

Developing an Expanded Source for Future Surveyors

Michael Chapman, Ph.D, P. Eng., OLS
Al Jeraj, OLS.

Association of Ontario Land Surveyors



Ontario Land Surveyor (OLS)

- **Ontario Land Surveyors establish and maintain the extents of real property (legal boundaries) in Ontario. We help to promote social peace and community harmony.**
- **The Association of Ontario Land Surveyors (AOLS), which is responsible for licensing cadastral (legal boundary) surveyors, was established in 1892.**
- **We are governed by the *Surveyors Act*.**
- **Surveyors today are involved in all infrastructure projects (i.e., road building and widening, tunnelling for subway extensions, new subdivisions and condominiums, wind farms, pipelines, etc.) from data collection to layout to as-builts or plan preparation.**
- **We are likely to go into a significant infrastructure development era; e.g., 1.5 million new houses just announced in Ontario.**



Enrolment in Geomatics/Surveying Engineering programs is declining across the globe

- ***Demand for land surveyors is on the increase***
 - ***There are 553 land surveyors in Ontario***
 - ***Premier Ford announced 1500 new homes to be built***
-



University programs in Canada offering courses in Geomatics Engineering (Past and present)

- ***British Columbia Institute of Technology - Geomatics***
 - ***Laval University - Géomatique***
 - ***Ryerson University – Geomatics Engineering (2012)***
 - ***The University of Calgary – Geomatics Engineering***
 - ***Toronto Metropolitan University – Civil Engineering***
 - ***University of New Brunswick – Geodesy and Geomatics Engg.***
 - ***Survey Science – University of Toronto (1996)***
 - ***York University – Geomatics Engineering (2024)***
-



Engineering programs have primary commitments

- ***CEAB requirements***
 - ***Satisfying Accreditation Units (AU)***
 - ***Engineering content***
 - ***Majority of professors must be Professional Engineers***
 - ***Few Professors are Professional Land Surveyors***
-

Operating in Silos





Demand for Ontario Land Surveyors

- **Most of our association's companies cannot keep up with the demand for their services.**
- **Based on a survey of our members in July 2021, which was responded to by about 40% of our members, we could use an additional 67 surveyors immediately.**
- **Based on the same survey, we are expected to require 230 graduates within the next 5 years.**
- **Based on a study completed in 2018, we predicted the need for 15 university graduates a year for the foreseeable future; however, this does not include the huge demographic challenge we are facing or the 30% growth in surveying services that occurred last year.**

