Industry Panel Discussion (ESRI, Hexagon, Cyient) – How will developing impact on geospatial data collection and maintenance?, and How will industry support future NMGAs to deliver data and services?

Sanjay Kumar (Chair); explained that NMGAs and technology providers are his 'bread and butter' but, unfortunately, both are not making his bread and butter together. It was emphasized that geospatial technology touches everyone's life a couple of times daily, but the geospatial industry is not promoting the contribution it makes. Consequently, two questions were asked: 'What is the future of NMGAs?' and 'What will the future relationship between industry and NMGAs look like?'

Cyient; pointed to the improvements in accuracy and cost due to the advancements in sensor technology. Industry can offer NMGAs lots of tools, but it is equally important to collaborate in order to understand what tools may be required in the future and how can industry support NMGAs. Cyient reiterated Nigel Clifford's view that in the future *more* needs to be done *better*, *faster*, and *cheaper*. One example highlighted the power of automation and machine learning in reducing the number of man-hours spent on particular tasks while stressing that manual checking of data would still be required.

ESRI; highlighted the desire of technology providers to engage more deeply with NMGAs on where trends in the geospatial industry are going as both groups are working in the same ecosystem and with the same customers. Integrating real-time information from a variety of sensors and conducting geo-analytics are only two examples of the areas where collaboration can create real benefits to both NMGAs and technology providers. ESRI advocates the creation of a 'system-of-systems' as industry and NMGAs are no longer just providers of data, but providers of solutions to real questions. These communities of use could be local, national, at a city-level, or even at government level.

Hexagon; spoke of the new constant that is a dynamic and ever-changing environment and the difficulties of managing, understanding and communicating change. Hexagon doesn't consider technology to be the issue but the consideration of how best to get the most of what is available. Today, end-users require answers to solve difficult questions, and with the rise of smart it becomes increasingly necessary to manage challenges in the digital reality by visualizing and making the results usable to the end-user.

Discussion: What is the role of NMGAs in coming years?

- The concept of NMGA as a service is key, as is the need to meet customer's needs;

- Delivering data that can easily be digested by customers;

- Understand where things are will remain crucial; and

- Recognizing that we haven't yet entered the information age.

Discussion: How can industry support NMGAs to deliver data and services?

- It will depend on how open data has developed due to the costs associated with acquiring it;

- NMGAs are an authority of information. The next step is a better understanding of the requirements of customers; and

NMGAs are champions in government and have the ability to bring together different players to deliver real solutions.

Q&A

What is the industry's role in smart cities?

- Most NMAs cover more than just cities
- Cities are often more autonomous and responsible for their own data
- There is an influx into cities but it is more correct to talk about communities
    - o 'communities of use' - how is information collected and integrated?
    - o Industry can help communities to achieve whatever it is they are trying to do
- The definition of 'smart cities' differs across the world
    - o India is very different from elsewhere in the world
    - o Cities are different and have different needs
- NMAs can help evaluate the smart city environment in their own country – understanding requirements and providing solutions

How can industry support SDG goals (particularly in developing nations)?

- The private sector needs to satisfy its shareholder, but they can help to develop basic needs such as computing skills
- The problem is usually the availability of funding

How can NMAs and industry work better together?

- SDGs are one area but more can be done
- There are many geospatial communities that that talk to one another but fail to bring others
- A business model of collaboration is needed that provides common ground for NMAs and the private sector