

Young Surveyor's Vision for the Future of the Surveying Profession

Ronald SSENGENDO, Uganda

Key words: Vision, future, surveying profession

SUMMARY

The emergence of new and simplified technology ranging from Global Navigation Satellite Systems (GNSS), Remote sensing, laser scanning, etc. have revolutionised the surveying profession greatly in the last 30 years. This trend will continue in the future with the surveyor becoming more reliant on new and advanced technology. Although this new technology greatly reduces on projects completion times, it creates a number of challenges including the fact that the technology is changing at a rate faster than the surveyor is able to keep up with. This means that surveyors must develop new competencies so as to utilise the new technology to deliver a better service to their clients.

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1. INTRODUCTION

The rapid advances in technology have revolutionised the way the surveyor works. From measuring a distance using chains to electronic distance measurement and now to GNSS, technology has simplified the surveyor's work. Although these technological advances have been beneficial to the surveyor, they have also diminished to a certain extent the surveyor's role as now a number of non-surveyors can now use the new technology to carry out work that was previously only carried out by surveyors.

In this paper I present my vision for the future of the surveying profession, I also present the likely challenges that the new technology will pose to the profession. I conclude by briefly discussing what I think should be FIG's role and my role in this vision.

2. VISION FOR THE FUTURE

To illustrate my vision, I will discuss four areas in which I think new technology will affect the surveying profession.

2.1 The mobile phone as a surveying instrument.

Currently all the latest models of mobile phones are equipped with GNSS capability to an accuracy of a few metres. In the near future mobile phones will be equipped with dual frequency capability meaning that anyone will be able to determine position using the phone and the numerous continuously operating stations especially in the developed countries. However, this will diminish the surveyor's role as anyone with a mobile phone will henceforth be able to make very accurate and precise GNSS measurements.

2.2 The laser scanner

In the future the laser scanner will become one of the most important instruments for a surveyor. Laser scanners unlike traditional surveying instruments are able to collect a large amount of data in a relatively short time. This coupled with the fact that the laser scanning data is useful for a number of purposes will make surveyors adopt it as the primary data collection instrument for purposes ranging from simple topographic surveys to highly precise works like deformation monitoring.

2.3 The paper map will become obsolete.

New advances in map making like Google Earth, Bing maps, etc. have already displaced the paper map as the primary source of information for both surveyors and non-surveyors. Coupled with new advances in computing facilities e.g. smart phones, Ipad, etc. and high

resolution satellite images, future paper will be accessible only by the click of a button.

2.4 One man fieldwork

New developments like robotic total stations, laser scanners, GNSS, etc. have already made much of land surveying fieldwork a one man process as the surveyor is now able to collect data without the need of a survey assistant. With more advances in technology, it will be possible for the surveyor to carry out his fieldwork while sitting in his office. In addition the new technology is so simplified that even non-surveyors are already collecting data which can later be processed by the surveyors.

Of course the over reliance on technology will mean that the job market for surveying work will reduce significantly especially in the developed countries. Hence surveyors will need to

- Learn new competences e.g. become more adept at using the new technology
- Create linkages especially in the developing world where the survey market is still unexploited
- Participate more in policy formulation especially as elected politicians so that they can make sure that policies that entrench the surveyor's role are formulated

In the developing countries especially in Africa the job market will continue to be huge for the foreseeable future because

- In most developing countries only a small percentage of the land is surveyed and titled e.g. in Uganda about only 15% of land is surveyed. With increasing incomes more and more people are desirous to have their land surveyed hence the need for more surveyors
- The developing process means more construction which mean more jobs for surveyors

3. What then should be FIG's role?

- Encourage academic members to revise their curricula to reflect the new technology. A number of universities in the developing world have not yet revised their curricula to reflect the latest changes in surveying instrumentation, surveying software, etc. Therefore, the FIG should endeavour to encourage its academic members to update their curricula so as to capture the new skills required of a surveyor.
- Institute grants to help academic members in the developing world to acquire latest survey equipment like laser scanners.
- Organise continuous professional development for practising surveyors with more emphasis on the new technological developments. FIG has to encourage its

members to embrace lifelong learning which is crucial if surveyors are to update old skills and acquire new skills.

- Change in the membership levels to allow for individual membership. In Uganda, for example, a number of surveyors will be willing to join FIG if they could be allowed to adopt a prefix like MFIG (Member of the International Federation of Surveyors).
- Involve the young surveyors in the management of FIG e.g. ensure that on every commission of FIG there is a young surveyor as the young surveyors represent the future of FIG and the profession.
- Organise more social networking functions beyond the working week, workshops and conferences as these provide opportunities for networking and creating linkages amongst surveyors.
- Encourage more women to become surveyors e.g. institute special awards for women surveyors
- Identify work opportunities in developing countries for surveyors in the developed world.

4. My role in this vision

- As a lecturer at my university (Makerere University Kampala) I am actively already sharing this vision with my student. In my lectures I advise my students to think outside the box, embrace the new technology and come up with new application areas of surveying knowledge.
- I have already convinced my university (Makerere University Kampala Uganda) to become an academic member. I am now actively encouraging my colleagues and students to become active members of FIG
- As a professional Associate of the Institution of Surveyors of Uganda (ISU) – the professional association for surveyors in Uganda. I actively trying to convince ISU to become active members of FIG so as to enable the members benefit from the FIG resources.
- Using the membership in the FIG young surveyors’ network, I hope to interact with young surveyors from developed countries and create linkages through which we can collaborate on a number of surveying related projects in Uganda.

5. Conclusion

Overall the surveying profession will in future be one of the most technological advanced professions in the world. This requires that surveyors must continually update their skills so as to acquire new competencies. Surveyors will also need to

adopt the new technology and explore ways of harnessing this technology to deliver better services to the clientele. This is the only sure way of entrenching the surveyor's role which is steadily being taken up by a number of non-surveying professionals.

For the surveying profession to thrive a strong FIG is of paramount importance hence FIG should place more emphasis in recruiting members from developing countries as these are likely to form the backbone of FIG in the next 10-15 years.

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BIOGRAPHICAL NOTES

Ronald Ssendendo received his B.Sc. in surveying, from Makerere University, Uganda in 2003. In 2009 he received his M.Sc. in Engineering Surveying & Geodesy from the University of Nottingham, United Kingdom. He is currently a joint-PhD candidate in Geodesy at Makerere University and the Royal Institute of Technology (KTH), Sweden. His research interests are in Geoid modelling, GPS heighting and height systems

CONTACTS

Ronald Ssendendo
College of Engineering, Art, Design & Technology
Department of Geomatics & Land Management
Makerere University
P.O Box 7062 Kampala, Uganda
Tel. +256712961215
Fax.
Email: ssengendo_ronald@yahoo.co.uk
rssengendo@tech.mak.ac.ug