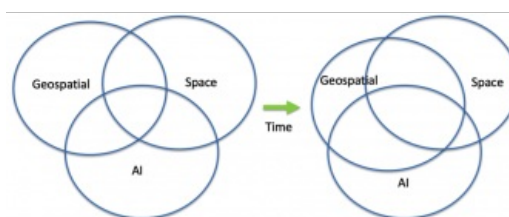
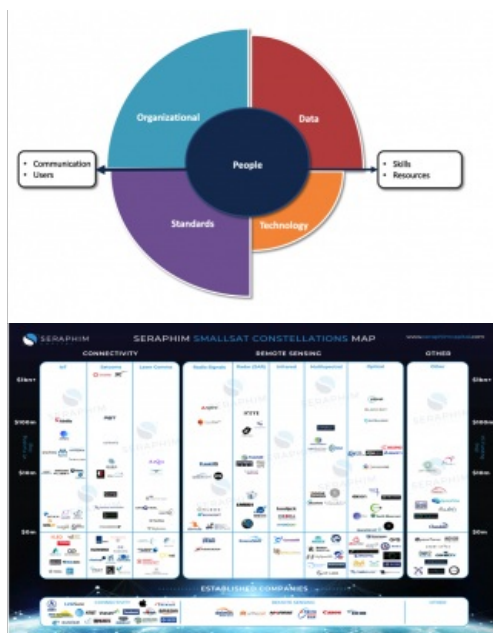


ARE WE EVERYONE'S FRIEND OR DO THEY NOT KNOW WE EXIST?

The Future of Geospatial



The geospatial community will continue to thrive, but its success is conditional on its members being able to express and rationalize what they do, why, how and for whom, according to Vanessa Lawrence.

The perspective I bring to the 'future of geospatial' is taken from spending the last five years assisting senior government officials from both developing and developed countries and also briefing senior members of board rooms of some of the largest organizations in the world. They have all wished to think through how the added dimension of location could make a difference to their decision-making.

Whilst we in the sector use terms such as 'geospatial information', 'our geospatial community' or even 'the GIS team', most

senior government officials and senior directors of organizations do not normally recognize these terms. They are looking at either enhancing the information infrastructure of their country or their organization, or they are looking at the competitive advantage to be gained from using extra data sources that other competing organizations have not yet discovered.

The boundaries between 'geospatial' and so many other disciplines, in most users' minds, are simply non-existent. We too may need to break down these boundaries more than we have done to date, in order to attract interest in what we do. And not just in the boardroom; young graduates around the globe are flocking to Data Science and Space roles, but are they equally attracted to Geospatial? The answer currently is 'no' as so many still do not understand the power of our work and the benefit to society it can bring.

Everything happens somewhere

Talking to a Professor of Data Science who 'zoomed' me recently, he had little knowledge of geospatial, let alone that it underpinned some of the biggest decisions taken each day. We discussed its use in government and their operations from managing resources, administering services, to tackling emergencies. We covered its role in industries, including construction, the property market, utilities, insurance, defence and security, navigation, waste and asset management, and logistics. Our discussion turned to its use at global scale, to assist understanding and to tackle some of the biggest issues facing the globe: environmental issues such as climate change, food security, identifying poverty and inequality and underpinning the measuring and monitoring of United Nations Sustainable Development Goals (UNSDGs).

By the end of the conversation, the phrase that I first used when writing for *GIS Europe* magazine in 1993 - 'everything happens somewhere', was ringing in his head together with the understanding that geospatial information is now seen as a vital part of a national and organizational information infrastructure.

Fitting in

So where do we fit in the future? Firstly, we know geospatial is an economic contributor. The geospatial industry globally was valued at £300bn by GeoBuis Report (2019). According to recent economic research, an economic uplift can be expected to occur by organising geospatial information within a National Spatial Data Infrastructure (NSDI) or a similar infrastructure. In a study undertaken by the Boston Consulting Group (BCG) and a report by the UK Geospatial Commission (2018), it was estimated that the fiscal uplift could total up to £14bn for the United Kingdom alone.

We also know that we overlap considerably with the Space industry as well as the Data Science and AI industry (Figure 1). Each year, we become more beneficial to them as the interoperability and open systems approach around the globe is being increasingly adopted across

our industry.



