



# **Globalization and Borders in Engineering Education**

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# Obstacles or Opportunities

- **Trans-disciplinary**
  - urban problems
  - health and longevity
  - basic science and a multitude of technologies
  - from any geography, language, and time
- **Open innovation**
  - online, real time, multimedia tools
  - Creative Commons licensing
- **“Train and hire”**
  - certificate programs, global academies/institutes
  - Laboratories, innovation factories, incubators
- **Reward mechanisms**
  - In the academe
  - In the industry
- **Digital fabrication**

*evolving objectives*

*evolving methods;  
facilitators*

*disruptive phenomenon;  
revolution*



# Example: Urban Problems

- **Engineering and Law, Medicine, Administrative, Economic and Social Sciences**
- **Multidisciplinary problems, end to end solutions**
  - **infrastructure, monitoring and management,**



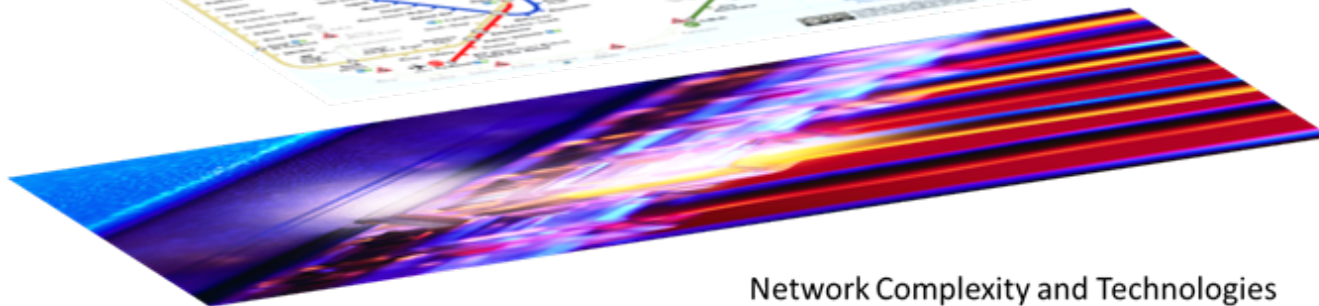


# Engineering *and* Urban Problems



User groups, social networks  
communities

Networks of services and applications



Network Complexity and Technologies



# **Engineering *for/in/against/* *with* Urban Problems**

- **EC's FIRE:**  
**Future Internet Research and  
Experimentation**
- **Green ICT**
- **Smarter Planet**







# Example: Role of Universities

- **Kadir Has University**
  - **Center for Istanbul Urban Studies**
  - **MS in Urban Engineering**
  - **Executive Masters in Urban Infrastructure Governance**
    - **EPFL**
    - **Sharjah**
    - **Guadalajara**
    - **Detroit**
    - **Hong Kong**
    - **Istanbul**





# Example 2: FabLabs



- Next Digital Revolution!





# FABLAB Principles

- **public access to the fab lab**
  - **democratizing access to the tools for personal expression and invention. So a fab lab must be open to the public for free or in-kind service/ barter at least part of the time each week.**
- **common set of tools and processes.**
  - **critical machines and materials**
  - **open source software and freeware**
  - **all the labs can share knowledge, designs, and collaborate across international borders**
- **participation in the larger, global fab lab network,**
  - **workshops, challenges or projects**
  - **Fab Academy**





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