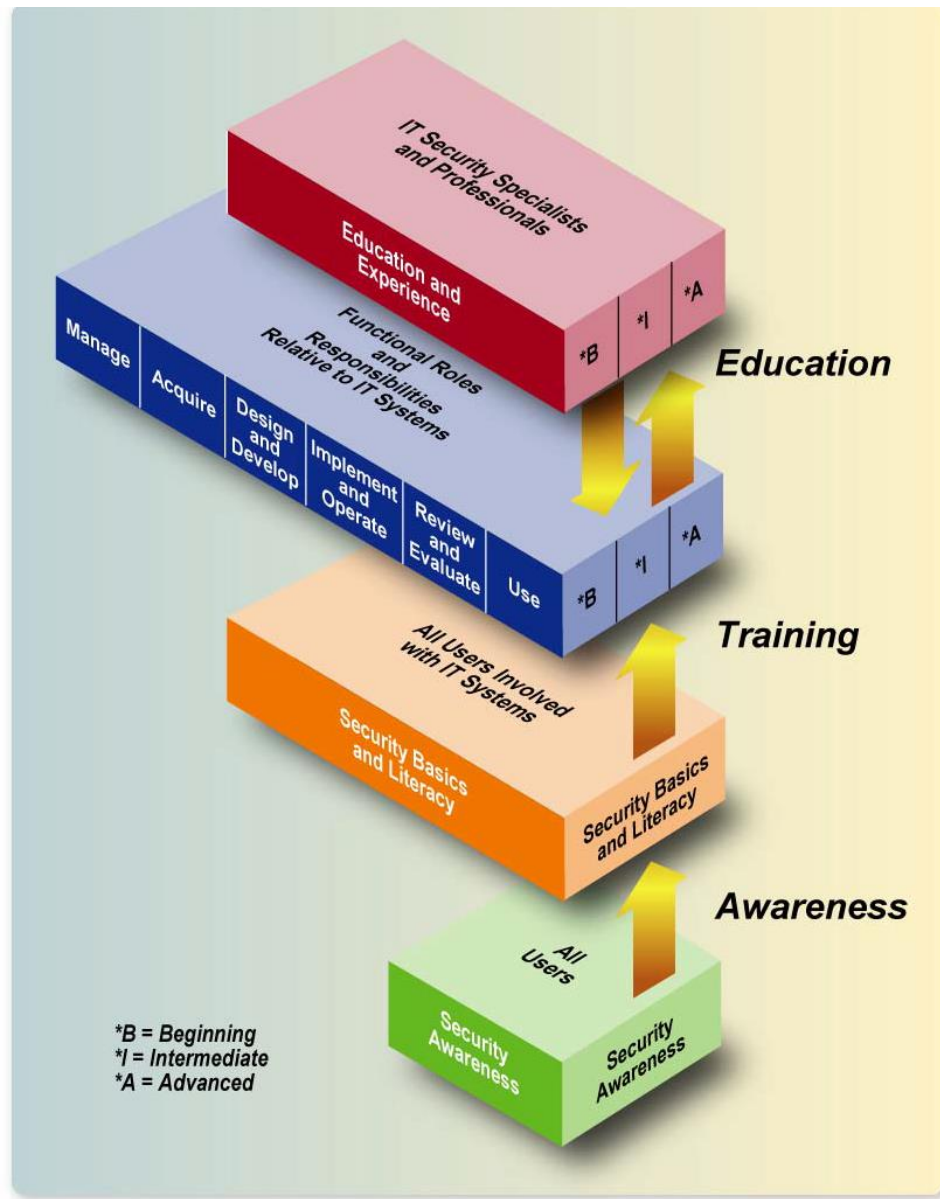


Cyber security in education in Greece

Sokratis K. Katsikas
Systems Security Laboratory
University of Piraeus
ska@unipi.gr





NIST SP800 -50



NIS education in Europe...

