Boosting the telecommunications engineer profile to meet modern society and industry need

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BENEFIT

Boosting the telecommunications engineer profile to meet modern society and industry needs

Co-funded by the Erasmus+ Programme of the European Union

Open Event in Ljubljana 26-09-2018

ERASMUS+ KA02 Project: Capacity Building in Higher Education

❑ **Duration:** 36 months (from October 2017)

❑ **Main objective:** Strengthening of relations between HEIs and the wider economic & social environment

❑ **Response to WB Regional priorities** (Bosnia and Herzegovina, Serbia):

- ▪ University-enterprise cooperation, entrepreneurship and employability of graduates

- ▪ Learning and teaching tools, methodologies and pedagogical approaches including ICT-based practices

Partners

Full partners

1. University of Klagenfurt - UNIKLU   Austria
2. University of Ljubljana - UL   Slovenia
3. University of Osijek - FERIT   Croatia
4. University of Banja Luka - UBL   B&H
5. University of Sarajevo - UNSA   B&H
6. University of Tuzla - UNITZ   B&H
7. University of Belgrade - UB   Serbia
8. University of Niš - UNI NIS   Serbia
9. University of Novi Sad - UNS   Serbia
10. Ericsson Nikola Tesla - ENT   Croatia
11. Bicom, Tuzla - BICOM   B&H
12. BIT Centar, Tuzla - BIT   B&H
13. CISCO, Belgrade - CISCO   Serbia
14. NiCAT, Nis - NICAT   Serbia
15. RT-RK Comp. Based Syst. - RT-RK   Serbia

Associated Partners

16. Alfanum   Serbia
17. Schneider Electric DMS, Novi Sad   Serbia
18. Vojvodina ICT Cluster, Novi Sad   Serbia
19. Zesium Mobile Belgrade   Serbia

How and why BENEFIT started
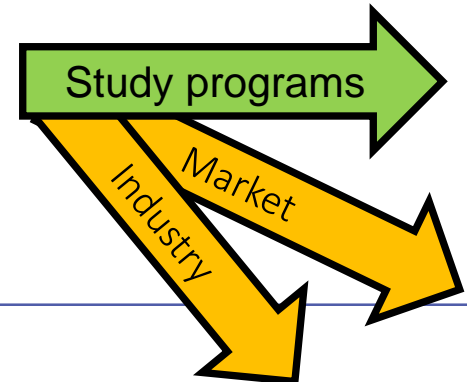
Challenges:
- study programs in telecommunication engineering are experiencing **a reduced number of students** despite the fact that telecommunications is a pillar in modern economy

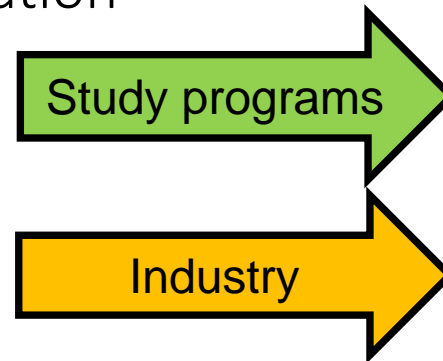- Misalignment between **industry needs** and student's background at the end of their studies

Motivations:
- Telecom industry is passing through significant changes
- Industry requires a **new profile**: a professional that is trained in the ICT domain, that owns both technical and market oriented skills

Study programs

Market

Industry

- **Programs:** Modernization of telecommunications engineering study programs in 3 B&H and 3 Serbian universities in cooperation with ICT industry

- **Teaching:** Adoption of new learning/teaching methodologies, and ICT best practices in teaching

- **Labs:** Creation of joint university-industry labs and modernization of the lab infrastructure

