Harnessing increasing volumes of Earth observation data to add value for science, business and society

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“In the best sales year, around 25,000 images were sold. The Landsat project has now exceeded that number in a single day. In fact, the 9 millionth image was distributed on September 1, 2012.” (http://www.un-spider.org/news-and-events/news/usgs-over-9-million-downloads-free-landsat-data)

Landsat 8 data is ~1Gb in size while Sentinel-2 is ~7Gb in size

Sentinel-2 MSI, ESA

Landsat-8 OLI, USGS/NASA

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Developing Areas

- Unmanned Aerial Vehicles (UAVs) for small area surveys
- Greater number of satellite operators: investor funded start-ups alongside, but also being bought by, the large companies
- Sentinel missions as a long-term (can be relied upon) source of data
- Renewed focused on geostationary missions e.g., for SAR
- Lidars in space for observing the marine and terrestrial environment
- Increased spatial resolution of radar data i.e. 1 m
- Increased use of automated techniques for mass data processing / information extraction

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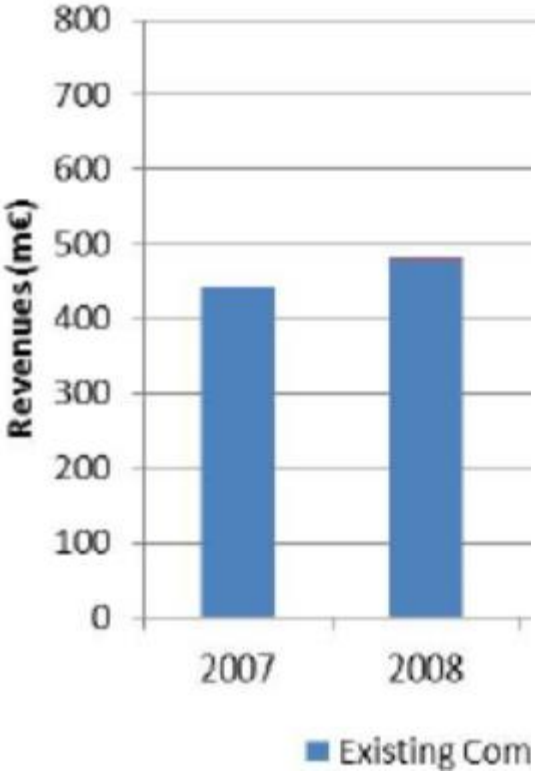

