Geo Sector. Big sexy Geo Business !

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Back when I was studying geodesy in Utrecht, I learned that surveyors work from the big picture down to the fine detail. First a foundation is laid, which is then densified more and more down to the small details. To me, this wasn't at all difficult to grasp, even though in my student days I was no great scholar.

Nicolaus Copernicus on the other hand, was a great scholar. He was the philosopher, mathematician, and astronomer who formulated the heliocentric model of the universe, placing the sun, rather than the earth, at the centre. The establishment back then, the Christian nature sector (the church), thought the earth was the centre of everything and that **they** were the centre of everything on earth. It follows, therefore, that they weren't very pleased with this smart aleck's ideas.

Accepting the risk that you, dear reader of this blog, may be equally displeased with ***this*** smart aleck, I still want to talk to you about applying this method of ***'observing from large to small'*** to our geo sector.

In the beginning, there was the geodesy, also known as land surveying, among laymen. The objective of the science of **geodesy,** is to measure 3 geometric properties of that heavenly body that we, together with roughly 7 billion other people, live on:

- the shape of mother earth
- her orientation in space
- her gravity field

It is sexy to us, geodesists, to observe mother earth in this way. Because these 3 properties are constantly subject to change and it is very important that scientists continue to measure this to track the behaviour of mother earth and her place in the universe.

Because the changes occurring on, around, and inside mother earth are closely connected with this.

The earth's crust is approximately 40 km thick and consists of tectonic plates that can slide over and alongside each other but can also bump into each other. Which may affect the positioning of the continents, the oceans, ice plains and volcanoes.

Geodesists make use of some very advanced ICT tools. The modern geodesists have a great deal of feeling and interest for these and actually feel a bit like ICT professionals. For that reason, they are also sometimes referred to as Geo-ICT'ers.

These Geo-ICT'ers can do great things using today's ICT tools. Small changes, even over longer periods of time, in, around, and on the earth are being observed.

Practical applications of this are:

Predicting volcano eruptions, earthquakes, tornadoes, floods, lasting droughts, the melting of the ice caps, the progression of oil leaks in the sea, forest fires, decay of soil fertility and biodiversity, and, last but not least, the change in sea level.

For those who don't find this sexy, I would recommend that you read the above paragraphs, from **In the beginning**, once more, this time with a little more (sexual) **contemplation**.

That will help bring it to life.

Apart from a historic colleague's name, Copernicus is also the name of the [earth observation programme of the European Union.]

Through several satellites, the entire globe is continuously scanned and photographed. In addition, using sensors, 3D scanners, and robotic total stations, various in-situ measurements are taken, by land, by sea, and in the air

These petabytes of data are itching to be used by the GIS specialists, Geo-ICT'ers. and Geo data analysts in our fascinating geo sector.

There are five cloud platforms that offer centralised access to the data and information gathered by Copernicus, as well as to the tools for processing that data. These platforms are called DIAS: [Data and Information Access Services.] They are [Creodias], [Mundi], [Onda,] [Sobloo], and [Wekeo].

There are also six operational Copernicus Services: [Atmosphere (CAMS), Marine (CMEMS), Land (CLMS), Climate Change (C3S), Security (SEC), and Emergency (CEMS)]

Using these platforms, Geo-ICT'ers will develop various new services, which will help them progress towards achieving the objectives of geodesy.

The expectation is that between now and about 10 years from now, around 8.3 billion euros will be spent on this ocean of unexplored big geodata and that it will generate at least 50 thousand jobs in Europe.

Small

But, let's get back down to earth and change into a smaller pair of shoes.

If I keep the scale of my thinking small and limited, I see the pur sang land-surveying companies. In the Netherlands, we have several incredibly good ones as well as many self-employed professionals.

We are particularly focused on accurate land surveying for construction and engineering purposes. Some added property deed measurements for the cadastre, work on the BLT (the Basic registration of Large-scale Topography) and tuning the BAS (Basic registration of Addresses and Structures) for local authorities are always welcome. They make it a little easier to earn our keep.

And don't forget the 3D scanner and BIM. Yes, reducing and smoothening the costs of failures and fears in the construction sector.

We work with very advanced equipment. Unfortunately, nowadays, almost anyone can operate that equipment.

Once a year we take the bus (the Geobuzz) to Den Bosch to sneeze (geo)-together behind the elbows and to ensure that we remain our niche market.

