M	W	M	W	M+F
<b>Undergraduate Study Programmes</b>									
<b>Metropolitan College</b> B.Sc. Cyber Security & Networks	6	0	6	2	14	1	26	3	29
<b>New York College</b> B.Sc. Computing (Cybersecurity)			3	0	7	0	10	0	10
<b>Epsilon College</b> B.Sc. Web Development & Cyber Security					-	-	0	0	0
<b>The American College of Greece</b> B.Sc. Cybersecurity & Networks					3	0	3	0	3
<b>Postgraduate Study Programmes</b>									
<b>BCA College</b> M.Sc. Maritime Cybersecurity									
<b>BCA College</b> M.Sc. Applied Cyber Security									
<b>Aegean College</b> M.Sc. Cyber Security									
<b>Metropolitan College</b> M.Sc. Information Security & Digital Forensics	13	6	18	7	19	5	50	18	68
<b>Total</b>	<b>19</b>	<b>6</b>	<b>27</b>	<b>9</b>	<b>40</b>	<b>6</b>	<b>89</b>	<b>21</b>	<b>110</b>



## Life-long Training (KEΔIBIM) Programmes in Cybersecurity

KEDIVIM – Training Programme	2021		2022		2023		Total		
	M	W	M	W	M	W	M	W	M+W
<b>University of Patras</b> Data Security – Cybersecurity					35	20	35	20	55
<b>University of Macedonia</b> Cisco Certified Network Associate v7 & CyberOps Associate					8	0	8	0	8
<b>University of Thessaly</b> Cisco Certified CyberOps Assoc. – Cybersecurity	10	2	14	2	5	2	29	6	35
<b>University of Western Macedonia</b> Data Protection IT Specialist - Cybersecurity	Not responded						-	-	-
<b>Aristotle University of Thessaloniki</b> Cybercrime & Cybersecurity	6	15	11	20	4	8	21	43	64
<b>National Kapodistrian University of Athens</b> AI Systems in Cybersecurity							0	0	0
<b>Total</b>	<b>16</b>	<b>17</b>	<b>25</b>	<b>22</b>	<b>52</b>	<b>30</b>	<b>93</b>	<b>69</b>	<b>162</b>




## Certifications in Cybersecurity (or similar)

GREECE: Certifications in (Cyber)Security (02/2024)				
ISC <sup>2</sup>	Total	M	W	
Certified in Cybersecurity (CC)	146	Gender data not stored		
Certified Information Systems Security Professional (CISSP)	71			
Certified Cloud Security Professional (CCSP)	42			
Systems Security Certified Practitioner (SSCP)	13			
Governance, Risk and Compliance Certification (CGRC)	11			
Certified Secure Software Lifecycle Professional (CSSLP)	7			
<b>Total ISC<sup>2</sup></b>	<b>290</b>			
ISACA	Total			
Certified Information Security Manager (CISM)	190			
<b>Total ISACA</b>	<b>190</b>			
<b>Total certifications</b>	<b>480</b>			