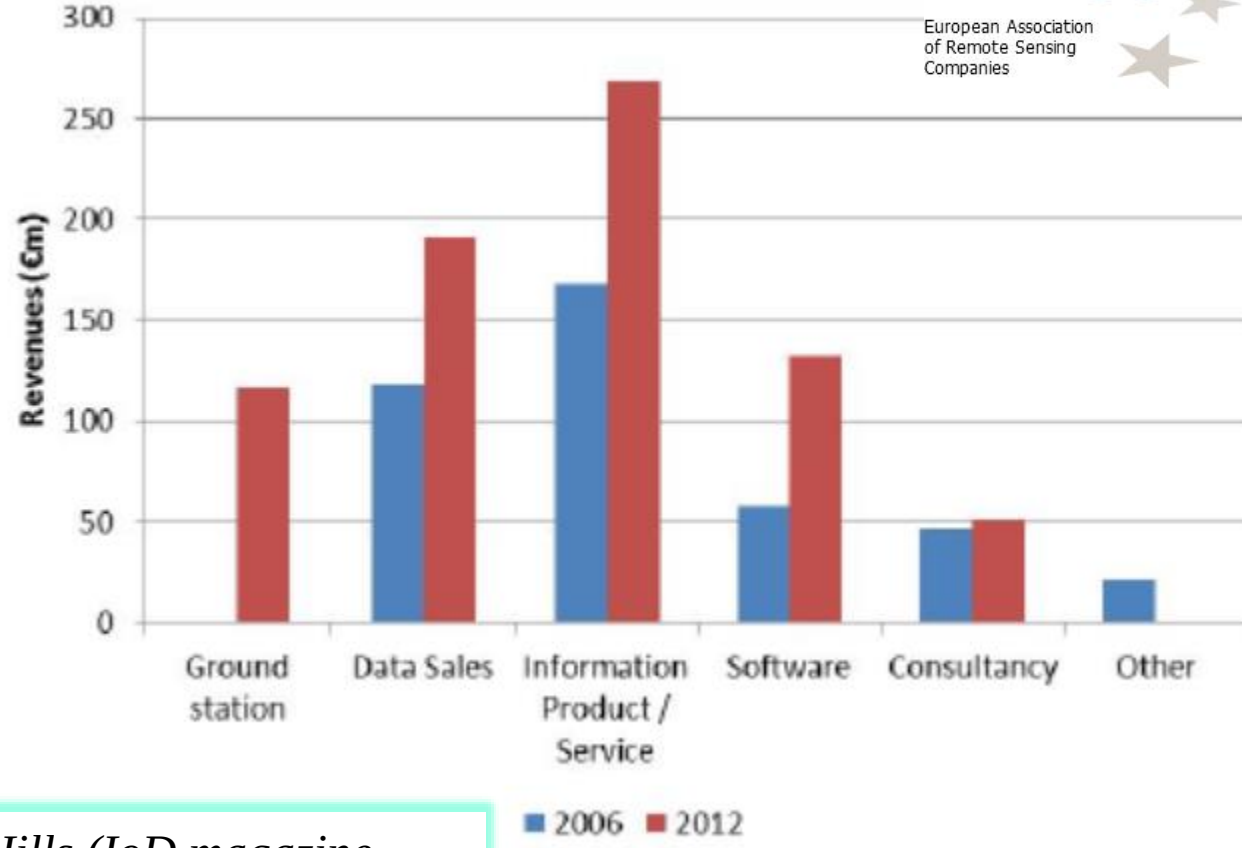

EARSC
European Association of Remote Sensing Companies

Hayman & Giles, Seven Hills (IoD magazine, Jul/Aug 2015): Incumbents are always vulnerable; we live in a world where change is the only constant; and damage is the punishment for standing still.

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Computers have enough power to outperform people?

Inspired by Zero to One (Masters and Thiel)

Every person has a relative strength.

Computers excel at data processing, but struggle with judgements.

Therefore, computers complement humans, empowering people. They're tools not rivals.

So we need hybrid approaches to problem solving: extracting information to human provide insight.