Surveyors of the future must be multi-layered in their skills sets

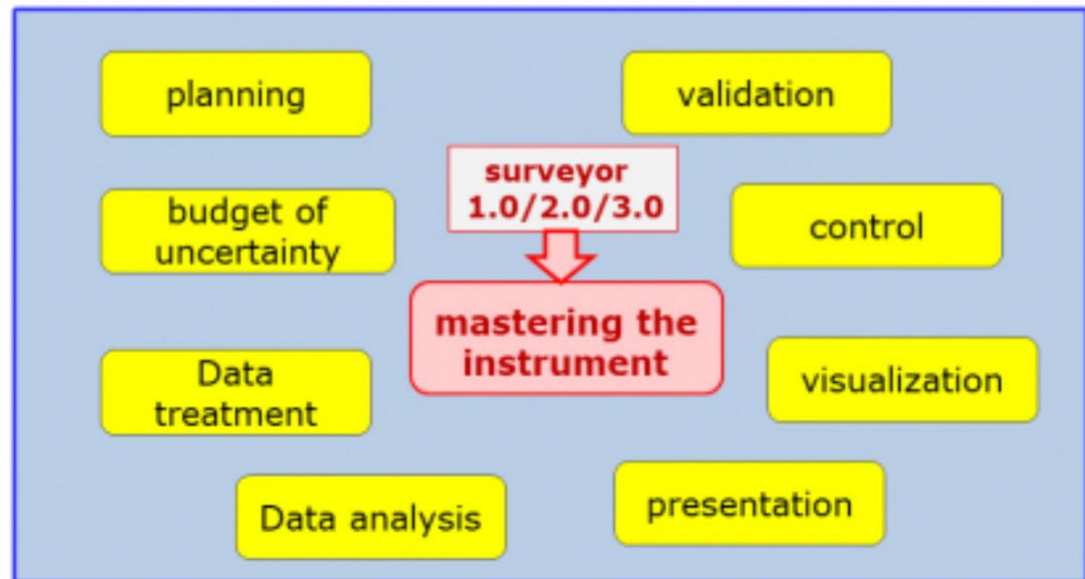


Which **skills** does the surveyor 4.0 need?

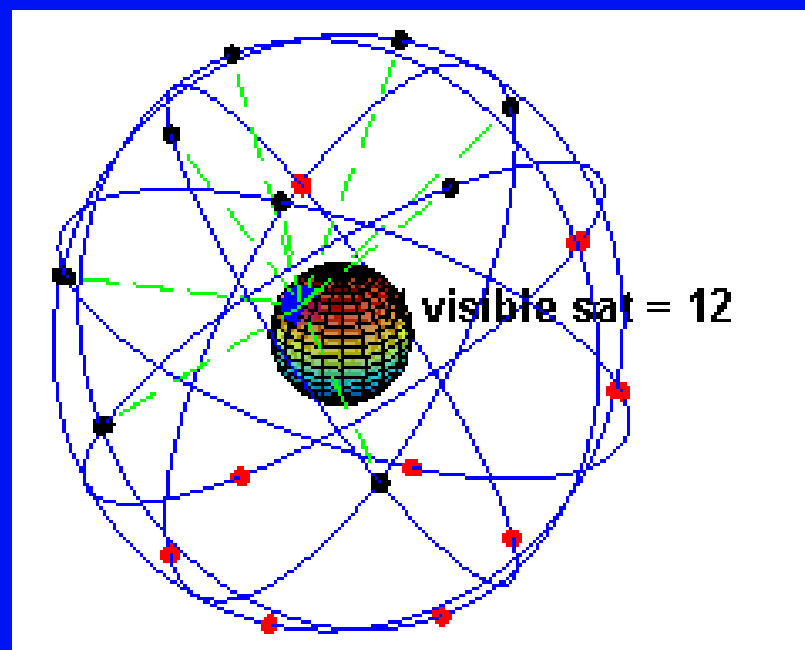
surveyor 4.0



mastering the whole process!

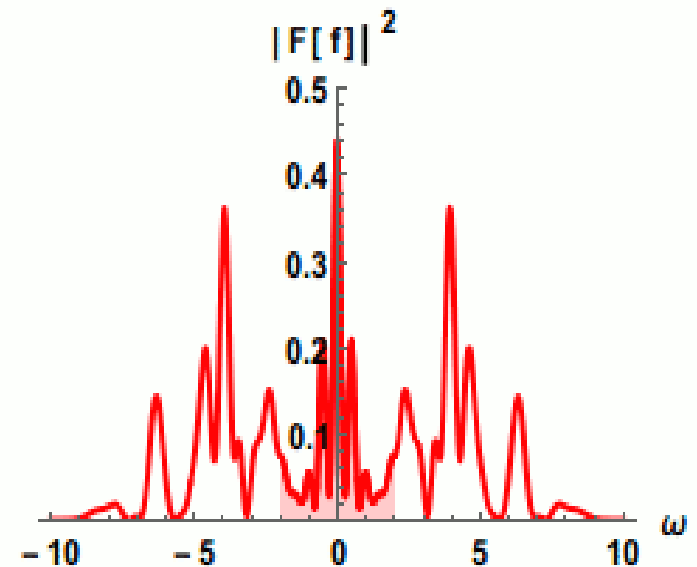
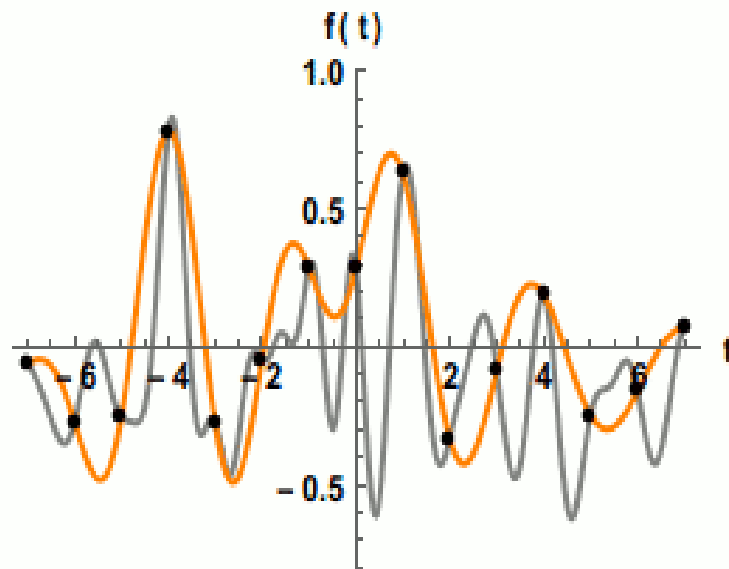