## Greece: Education Programmes in Cybersecurity (EQF6-8)

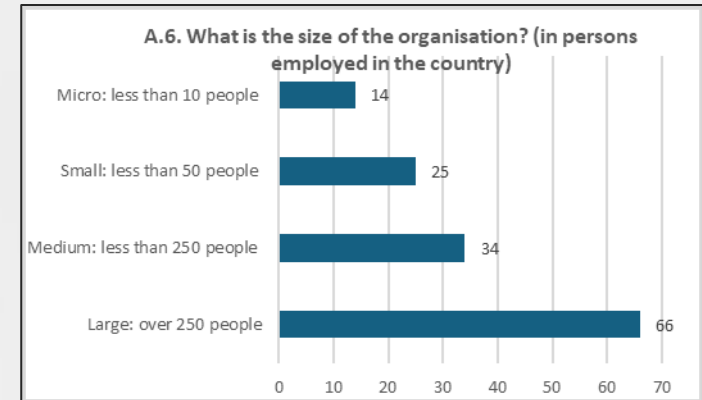
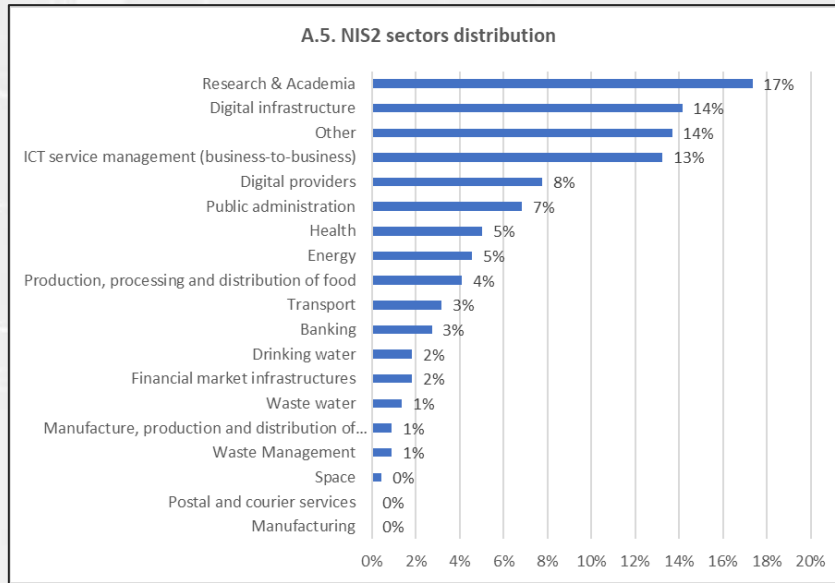
	2021			2022			2023			2021-23		
	M	W	M+W	M	W	M+W	M	W	M+W	M	W	M+W
<b>FORMAL EDUCATION SYSTEM</b>												
<b>UNIVERSITIES</b>	157	41	198	143	43	186	156	44	200	456	128	584
Undergraduate Programmes (EQF 6)	-	-	-	-	-	-	-	-	-	0	0	0
Postgraduate Programmes (EQF 7)	149	38	187	138	42	180	145	41	186	432	121	553
Ph.Ds (EQF 8)	8	3	11	5	1	6	11	3	14	24	7	31
<b>NON-FORMAL EDUCATIONAL SYSTEM &amp; TRAINING</b>												
<b>COLLEGES</b>	19	6	25	27	9	36	43	6	49	89	21	110
Undergraduate Programmes (EQF 6)	6	0	6	9	2	11	24	1	25	39	3	42
Postgraduate Programmes (EQF 7)	13	6	19	18	7	25	19	5	24	50	18	68
<b>Centres of Training and Lifelong Learning (KEDIVIM)</b>	16	17	33	25	22	47	52	30	82	93	69	162
<b>TOTAL (Education, Training)</b>	173	58	231	171	65	236	218	74	292	638	218	856
<b>PROFESSIONAL CERTIFICATIONS</b>	ISC: 290 and ISACA: 190 (02/2024)									No gender-related data kept		480
<b>TOTAL (Education, Training, Certification)</b>												<b>1.336</b>




## Selected worth-mentioning takeaways


1. There is **no University** in Greece offering a 1<sup>st</sup> academic degree (B.Sc.) in Cybersecurity. There are **Colleges** (4) that offer such degrees.
2. The majority (65%) of individuals trained in Cybersecurity come from **Postgraduate Programmes (M.Sc.)** (5 Universities, 6 Programmes).
3. There are **private Colleges** in Greece offering under/postgraduate degrees in Cybersecurity or related fields (6 Colleges, 8 Programmes).
4. **Life-long Training Centers** (ΚΕΔΙΒΙΜ) offering Programmes in Cybersecurity are few (7) and they have trained limited number of persons.
5. International **Professional Organizations** (ISC<sup>2</sup>, ISACA) provide a number of certifications (480) on various topics/fields of Cybersecurity.
6. Graduates of Programmes/Seminars in Cybersecurity or related knowledge areas are **predominantly male**, with no current trend towards balancing.
7. In Greece, the quota against women (24-28%) in Cybersecurity or related knowledge areas applies **regardless of the type** of study Programmes.