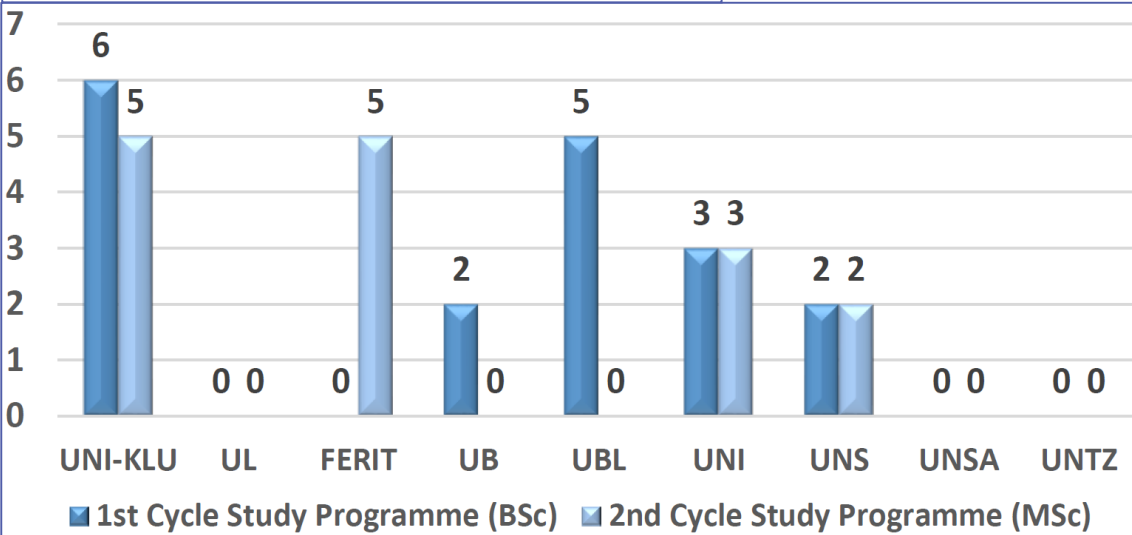- **Exploitation:** Define actions for exploitation