- EU Cyber security strategy and NIS directive
http://eeas.europa.eu/policies/eu-cyber-security/cybsec_comm_en.pdf
 - At the national level it recommends
 - ... (d) An indication of the education, awareness raising and training programmes



...NIS education in Europe

- The NIS platform
(<https://resilience.enisa.europa.eu/nis-platform>)
 - 3 WGs
 - WG3 on Secure ICT R&I
 - Snapshot of education and training environment
(<http://cybersecuritymonth.eu/references/universities>)



WG3 Education deliverable:

Preliminary findings...

- Cybersecurity education is a fast growing field
- Training in this area has become available from various sources and awareness programs.



...WG3 Education deliverable:

Preliminary findings...

- Achievements

- Increase in number of university programs focusing on various aspects of cybersecurity.
- Emergence of a number of government initiatives supporting the development of cybersecurity skills and related professions
- Emergence of awareness programs in EU member states and ENISA-driven coordinated European awareness program.
- Emergence of several efforts working on assessing the needs of cybersecurity education and training.
- Growing number of organizations and enterprises providing cybersecurity training to all members/employees.



...WG3 Education deliverable:

Preliminary findings...

- Gaps

- Lack of general agreement on the “science of cybersecurity,” leading to great diversity in training and curricular offered under the name of cybersecurity. Creation of common context in cybersecurity needs to be encouraged.
- Lack of differentiation between traditional programs offering fundamental security related curriculum and cybersecurity programs. While fundamental preparation is always key to good education, multidisciplinary skills necessary to a cybersecurity professional need to be included in many more programs.



...WG3 Education deliverable:

Preliminary findings...

- Dearth of multidisciplinary programs and related degrees, as well as multi-faceted training materials. At a minimum, technologists focusing on cybersecurity need to have good understanding of privacy, legal and regulatory frameworks, economics or usability issues. Likewise, those focusing on legal and societal issues need to acquire a solid understanding of technology.
- Lack of mechanisms to quickly create and share materials on emerging threats or newly crucial skills, to ensure education provided under various cyber-security programs is up to date and matches the requirements of the dynamic workplace.
- Lack of mechanisms for continuing education for those who already acquired undergraduate and graduate degrees.