 <b>GREECE</b>	
<b>A.4. To what category does your organisation belong?</b>	
Cybersecurity organisation/provider	21
ICT organisation with a need for in-house cybersecurity professionals	21
Private organisation with a need for in-house cybersecurity professionals in another sector	28
Public organisation with a need for in-house cybersecurity professionals	18
Organisation with no need for in-house cybersecurity professionals	16
Academia	25
Other	10
<b>Total</b>	<b>139</b>

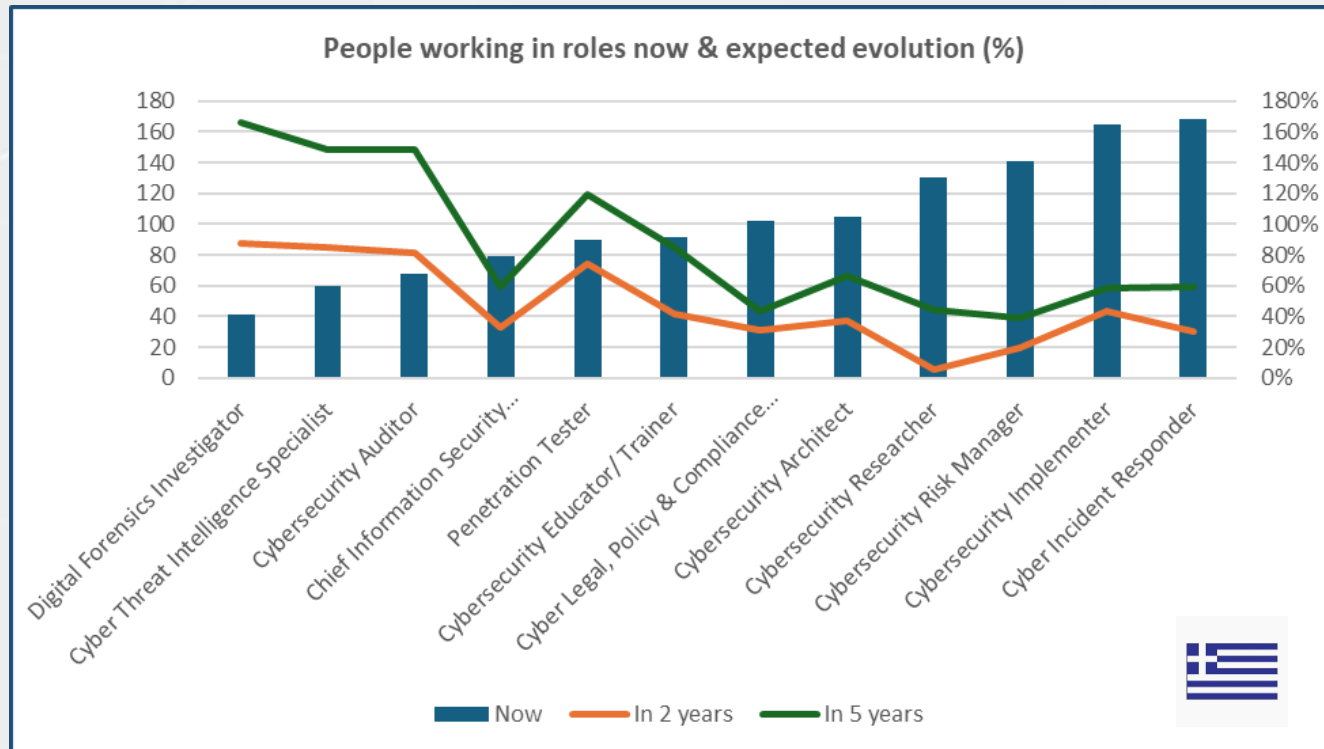


	GREECE	B.4.1: Demand for specific cybersecurity roles			
Cybersecurity Roles	Number of people working in this role now	Number of people needed in this role now, including the people working in it now	Expected number of people needed in this role in 2 years, including the people working in it now	Expected number of people needed in this role in the long run (>5 years), including the people working in it now	
Cybersecurity Risk Manager	141	121	168	196	
Cyber Legal, Policy & Compliance Officer	102	102	134	146	
Cybersecurity Architect	105	98	144	175	
Cyber Threat Intelligence Specialist	60	76	111	149	
Cybersecurity Auditor	68	76	123	169	
Cybersecurity Educator/Trainer	91	90	129	168	
Cybersecurity Researcher	130	93	137	187	
Digital Forensics Investigator	41	54	77	109	
Penetration Tester	90	119	157	197	
Chief Information Security Officer (CISO)	79	80	105	126	
Cybersecurity Implementer	165	173	236	261	
Cyber Incident Responder	168	162	219	267	





## Cybersecurity Roles\* (GR): Now and in the future



\* Roles suggested in “European Cybersecurity Skills Framework (ECSF) - User Manual”, European Union Agency for Cybersecurity (ENISA), September 2022.

GREECE - People working today in ENISA Cybersecurity Roles (ECSF)		
Less than needed	As many as needed	More than needed
Penetration Tester	Cybersecurity Educator/Trainer	Cybersecurity Researcher
Cyber Threat Intelligence Specialist	Cyber Legal, Policy & Compliance Officer	Cybersecurity Risk Manager
Digital Forensics Investigator	Chief Information Security Officer (CISO)	Cybersecurity Architect
Cybersecurity Implementer		Cyber Incident Responder
Cybersecurity Auditor		

\* Roles suggested in “European Cybersecurity Skills Framework (ECSF) - User Manual”, European Union Agency for Cybersecurity (ENISA), September 2022.






GREECE – IT security skills needed in the organisation (top-down)		
No need	Substantial need	Lot of need
Supply Chain Security	Cloud Security DevSecOps	Data Privacy Information Systems & Network Security / Cyber Resiliency