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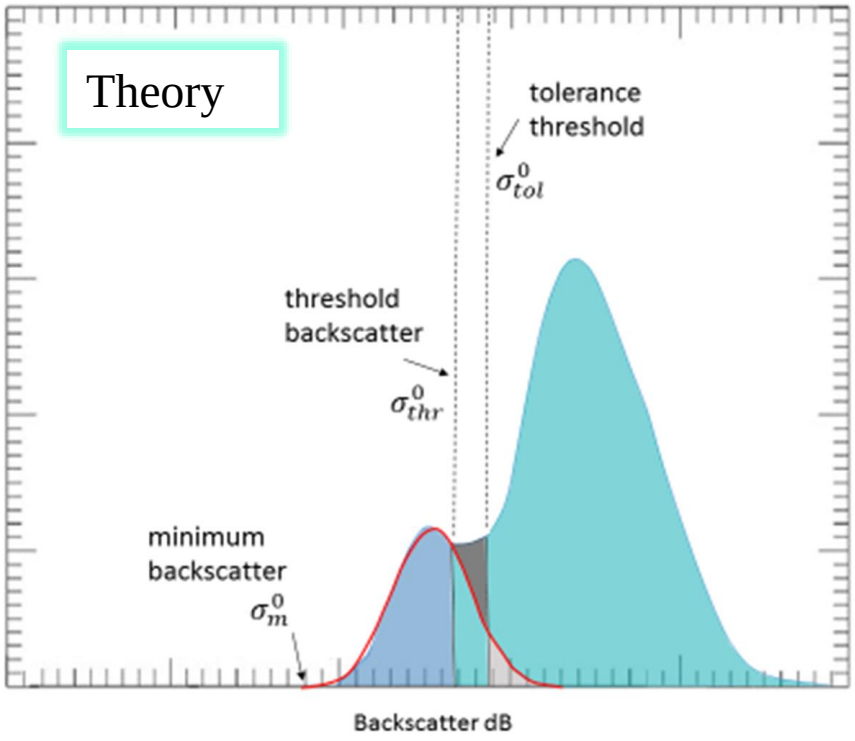
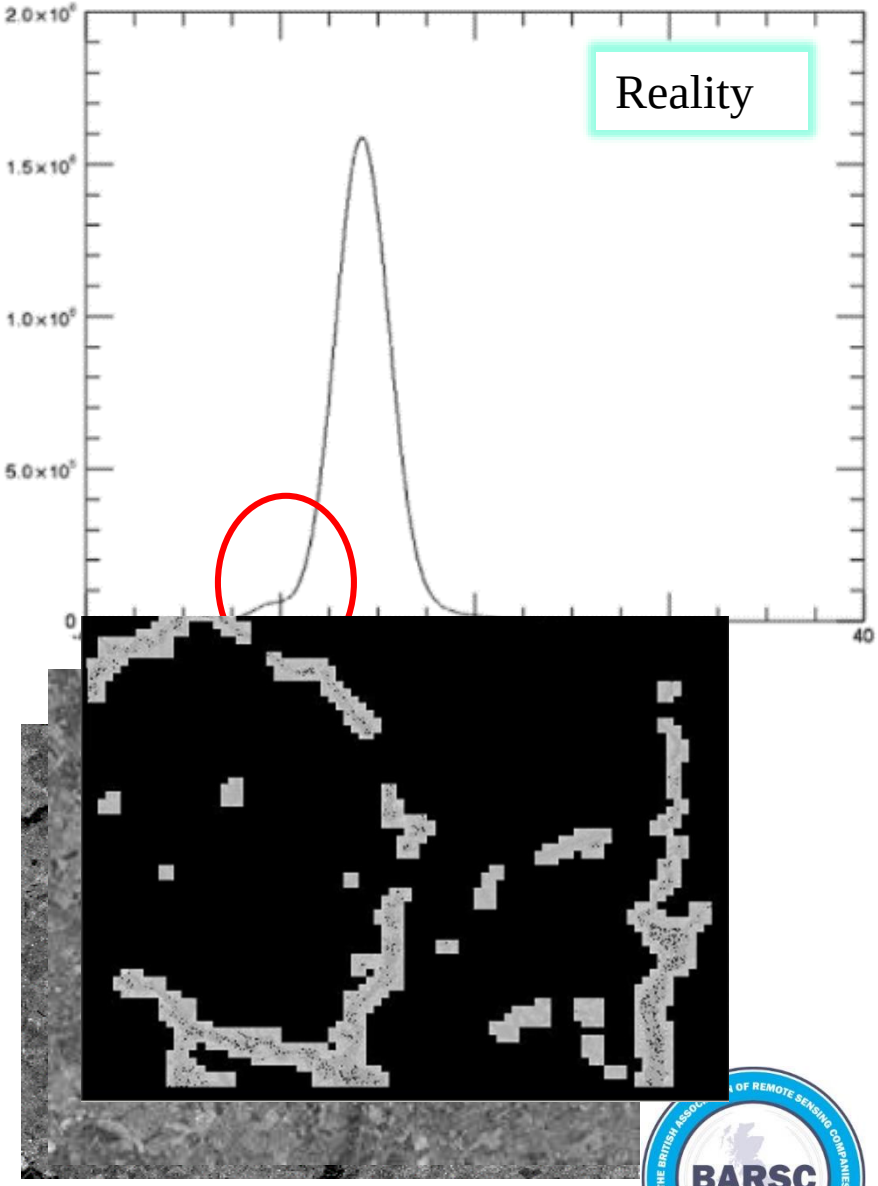
Flood mapping with SAR, Sentinel-1 York example – Space for Smarter Government Programme project





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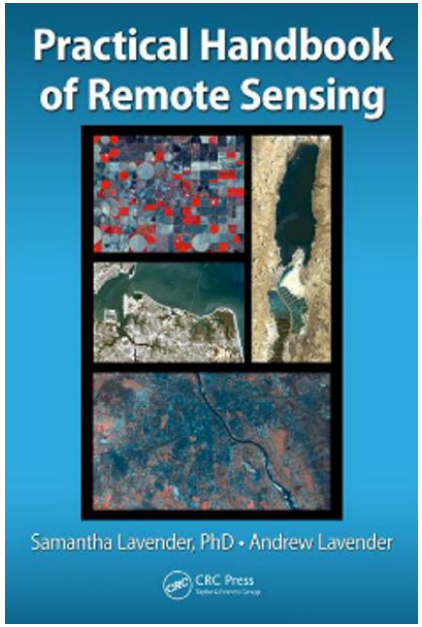
Masters and Thiel: Breakthrough technologies are 10 times better, and you should aim to be the last mover – be focused on the end game



Conclusions

- It's an exciting time to be in the field of remote sensing
- There's a wealth of data, and we need to explore what's possible
- It's important to understand what's needed, but also provide a vision to non-expert users as the technology can be confusing
- Growth is with smaller companies, but they need an ecosystem of universities and larger companies
- Collaboration is key: between people, organisations and with technology.

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Thank You

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