The FIG Standards Network and Standards in Surveying

A simple inspection of still-existing Roman roads, aqueducts and canals shows that the Romans were exceptionally skilled engineers. Shoe sizes provide a person's shoe fitting size. There are many different shoe-size systems used in the world today. Wi-Fi is a family of wireless networking technologies, commonly used for local area networking of devices and Internet access. Wi-Fi and internet technologies are particularly important in the situation we find ourselves in today. But what do Roman roads, shoe sizes and Wi-Fi have to do with surveying and indeed FIG? Surprisingly they have a lot in common…

What do Roman ruts have to do with Wi-Fi, shoe sizes, surveying and the FIG Standards Network? Read on to find out!

Standards have existed for thousands of years. For example, the first long distance roads in Europe were built by Imperial Rome for the benefit of their legions. The ruts created by the Roman chariots were then used by all other wagons. These ruts later became a gauge for laying the first railway lines.

Modern standards started with the obvious things like weights and measures. However, they have since evolved to permeate virtually all aspects of our lives. Today there are standards that cover everything from the shoes sizes and screw threads, to the Wi-Fi networks (particularly important in these exceptional times) that connect us to each other. These international standards ensure that customers and consumers can have confidence that the products and services they use are safe, reliable and of good quality.

What are the economic benefits of standards? "From a macroeconomic standpoint, standardisation directly contributes to the growth in the French economy. Standardisation contributes an average of 0.81% per year, or almost 25% of GDP growth. This is in line with figures for other technological leading countries, such as Germany and the United Kingdom." (The Economic Impact of Standardisation – Technological Change, Standards Growth in France, AFNOR June 2009)
Organisations and businesses fulfil a societal need. They succeed when they satisfy the needs, requirements and expectations of their stakeholders. Stakeholders are the people and groups that have a special interest or concern in the enterprise. They include government, suppliers, society, employees, customers, etc ... The customer is a special stakeholder. The customer is the person, or organisation that gets a product or service - the one who pays. Only the customer can decide if products or services are satisfactory. Customers require quality products and services delivered on time and at a cost that provides value for money. Standards provide quality.

A simple inspection of still-existing Roman roads, aqueducts and canals shows that the Romans were exceptionally skilled engineers. (Photo credit Raddato, C. 2019, January 07 - Roman Road in Ambrussum. Ancient History Encyclopedia. Retrieved from https://www.ancient.eu/image/9827/)

What are characteristics of quality? Quality products and services are reliable, functional, durable, secure, available, and traceable. Quality services reflect competence, responsiveness, integrity, reliability, credibility. Quality is the degree to which a set of inherent characteristics fulfils a set of requirements: a requirement being a need or expectation that is stated, generally implied or obligatory.

The FIG Standards Network was formed in 2002. It consists of representatives from each of FIG's Commissions. The terms of reference of the Network are:

- Building and maintaining relations with the secretariats of standardisation bodies,
- Proposing priorities on FIG's standardisation activities, including advising the Council on priorities for spending,
- Setting up necessary Liaison relationships with standardisation bodies,
- Ensuring that lead contacts to Technical Committees etc. are in place,
- Maintaining an information flow on standardisation to FIG members, including through the FIG website, and more directly to relevant Commission Officers,
- Maintaining the Standards Guide, and related material on the FIG website,
- Working with other NGOs, within the framework of the MOUs signed by the Council,
- Advising FIG's officers and members on standardisation activities as necessary.

What standards are FIG involved in? Among the best-known standards are the ones produced by ISO – the International Organization for Standardisation. FIG is actively currently involved in ISO through two committees:

- ISO/TC211 - Geographic information/Geomatics is the ISO technical committee dealing with geospatial matters; and,
- ISO/TC 172 SC6 - Survey Instrument Standards that provides a comprehensive coverage of standards for surveying instruments and their accessories.

Another ISO standards committee of specific interest to FIG is ISO/TC 307 Blockchain and electronic distributed ledger technologies.

FIG is also involved with a number of other equally important non-ISO standards bodies:

- International Property Measurement Standards Coalition IPMS
- International Land Measurement Standard (ILMS) – due diligence in surveying:
- International Construction Measurement Standards (ICMS)
- Standards in Hydrography - hydrographic surveyor competency and guidance on hydrographic standards as requested/required by IHO and other bodies.

Most of the FIG Commissions are actively involved in standards, standardisation and the Standards Network. Some current examples are:

- Commission 4 with the International Board (IHO, FIG and ICA) publishes guidelines for establishing individual recognition for hydrographic surveyors, at both professional and technical levels, taking into account education and experience.
- Commission 5 is very involved with ISO/TC 172 SC6 Work on Survey Instrument Standards, and ISO/TC 211 Geographic information/Geomatics. Commission 5 WG 5.1 – Standards, Quality Assurance and Calibration is particularly involved in the promotion of standards and specifically the use of the Guide to the Uncertainty in Measurement (GUM) in surveying.

- Commission 6 is interested in the ISO TC 172 and the ISO 17123 series of standards related to survey instruments. There is interest in helping to define standards in deformation measurement and monitoring and data analysis. Other points of interest include machine guidance, integrating BIMP model and machine guidance, exchange of data etc….

- Commission 7 is very active – specifically in ISO 19152 on the Land Administration Domain Model (LADM).

- Commission 9 is the FIG link to the International Measurement Standard of Property (IPMS) initiative.

- Commission 10 is actively involved with the International Construction Measurement Standards Coalition (ICMSC) aiming to develop and implement consistent international standards for benchmarking, measuring and reporting construction project cost.

Surveyors as professionals must fulfil certain legal, regulatory and/or accuracy requirements for their clients. Typically, they will strive to do this in an optimal cost effective way and with the most appropriate equipment for the job at hand. Naturally, this requires a good understanding and assurance in the instrumentation employed. Clients and customers want the most from what they pay for. Legislative authorities as well as private and public companies require confidence that the services rendered are in conformity with globally accepted best practice rules.

Using internationally recognized standards is a widely accepted way of fulfilling these requirements. FIG supports and promotes Standardisation through the Standards Network.

For more information about the FIG Standard Network, **please click here**

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