AIOTI Signature Event

Advanced Digital Skills to deliver on promise of the Computing Continuum

Brendan Rowan
BluSpecs
Christopher Gow
Cisco
Senior Director, EU Public Policy, Government Affairs

Na Fu
Trinity Business School
Professor in HR and Organisational Management

Homer Papadopoulos
DEMOKRITOS
Syndesis Ltd
Director, Applied Research Co-founder

Brendan Rowan
(M)
BluSpecs
Managing Consultant Tech, Policy and Skills
The context
Share of global economy (%GDP PPP)

Source: IMF
Source: McKinsey, Sep 2022, Securing Europe’s competitiveness; Addressing its technology gap
R&D SPEND
2022
(EUR)

Source: Annual Reports
TALENT IS THE KEY

87%
Report having a skills gap in the workplace

59%
Report negative impact on business due to skills shortages

Sources: Udacity/IPSOS, 2022, Talent Transformation Global Impact Report
McKinsey, 2022, Global Talent Survey
EUROZONE UNEMPLOYMENT
Lowest on Record

5.9%

ANNUAL LOSS IN EU WORKFORCE 2020-2030

- 1m

OPEN VACANCIES IN EU
Highest on Record

3%

China has the highest rate of STEM graduates, with Europe second in absolute numbers.

Graduates from STEM programs in tertiary education, 2018:

<table>
<thead>
<tr>
<th>Country</th>
<th>Total, thousand</th>
<th>Per million inhabitants, thousand</th>
<th>Share of total graduates, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>615</td>
<td>1.9</td>
<td>21</td>
</tr>
<tr>
<td>China</td>
<td>4,700</td>
<td>3.4</td>
<td>48</td>
</tr>
<tr>
<td>Europe</td>
<td>1,032</td>
<td>2.0</td>
<td>26</td>
</tr>
<tr>
<td>South Korea</td>
<td>134</td>
<td>2.6</td>
<td>30</td>
</tr>
<tr>
<td>Israel</td>
<td>65</td>
<td>1.7</td>
<td>18</td>
</tr>
</tbody>
</table>

Source: Eurostat, July 2023, McKinsey, Sep 2022
ACCELERATED TECH DEVELOPMENT

79% Increase in Computer Programmers employed in EU from 2012

"We have seen two years' worth of digital transformation in two months”

CEO Microsoft, 2020

Organizations are getting more efficient with ML; for every three experimental models, roughly one is put into production, compared to five experimental models a year prior

Sources: European Comission, Employment and Social Developments in Europe 2023, Databrick Data and AI Report 2022, State of AI 2022
Skills
- 20 million employed ICT specialists, more graduates + gender balance
- 80% of adults can use tech for everyday tasks

Government
- Key Public Services - 100% online
- Everyone can access health records online
- Everyone can use eID

Infrastructure
- Gigabit connectivity for everyone, high-speed mobile coverage (at least 5G) everywhere
- EU produces 20% of world's semiconductors
- 10 000 cloud edge nodes = fast data access
- EU quantum computing by 2025

Business
- 75% of companies using Cloud, AI or Big Data
- Double the number of unicorn startups
- 90% of SMEs taking up tech
Leading Europe’s Advanced Digital Skills
DIGITAL CSA
2022-2024

- SPECIALISED Masters’ programmes
- Academic and VET networks
- Training academies
- Short-term training courses
  - SMEs, jobseekers, and individuals

www.advancedskills.eu
AI Application Development Data analytics
AI Implementation - Industry specific
Cloud solutions - Infrastructure
IoT Analytics
Cloud integrations and APIs
Cloud solutions - software architecture
AI System infrastructure
IoT Security
IoT Embedded Hardware and software
IoT Modules & Sensors
IoT Applications
Security analytics
IoT Connectivity
Cloud solutions - software development
Business related data management
Endpoint security
Implementation - Process specific
Information and Data security
GRC and Forensics
Network security

2020
2027

Components
Digital Infrastructure
Cloud Computing
CLOUD DEPLOYMENT
TECH DEBT
AI LED AUTOMATION
ENERGY DECARBONISATION
ENERGY INDEPENDENT SENSORS
CHEAPER CHIPS
GENERATIVE AI
CYBER RESILIENCE ACT
INCREASING COMPLIANCE

AIOTI

LEADS
ADVANCED DIGITAL SKILLS

Baseline 404
High Growth 468
Low Growth 303
We will need between 3.5 million and 13.9 million of new ADS professionals

Estimated number of new professionals needed over the next 5 years

Source: LEADS 2023
TALENT SOURCING IS A MIXED APPROACH

Source: LEADS Advanced Digital Skills Survey, April 2023, n=885
琼斯, 阿尔斯特, LEADS

Gisela Alvarez, DECC, UNLOCK CEI

NetBulous
- Amani Aziz, d'Althe

NPHLE
- Bani Tahmaoui, COINS
- aerOS
- Eduardo Cerny, ProDevlop

NEMO
- Soraj Wencker, Continental Corporation
- 360x360, Continental Corporation
- Harry Sin, Synetis
- Konstantinos Psychogios, Synetis
- Michal Korabino, Synetis

基金由欧盟基金资助

Cloud Skills are coming for the Edge

Overlap of Cloud/IoT skills across roles:
- Cloud: 37%
- IoT: 16%
- Both: 37%
- Neither: 10%
- Overall of Cloud/IoT skills across roles
AI, Data, and Cyber
Key skills for the CEI
Skills follow the priorities of the context
**Risk is high across all areas**

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Avg. Risk</th>
<th>Risk By Constituent Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disaster Management</td>
<td>254%</td>
<td>15% 10% 20% 20% 16% 16% 19%</td>
</tr>
<tr>
<td>Smart Ports</td>
<td>237%</td>
<td>22% 18% 25% 19% 18% 15% 18%</td>
</tr>
<tr>
<td>Precision Farming</td>
<td>229%</td>
<td>22% 22% 19% 17% 16% 15% 13%</td>
</tr>
<tr>
<td>Smart Cognitive Manufacturing</td>
<td>217%</td>
<td>18% 18% 18% 16% 16% 16% 16%</td>
</tr>
<tr>
<td>Smart Grids Flexibility &amp; Resilience</td>
<td>207%</td>
<td>15% 15% 15% 15% 15% 15% 15%</td>
</tr>
</tbody>
</table>

- **Risk By Constituent Skills** includes values ranging from 142% to 1% for various skills.
Challenges for sourcing

- Nascent definition of edge infrastructure makes it difficult to know what you are looking for.
- Each use case is different – context and scope.
- Existing skills and roles can be leveraged but only with domain-specific knowledge.

“professionals well-versed in cloud technologies, such as Kubernetes (K8s), possess a formidable skillset to effectively navigate the intricacies of edge computing”
Responses depend on the organisation
Giving Energy an Edge – Showcasing the Edge to Cloud Continuum in Energy

- Use cases
- Open Calls
- MetaOS architectures

www.eucloudedgeiot.eu
Christopher Gow  
Cisco  
Senior Director, EU Public Policy, Government Affairs

Na Fu  
Trinity Business School  
Professor in HR and Organisational Management

Homer Papadopoulos  
DEMOKRITOS  
Syndesis Ltd  
Director, Applied Research Co-founder

Brendan Rowan  
(M)  
BluSpecs  
Managing Consultant Tech, Policy and Skills