We must respond to a dynamic world



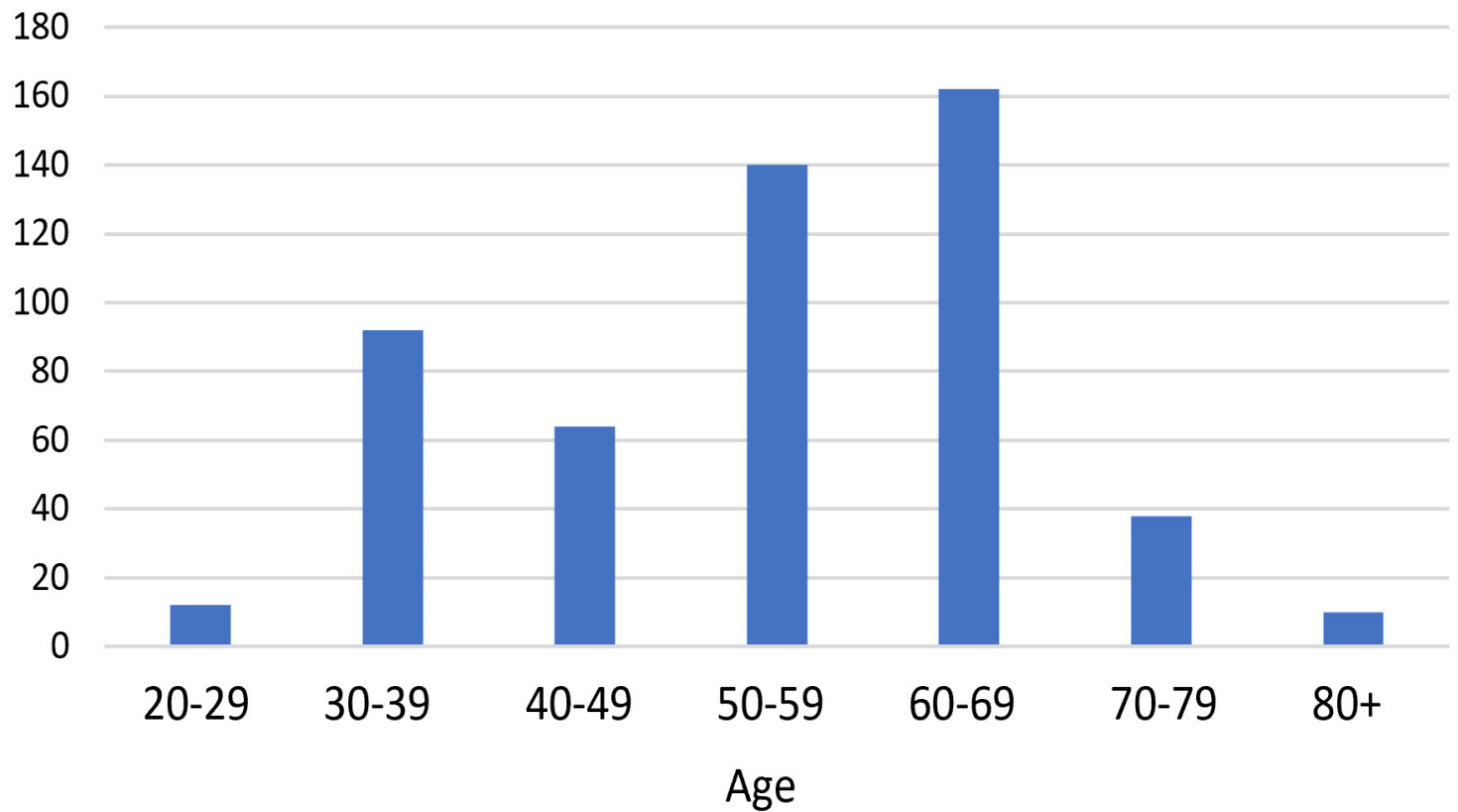
New data processing skill requirements

- ***Increased data rates and volumes***
- ***Need for post or real-time processing***
- ***Including resampling and filtering***
- ***Shannon-Nyquist theorem***



Demographics

Membership Age Profile - 518 members





User-centred approach is needed

- ***Active Alumnae groups***
 - ***Solicit feedback from graduating and former students***
 - ***Proactive Advisory Committees***
 - ***Identify all sources of potential candidates***
 - ***Expanded profession – **Limited Licence*****
-

Licence Types

	FULL LICENCE – O.L.S.	Limited Licence – O.L.S. LL
ACADEMIC REQUIREMENTS	Baccalaureate Level Courses	3yr Civil Engineering Diploma
Experience Requirements	18 months or proof of meeting Core Competency Requirements	18 months or proof of meeting Core Competency Requirements
Exam Requirements	Statutes, Written, Oral and Plan Check	Statutes, Written, Oral and Plan Check
Career Details	Can sign survey plans	Can sign survey plans
	Travel Opportunities	Travel Opportunities
	Can do all types of surveys	Has a limited scope
	Can own a business	Works for an employer as a professional

Core Competencies– Cadastral

FULL LICENCE – O.L.S.

- Ethics
- Communication
- Business Practices
- Research
- General Boundary Retracement
- Descriptions
- Easements
- Roads
- Water Boundaries
- Original Township Retracement
- Possessory Interest and Adverse Possession
