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Enhancing the Role of Surveyors: Bridging the Gap between Demand for and Supply of Professional Education

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Content of Presentation

- Introduction
- Global Challenges & Technology Changes
- New Role for Surveyors
- Changing Competences
- Impact on Professional Education
- Conclusions



Introduction

- In previous times: Surveying was mainly about measuring
- Today: Surveying involves management of land and requires a transdisciplinary approach
- Surveyor → Land Professional (*Enemark and Williamson, 2004*)
- Information processing, telecommunication, space exploration and sensor development changed dramatically the working methods in surveying (*Lemmens, 2011*)
- Academic Education has to meet the requirements of global challenges and changing technologies
- FIG Commission 2 intends to develop a curricula and to document teaching methods to address the present and future needs for the surveying profession



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Global Challenges

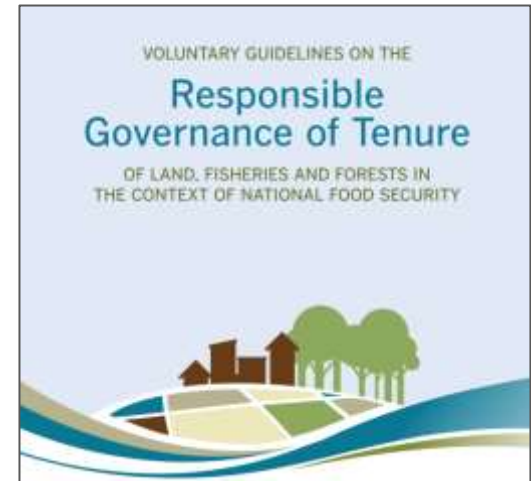


<http://www.un.org/sustainabledevelopment>



<https://www.weforum.org>

New Urban Agenda of UN Habitat (2016)



<http://www.fao.org>

HODAI TOP 100 GLOBAL PRIORITIES



DATA • INITIATIVES • SOLUTIONS

<http://www.hodai.org/top-100-crucial-problems.html>

Global Challenges

Extract



Resilient agricultural practices are success factors to reduce hunger

→ To be achieved by secure and equal access of land and proper financial services



Equitable quality education and LLL opportunities for all

→ To be achieved by strengthening academic institutions through international education



Women have to get full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

→ To be achieved by guaranteeing women equal rights concerning economic resources, land ownership and other forms of property

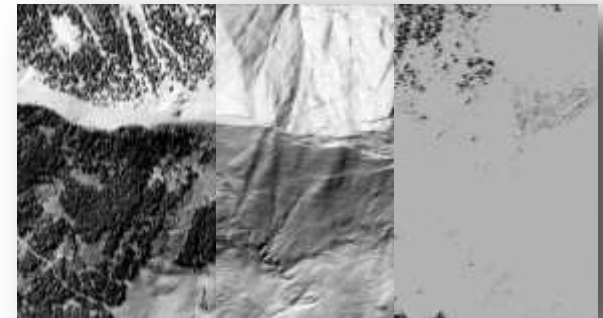
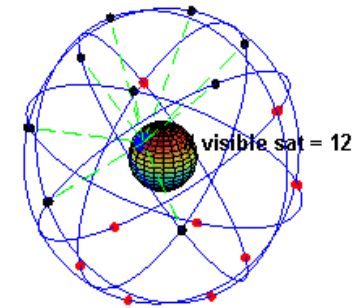


Sustainable and resilient infrastructure, including regional and trans-border infrastructure, have to be built to support economic development and human well-being.

→ To be achieved by proper (land) information for decision making

Technology Changes

- GNSS – Global Navigation Satellite Systems
- Laser Scanner (Terrestrial and Airborne)
- Digital Photogrammetry & Image Matching Techniques
- High Resolution Satellite Images (geometric and temporal)
- Geographic Information Systems & Land Information Systems



New Role for Surveyors

Traditional Surveyor

Collecting, merging, linking, improving, visualizing and interpreting diverse land information

Land Professional

Managing, controlling and developing land

**Surveyors / Land Professionals
are:**

Stabilizers of public order.

Guardians of rights of property and Providers of a safe system of records in land administration systems.

Producers, Administrators and Distributors of local, national and global spatial data infrastructure.

Managers of land, water and other natural resources.

Enablers, Mediators and Advisors for urban and rural planning and development (incl. conflict resolution)

Hinges in global, national and local early warning systems for disaster prevention and risk management.