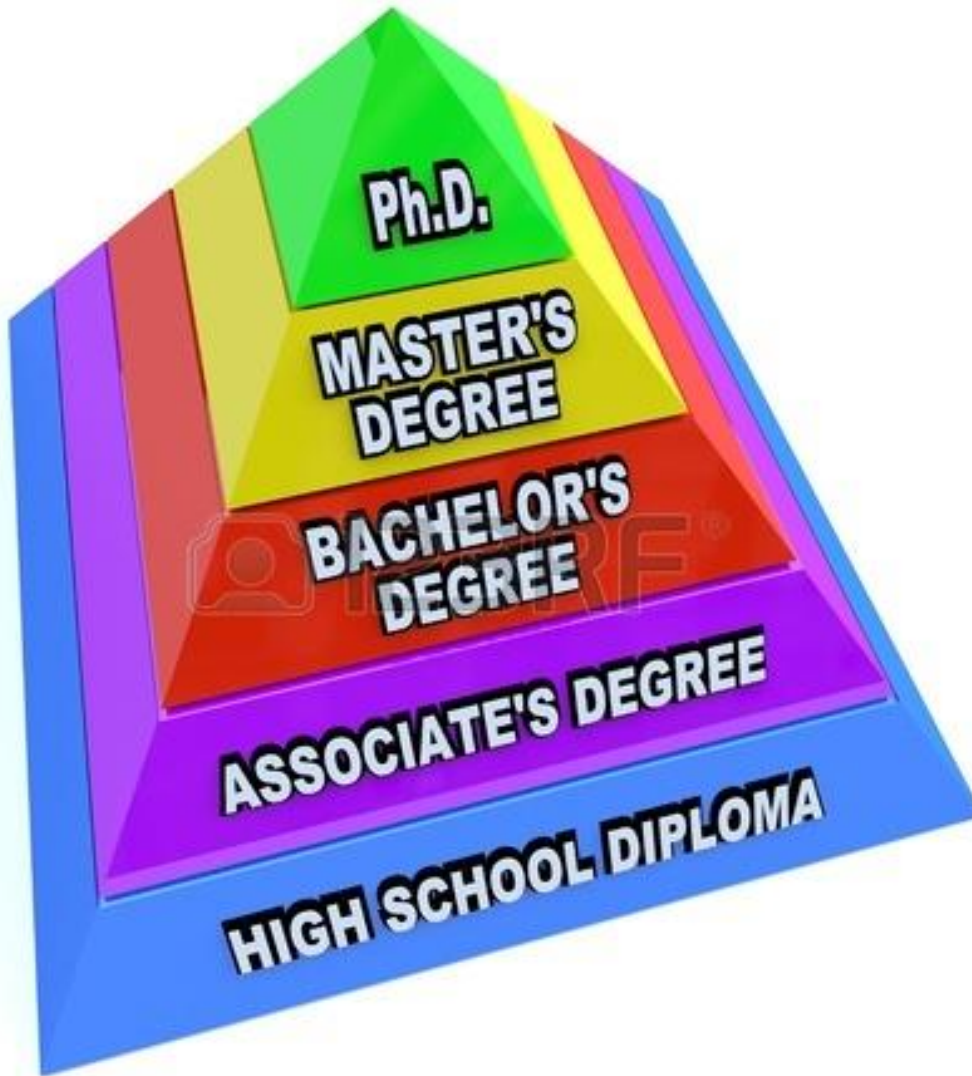


...WG3 Education deliverable:

Preliminary findings

- Although some EU countries have made strides in bringing cybersecurity students in contact with industry and government for apprenticeship projects, to help forge a practical foundation for the application of skills, these programs are usually limited and don't have solid sources of funding.
- Cybersecurity is a very dynamic field. Like similarly fast paced environments, it suffers from the lack of reliable mechanisms to bring the results of research into the curriculum as quickly as possible and to engage students more in academic research.





- Universities
- Technological Education Institutes (TEIs)



NIS education in Greece:

PhD Programmes

- In all Universities where faculty specialized in NIS exists
- Research teams active in NIS exist in most Universities and in some TEIs
- Strongest research teams in University of Piraeus (Systems Security Laboratory -) and University of the Aegean (InfoSec Lab - <http://www.icsd.aegean.gr/group/index.php?group=L1>)



NIS education in Greece: MSc Programmes

- University of Piraeus
- University of the Aegean
(http://www.icsd.aegean.gr/icsd_en/metaptyxiaka/genika.php)
- Intensive Programme on Information & Communication systems Security – IPICS
(<https://ipics2015.pns.aegean.gr/>)



NIS education in Greece: Undergraduate programmes...

- 23 programmes in 18 Universities
- 19 programmes in 13 TEIs
- Most (6) courses offered in UniPi Dept. of Digital Systems
- 5 University programmes offer more than 3 courses
- 2 University programmes (NTNU and TUC) do not offer any NIS courses



...NIS education in Greece: Undergraduate programmes...

- Only 1 TEI programme offers more than one NIS course
- 7 TEI programmes do not offer any NIS courses
- Contents against ACM/IEEE Computer Science Curricula 2013

(<http://www.acm.org/education/CS2013-final-report.pdf>)



...NIS education in Greece:

Undergraduate programmes

	Universities	TEIs
IAS/Foundational concepts in security	42	12
IAS/Principles of secure design	38	11
IAS/Defensive programming	8	1
IAS/Threats and attacks	22	10
IAS/Network security	22	8
IAS/Cryptography	33	11
IAS/Web security	19	7
IAS/Platform security	7	4
IAS/Security policy and governance	43	12
IAS/Digital forensics	3	1
IAS/Secure software engineering	1	-
Number of courses	43	12





Thank you!