Some need	Communications Security	Access Controls / Identity Management
AI Security Physical Device Security Intelligence Analysis Digital Forensics Operational Technology Security	Operating Systems (OS) Security Data Security & Cryptography Incident Management Access Controls / Identity Management Threat Analysis Operational Technology Security	Threat Analysis



## GREECE: A preferred Cybersecurity professional's profile (2024-30)

		GREECE: Demand for cybersecurity professionals in the future Qualitative attributes	
<b>Cybersecurity roles in the future</b>	<b>Roles in 2 years (highest first)</b>	<b>Demand for Cybersecurity skills</b>	<b>A lot or substantial need (highest first)</b>
	Cybersecurity Implementer		Data Privacy
	Cyber Incident Responder		Information Systems & Network Security / Cyber Resiliency
	Cybersecurity Risk Manager		Incident Management
	Penetration Tester		Access Controls / Identity Management
	Cybersecurity Architect		Threat Analysis
	<b>Roles after &gt;5 years (highest first)</b>		<b>No need or a limited need (lowest first)</b>
	Cyber Incident Responder		Supply Chain Security
	Cybersecurity Implementer		Operational Technology Security
	Penetration Tester		Digital Forensics
Cybersecurity Risk Manager	Intelligence Analysis		
Cybersecurity Researcher	AI Security		
<b>Other skills (a lot or substantial need) (highest first)</b>			
<b>IT related skills</b>	<b>Organisational skills</b>	<b>Soft skills</b>	<b>Hiring qualifications</b>
Operating Systems	Risk Management	Analytical thinking	Formal certification relevant for the role
Network Management	Education & Training	Creative thinking	Formal professional education relevant for the role
Data Analysis	Process Control	Act responsibly	Bachelor/Master's degree relevant for the role
Enterprise Architecture & Infrastructure Design	Business Continuity	Problem solving	Certificates relevant for the role
System Administration & Integration	Strategic Planning	Planning and organizing	Formal professional education in any field

# (Other people's) Lessons learnt

*“Prioritizing profitability and customer services remain **non-negotiable** for business success.*

*However, business decision makers recognize that **success also relies** on their ability to **navigate the complex landscape** of digital transformation, **cybersecurity**, and advanced technology”.*

The Business Decision Makers' Mindset  
CNN International Commercial  
May 2024