We don't go off to gaze at the stars, we go to check our Total Stations. What beautiful colours. Too bad that pretty girl is blocking the view. Unfortunately, work must come first. Oh, yeah! National triangulation, distances in mm, angles in dmgr. If not, you'll get settled.

We feel it's a shame that land surveying isn't deemed sexy anymore and that nobody is really interested in learning this trade. We've even heard that there aren't even any land surveying courses available anymore. Is that true? Does the chairman of Geobusiness Nederland, mister Nijpels, know about this?

Let's invent a new name for our profession. Let's set up a think tank of people who've got time for something like that. Bring together a bunch of old mm-fanatic geodesists. It'll be a great laugh. And before the BBQ we'll organise a pole vaulting match in the polder with a huge Jalon for a vaulting pole. I'm sure we can borrow one from the museum. That's how, geo-together, we've been making the geof*cking Hollandsche Cirkel round for centuries.

Land surveying is a niche market, **our** niche market. It isn't that easy to become part of, and once you've been out (which almost everyone has been, because it really is that small) you won't soon get back in.

Sometimes, we think we might be better off walking away from the geo sector. We, the true land surveyors, the last of the Mohicans, will just have to tender our services as support staff in the construction, infrastructure and water management sectors.

Still, we have our feet firmly planted on the earth and continue to do good work. We have made valuable contributions to the basic geo registrations, like the BAS and BLT. The responsible party is appointed by law. Everything is supplied to the national bodies periodically, and everyone can use it.

We've got that sorted out in the Netherlands. Through the use of Information Technology and Communication (ICT), we are only ever getting better at keeping these registers up to date and making them accessible to all other sectors.

We're going to make these basic registrations 3 dimensional. In addition to all the measurements we take using sensors, drones, and 3D scanners, for which we also utilise the Internet of Things (IoT).

We won't hesitate to make a 3D city-model for every city in the Netherlands. The construction sector will then be able to use this 3D model, which we will, of course, make BIM proof, to reconstruct a coastal city all the way over in in-land Drenthe if the sea decides to reclaim the original.

In addition, we perform very complex deformation measurements, in particular in Groningen. Measurements which, in a practical sense, may be absolutely instrumental.

So, don't cross us off. We haven't lost our spirit level.

Geo-ICT is a profession that integrates ICT in Geodesy. Our sector needs people who understand how to make optimal use of Geo-ICT to measure the shape, location, and positioning of objects. Historically, presently, and in the future.

That is geodesy's local purpose, which you can 'map' onto its higher purpose: what is the shape of the object Earth? What is its position in the universe? Where has she been and where is she going? What changes is her gravity field going through and, in connection with that, what changes are there in the climate and sea levels?

If you can't respect the small things, you're not worthy of the large!

The Dutch land surveyors, who were educated at the MTS, HTS, and TU Geodesy courses of yore, generally have a solid understanding of geometry and a high standard of quality and morality. We must continue to appreciate this and, perhaps, we should even honour these people as the founders of the current geo sector. But let's not exaggerate. If we, as the introvert land-surveying minds, go around telling ourselves we are the **entire** geo sector, we are selling many others, but also and especially ourselves, short.

No, we're better off calling it a running start. A kind of foundation that we can continue to build on. In ICT, these were the people who, in close alignment with the hardware, developed the first operating systems. That operating system layer has made it possible for much larger groups of people to start developing software.

This is a development that, even today, is ongoing. Nowadays, even the alpha students are being taught programming and how to perform (geo) data analyses.

The science of land surveying that is all began with, is getting smaller. For many people it feels like something that is coming to an end and is keeps getting smaller. No wonder that the young boys and girls of today don't think it's that sexy.

All the better that land surveying is a particularly important, albeit **tiny** aspect of the geo sector as a whole and that it makes a great place for young people to start off in, within that **huge** and growing geo sector.

Because, whether you're collecting geo information from satellites out in space, or by plodding through ankle-deep mud, you're part of overcoming the great challenges that we, as humanity, face:

- Adapting to climate change,
- Making the energy transition
- Developing smart cities with thousands of new homes

The geo sector is behind services that affect everyone and, given the contribution that we make to the big issues of our time, it is an unstoppable, enormous, irresistible growth market.

A.k.a.:

Big sexy geo business !

Kind regards,

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