- Spatial Reference
- Land Resources and Developments
- Statutes and Regulations

LIMITED LICENCE – O.L.S.- LL

- *Ethics*
- *Communication*
- *Business Practices*
- *Research*
- *General Boundary Retracement*
- *Easements*
- *Spatial Reference*
- *Statutes and Regulations*

Path to Becoming an Ontario Land Surveyor

Academics



Experience



Exams



LICENSURE





Ontario Colleges

Three Year Civil Engineering Technology

Algonquin College, Ottawa

College Boreal, Sudbury

Cambrian College, Sudbury

Canadore College, North Bay

Centennial College, Toronto

Conestoga College, Kitchener

Confederation College, Thunder Bay

Durham College, Whitby

Fanshawe College, London

George Brown College, Toronto

Georgian College, Barrie

Humber College, Toronto

Loyalist College, Belleville

Mohawk College, Hamilton

Northern College, Timmins (South Porcupine)

Sault College, Sault Ste. Marie

Seneca Polytechnic, Toronto

St. Clair College, Windsor

St. Lawrence College, Kingston



Curriculum

Calculus

Probability and Statistics

Surveying

Geospatial Information Systems (GIS)

Global Navigation Satellite Systems (GNSS)

Municipal Planning

Law and Ethics

Communications

Survey Law I



Progress to date

- ***16 Colleges visited from October 2024 to May 2025***
 - ***Attendance ranged from 7 to 83 students***
 - ***8 students applied for academic evaluations***
 - ***Correspondence with colleges will continue each year***
-