SCHOOL OF RURAL AND SURVEYING ENGINEERING
NATIONAL TECHNICAL UNIVERSITY OF ATHENS, GREECE

Improving Professional Skills in support of Resilience and Sustainability

The Role of Surveyors in the Era of Crowdsourcing and VGI

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Thanks to the Romanian Association of Surveyors

☐ Resilience & Sustainability: Challenges and Opportunities

☐ The FIG publication 73: "New Trends in Geospatial Information: The Land Surveyors Role in the Era of Crowdsourcing and VGI," now available at: http://www.fig.net/resources/publications/figpub/pub73/Figpub73.pdf.

What is the biggest development challenge?

Food security? Job creation? Climate change mitigation and adaptation? Gender and inclusion?

Security? Health? Education? Debt? Digital transformation? Institutions? Energy?

Sharing economic opportunities? Sharing prosperity?

Mindset Change

Sustainable development
No poverty-How do we get there?

Development is: having high human capital, good health, food, water, education, institutions, adequate infrastructure, good jobs (in the formal economy that pay well and provide benefits and security to people), …

But:

a. "where do we start?", "What should we prioritize"? Countries may not have the capacity to work in all fronts simultaneously.

   However, we do need to address **all fronts simultaneously** in order to achieve sustained growth.

b. It is not just "what we do" but "How do we do it?"

   Careful implementation and monitoring is a challenge.

c. We need information, to share experience, to provide reliable data/ geospatial data timely in affordable manner; to **increase relevance in education and professional skills.**

Climate change mitigation/adaptation and resilience
"How do we make good development decisions for an uncertain world?"

In absence of good development policies the number of those in poverty may increase.

Climate adaptation and resilience is needed, so that people will survive. Adaptation is a local issue that requires global knowledge.

Countries should integrate climate change into their development decisions, e.g., road planning, housing projects, water infrastructure, agricultural patterns, forestry, coastal zone management, …

By spending 3% more, we can save 4.2 trillion$ in the overall lifetime of infrastructure

a. To show to politicians the cost of inaction

b. To contribute in developing smart land management tools

c. Mindset change

Mitigation measure: Pricing/taxing carbon creates an incentive to reduce emissions

Adaptation measure: **Pricing risk, rating projects in terms of resilience is a challenge**

The digital economy - data economy - is it an opportunity for everyone? the branch of economics studying zero marginal cost of intangible goods over the Net

Digital networking and communication infrastructures have provided a global platform over which people and organizations devise strategies, interact, communicate, participate, collaborate and search for information
e-government, e-business, e-commerce, e-democracy, e-participation and m-government

This year we celebrate a milestone: the world reached 50% of connectivity

➢ Much of the information exchanged through this activity is geo-referenced, structured and unstructured.

➢ Extended use of affordable smart devices

"with a 10% increase in high-speed Internet connections, economic growth increases by 1.3% and leads to democratization of innovation"

"we may boost the global GDP by $1 trillion by connecting the remaining 50%"

"5G will enable low-cost, low-power sensors to be embedded in buildings, appliances, and vehicles & will be a key enabler of the "internet of things.""

The road to digital transformation is not yet clear: There are hundreds of opportunities, but also there are several challenges and many unanswered questions

➢ Competition became more global and more intense-Many fear the loss of jobs digitalization may bring

➢ Challenges that governments still face may include:

- providing the **digital infrastructure**;

- providing **robust regulations**; **preventing digital crime;**

- Enabling **more investment**, dealing with existing **informalities** to improve openness, stability and trust for investors;

- investing **in affordable and clean energy**;

- increasing **connectivity in society** (business & people) to maximize benefits from investments; urbanization? Prioritize metropolitan areas?

- enabling **digital financial inclusion** for sustainable digital and technological entrepreneurship; **the digital poor? The gender dimension?**

    Internet of everyone?

- Increasing **adaptation speed**; creating a digital society, **improving the digital skills of the public**, providing on-line training to **minimize the gap** between the developed and the developing worlds, and providing **information about skill-flow and job opportunities ;** retraining; etc

Building Capacity: See the opportunity, do not fear the complexity

☐ Surveyors & geospatial experts are challenged to take a long, hard look at their role as **change agents to ensure democratization and make digitalization a peaceful transition for the benefit of all**

☐ to make a practical application of the available technology, update their tools and manage a "tsunami" of available geo-data; to be able to collect, integrate, manage, visualize, process and provide reliable and personalized geospatial information for their clients reliably and timely, as it is needed.

☐ to provide affordable, reliable and fit-for-purpose solutions for their clients.

☐ It's about using the latest technology and developing the appropriate tools and methods **to do what we already do – but better; more services, different services**

Crowdsourcing: mindset change (professionals and society)

- **more heads/legs, etc. are better than one**
- every person has **something of value** to contribute
- the technique is applied in a search for **new ideas**
- often used in **micro-tasking**
- work may be done *faster* **and** *cheaper* but most importantly it allows the collection of such data that *would never be possible* to be collected by traditional methods
- *better services* with even *fewer errors* when validation systems are in place
- its primary value is in the geo-data *collection* process
- the issue of *validation* is critical
- assumes a certain amount of *preparation and training* of members of the so-called crowd
- studies on *motivation*
- in the data collection phase, but also in the *editing* **of geo-data** and even further in *providing their experience for defining policies and procedures*

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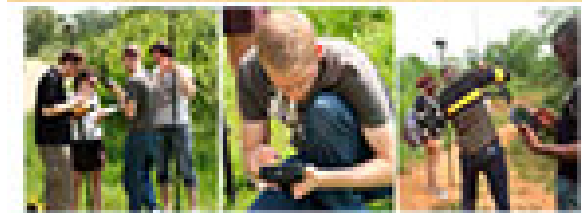
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New Trends in Geospatial Information:
**The Land Surveyors Role
In the Era of Crowdsourcing and VGI**

CURRENT STATE AND PRACTICES WITHIN
THE LAND SURVEYING, MAPPING, AND GEO-SCIENCE COMMUNITIES

FIG Commission 3