EO Services & AI for Business & Government

Geoff Sawyer
Secretary General
Geoff.sawyer@earsc.org
What is EARSC?

Trade (non-profit) association founded in 1989, dedicated to helping European companies: **providing services (including consultancy) or supplying equipment in the field of remote sensing**

- Foster the development of the European Geo-Information Service Industry

- Represent European geospatial-information providers, creating a sustainable network between industry, decision makers & users
EARSC’s Members

102 members (92 full & 10 observers) from 22 countries in Europe
EARSC EO Services Value Chain

Services covered by the survey:
- Satellite Data Products
- EO Application Products
- Geo-information Products
EO services sector is evolving very rapidly
Change is happening so fast.....

....the real challenge is to adapt to the rate of change... !!
Current Situation...

- Copernicus (€7b EU investment): NEW ERA in EO
- Sentinel data: “free & open data” policy
- New & innovative satellite operators
- New data sources are emerging: eg. UAV, crowdsourcing
- Large IT companies (eg. Google, Amazon) entering
- Digital technology = potential revolution

DATA

Many potential opportunities to exploit it
Changes in the Space Frame

- Satellites deliver multiple types of data/services & are increasingly connected:
  - More constellations of satellites of different types: EO (optical, radar, hyperspectral), navigation, communication, AIS (automatic Identification system), occultation, video, etc.
- Connectivity (oneweb)
- Inter-satellite communications (laser)
- On-board analytics
- Sophisticated sensors & data capture

Satellites are clearly part of the IoT!!!
Change in the Digital frame

- Digital game changers:
  - Big data technology
  - Cloud storage & processing (algorithm to data)
  - Connectivity – including inter-satellite laser communications
  - Artificial intelligence, machine learning, deep learning
  - Blockchain
  - ...........

Not just in space but on the ground

Digital technology is disrupting the space value chain!!!
Change in the Value frame

- Satellite EO geospatial is an inherent part of the IoT:
  - Application of Big Data tools to satellite data - which is big!!
  - Convergence of data analytics know-how with EO
  - Satellite data is a fundamental tool to understand the world & human activity
  - Volumes too large for human interpretation; need for “AI” to extract information from the Tbytes of data

- Consequence:
  - Leading to on-line services
  - Disrupting value chains
Contribution of EO Services

Traditional manufacturing: Integration creates value

Services:
Transformation of the product at each step of the value chain

Contribution: Many small “parts” contribute to the end product

Value: Integration leads to progressively higher value

Geospatial services can add value at many points!!!
Finnish & Swedish economies benefit from the use of satellite imagery by between €24m - €116m each year!

- Icebreakers use imagery to find the best routes through the ice: €2.3m pa
- Ships save fuel and time: €2.1-€3.3m pa
- Ports are able to operate more efficiently: €5.8-€9.4m pa
- Factories are able to operate all year round: €6.3-€63m pa
- Citizens can be sure that the supermarkets/petrol stations/pharmacies are stocked: €3.5-€17.5m pa
Cumulative Benefits in Economic terms
EO Services Value Chain Disruption

Satellite operators & data providers

Emerging/Future? Data Analysis

Data

VA & geospatial service providers (bespoke)

End-users / clients

Information

IT Platforms

Downstream sector industry

End-users

VA & geospatial service providers (on-line)

Data Analysis
## Different scenarios

<table>
<thead>
<tr>
<th>VA stay independent</th>
<th>Integrated providers</th>
<th>IT integrated</th>
<th>Downstream integrated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Satellite operators &amp; data providers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value added services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT platforms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Downstream services industry</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-line service providers</td>
<td>Dedicated data providers?</td>
<td>Major IT providers?</td>
<td>Sector specific providers?</td>
</tr>
<tr>
<td><strong>End-users</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major IT providers?**

**Sector specific providers?**
EARSC Response

On-line Services

- EARSC has established a Marketplace Alliance
  - A co-operative approach for mutual benefit
  - EO companies; coming together to create a common platform
  - Promotion of their on-line services
  - Leaving each company in control of its sales & promotional process

Bespoke (traditional) business

- EARSC Market Development programme for industry
  - Strong internationalisation effort to develop export opportunities
  - Leverage Copernicus using EC Economic Diplomacy
Knowledge Tier: European Marketplace for EO services

Global buyers can find easily European EO services, data & products
eoMALL...
Thank You for your Attention!!!

EARSC:
www.earsc.eu
www.eomag.eu
MEMBERS:
www.eopages.eu