Study programs
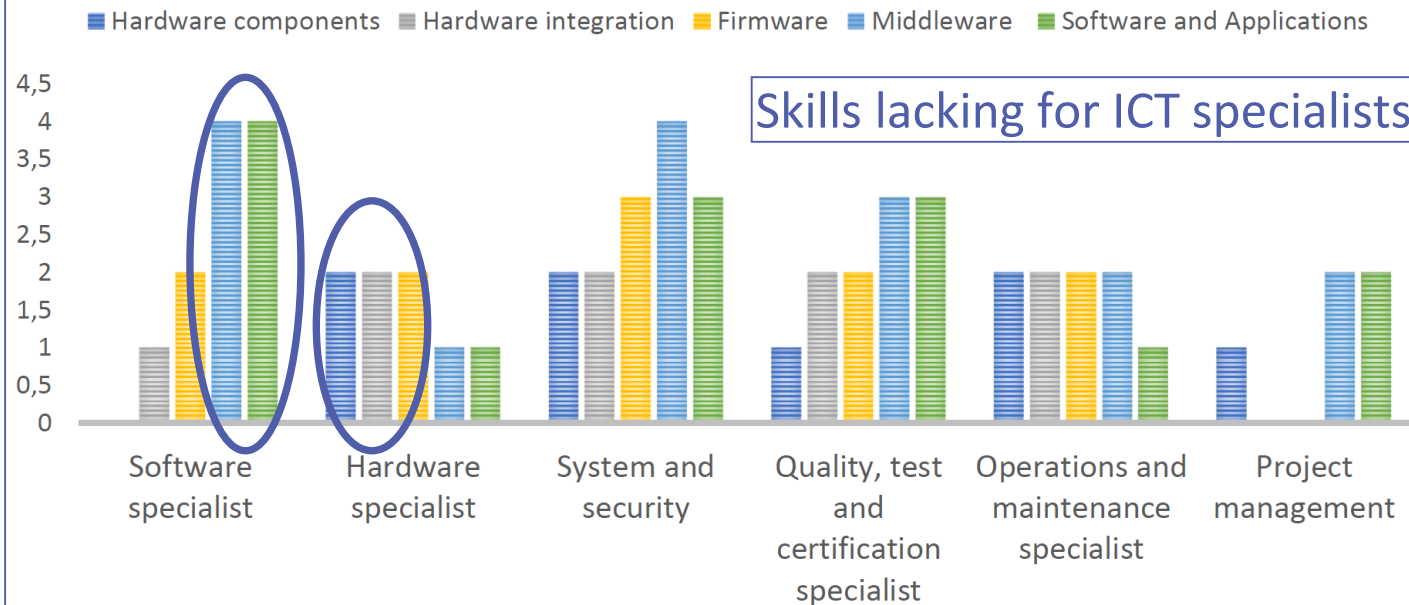
Industry

Some concrete examples

Analysis of study programs

Duration of professional practice

- Analysis of 10 study programs was performed
- Surveys delivered
- Results published in a report

Skills lacking for ICT specialists

For students:

- Modernization and inclusion of modern topics
- Soft skills: techno-economic background, entrepreneurial mindset, IP rights
- Training and internship

For teaching staff:

- Modern ICT teaching tools
- Training
  - Lab advanced procedures
  - Modern prototyping tools

Joint university-industry labs

- **University of Banja Luka:** *Signal Processing in Telecoms Lab* with Bicom and AlfaNum
- **University of Sarajevo:** *Embedded Systems Lab* with BIT Centar
- **University of Tuzla:** *VoIP Services Lab* with Bicom
- **University of Belgrade:** *Internet of Things Lab* with CISCO
- **University of Nis:** *Machine-to-Machine Radio Lab* with NiCAT
- **University of Novi Sad:** *Smart Grid Communications* with RT-RK and SE-DMS.

Seminars and internships on industry relevant topics

- AlfaNum: processing, language and speech technologies,

  machine learning and CPU/GPU algorithm optimization

- Bicom: VoIP services and technologies

- CISCO: IoT systems

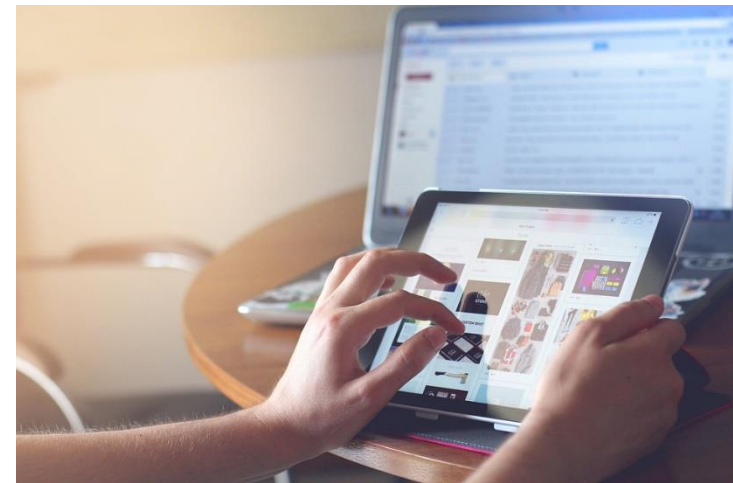- ENT: machine-to-machine communications

Mobilities

- Between WB universities

- To EU universities

- **Annual webinars** on telecommunications engineering

  o University of Banja Luka (done)

  o University of Niš

  o University of Belgrade

- **Portals and web resources**

  o Web repository to share class material

  o Portal to access study programs

  o Portal to inform about training, internship and job opportunities

Conclusions

A. Tonello

- The creation of a win-win relationship between universities and industry is still very relevant

- Better study programs require inputs and true involvement of industry
  - Mapping of needs
  - Involvement of students
  - Involvement of staff on both sides
  - Joint labs
  - Support of research

Avoid short term opportunism

Thank you !

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