Active partners in the development and use of measuring technology

(www.fig.net, 2006 and Magel, 2006)

Changing Competences

- From 'Measurement of Geometry' to 'Assessment of Thematic Information'
 - New knowledge, skills and competences about sensor types and platforms, processing methods
- From 'Mapping' to 'Geo-Information Services'
 - New knowledge, skills and competences about GIS, Visualisation and distribution of geodata, Big Data technologies
- From 'Land Administration' to 'Land Management'
 - New knowledge, skills and competences about natural processes and cultivation of land, environmental management, planning technologies, real property valuation approaches, land policy, civics and ethical fundamentals, legal issues, negotiation and mediation
- From 'Local Knowledge' to 'International Expertise'
 - New knowledge about world languages; Willingness for global mobility; trans-cultural thinking; wide professional expertise



Impact on Professional Education

Internationalisation and Networking

- Increased mobility of students and teaching staff
- Study programs in English language and joint study programs
- Individual and institutional capacity building in developing countries
- Joint research activities
- Knowledge exchange (conferences, workshops, cooperation in national and international professional federations, e.g. FIG)
- Harmonization of curricula and education /training



<http://www.translation.ie>

Impact on Professional Education

New teaching approaches

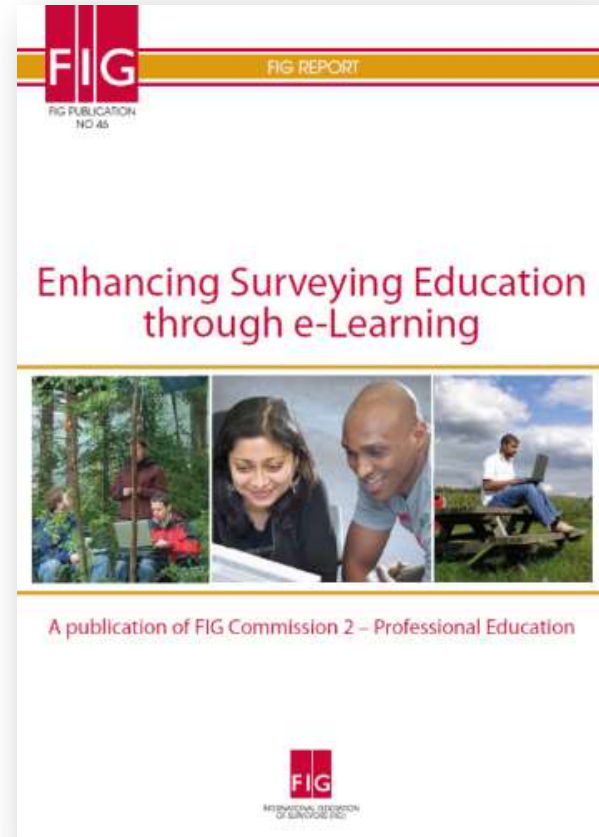
- From teaching to learning
- From on-site lectures to off-site lectures
- From self-contained studies to life-long-learning



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www.fig.net

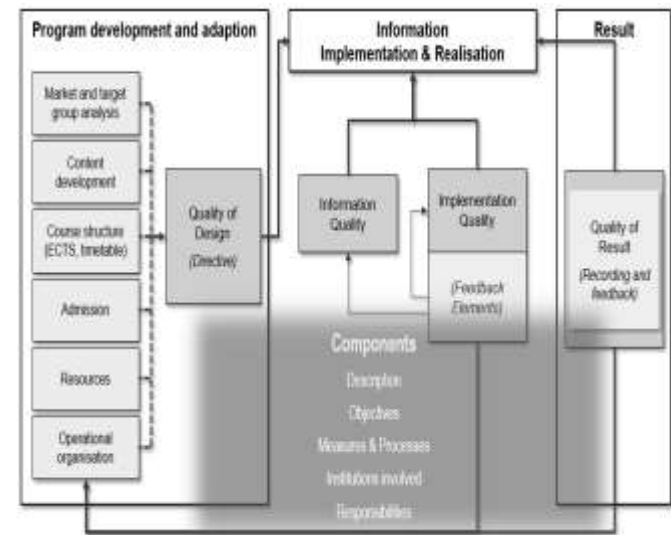
Impact on Professional Education

How to achieve the new teaching approaches

- Use of modern teaching and learning methods and communication media
- Quality Management (quality of curriculum design, information quality, implementation quality, quality of results)
- Provision of CPD (Continuous Personal Development) and LLL (Life Long Learning Program)



<http://www.nextag.de>



Mansberger & Paulus, 2013

<http://dhbc.ky.gov>

Conclusions

- Key challenges for academic surveying education programs are:
 - to keep pace with technological advancement and
 - to supply skilled labour and multi-faceted professional competencies needed to respond the global challenges
- Internationalisation requires partnership within surveying profession to enable and recognize a global educational standard (e.g. ECTS, learning outcomes)
- FIG Commission 2 will produce a FIG Publication (*WT: “Surveying Education on the Move. New Challenges, New Tools, New Competences”*)
 - Current Paper is the “Kick Off”
- **YOUR co-operation is welcomed !!**



Thank You for Your Attention

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