Figure 1: The changing symbiotic relationship of the geospatial, space and AI industries over time. (Image Courtesy: Location International Ltd 2020.)

The Space industry is seeing significant growth in the earth observation sector often backed by venture capital investment (Figure 2). The ever-increasing number of and the move to smaller sized-satellites, downloading not only traditional bandwidths but now also small-sat radar and video imagery together with the introduction of High-Altitude Platforms (HAPs) that not only use Solar Energy but now also Hydrogen fuel, is revolutionizing the Remote Sensing community. But irrespective of how versatile these platforms are, they generally still only generate data that is not 'in context'.

It is only the combination of their outputs with multiple other pieces of locational information from 'other providers' which makes the Space-based data become useful information for the decision-maker. These 'other providers' may, at one end of the spectrum, be humans using their mobile phones in a passive locational sense or, at the other end, highly accurate, authoritative geospatial data from either a government or the private sector.

With the addition of AI algorithms to geospatial decision-making processes, millions of calculations can be made per second, assisting the terabytes of data within any locational data stack to be easily analysed - and consistent results to be provided to the decision-maker.

It can therefore be concluded that the geospatial community, the space community and the AI community have a symbiotic, mutually reinforcing relationship. Geospatial information provides the context to the work of the Space and the AI industry and hence I predict the geospatial community will grow in importance as the benefits it brings to Space and AI is increasingly recognised.



Figure 2: The Seraphim Capital Small Satellite Constellation Map. (Image Courtesy: Seraphim Capital 2020)

Geospatial information in a digital society

The UK Geospatial Commission (2020) stated In 'Unlocking The Power of Location: the UK's Geospatial Strategy 2020 to 2025' that 'by 2025, the UK will have a coherent national location data framework underpinning a flourishing digital society' which highlights the importance of geospatial information to a country; and many similar statements are referenced around the globe. Drawing on the recognition of this importance, together with the symbiotic relationship with other growth sectors and the fact that 'everything happens somewhere' is vital to solving some of the globe's biggest challenges. It is therefore necessary to consider how our community should evolve for it to prosper - and not be subsumed into adjoining communities.

Clearly, aligning ourselves with our neighbouring communities will ensure that we are recognised for the benefits we can bring. But there are many questions that need to be answered for us to be successful. These include such questions as 'Should we promote our role more within the measuring and monitoring of the globe's grand challenges so that we are an attractive community to join?' Should we consider perhaps using not only 'geospatial professional' but also 'geodata scientist' within our vocabulary? Should our graduate courses have greater intensity of focus on computer science than they do today? Should we simplify our messages, so more people understand that 'geospatial' underpins everyone's daily lives?

Over the past 10 years, geospatial has been successfully used to tackle serious decisions in many industries from manufacturing to the finance markets and, of course, more recently, underpinning much of the analysis undertaken in the COVID-19 pandemic. However, the awareness of the impact geospatial makes has always been similar to 'Intel inside' our computers but without even a label to identify ourselves! This has to change for our identity not to be lost to other subject areas.

Due to our historical roots, technology has often been the lead focus for the geospatial community. Today, we need to ensure that the focus is changed to one that emphasises the impact we can have organizationally, using globally adopted standards and ensuring our people have the skills to meet the growth of geospatial, as more data becomes available from so many sources (Figure 3).



Figure 3: The future focus of those working in geospatial measured by relative importance. (Image Courtesy: Location International Ltd 2020.)

With a subject area measuring and monitoring the biggest issues facing the globe which is no longer hampered by being 'technology led', that already adopts international protocols and standards and is needed by adjacent growth industries, it is clear that the community will continue to thrive.

However, our success is conditional on us all being able to express and rationalize what we do, why we do it, for whom we do it and how we do it. This has to be in language that everyone understands and is simple to grasp, starting perhaps always with the phrase that is now 27 years old, 'everything happens somewhere'.

Further reading

- GeoBuis Report (2019), <https://geoguiz.com/geobuiz-report-2019>.
- UK geospatial Commission (2018), <https://www.gov.uk/government/publications/geospatial-commission-annual-plan-2019-2020>.
- UK geospatial Commission (2020) Unlocking the power of location: the UK's geospatial strategy 2020 to 2025.