

# How to apply information technology to outreach activities of GEBCO?

Kyeong Park\*, Eunmi Chang\*\*, Seonggon Kim \*\*

Sungshin Women's University \*, Ziinconsulting inc. \*\*

[kpark97@sungshin.ac.kr](mailto:kpark97@sungshin.ac.kr), [emchang21@gmail.com](mailto:emchang21@gmail.com) seonggonkim@ziinconsulting.com

**Abstract :** In each step of data collection, manipulation, management and propagation of bathymetry data, information technologies have been used intensively and widely. Outreach activities mean the outbound expansion process of bathymetric data, or the activities of providing services to populations who might not otherwise have access to those services. We compared nine main components to carry our successful GIS project for bathymetry with OSI 7 layers. We investigated the potential impact of cutting edge technologies such as big data, mobile network and UX (user experience) on outreach activities. From real-time data, remotely sensed data to accessible information, it is necessary to apply new technology to GEBCO data and products

**Keywords:** bathymetry, outreach, General Bathymetry and Ocean Mapping Committee

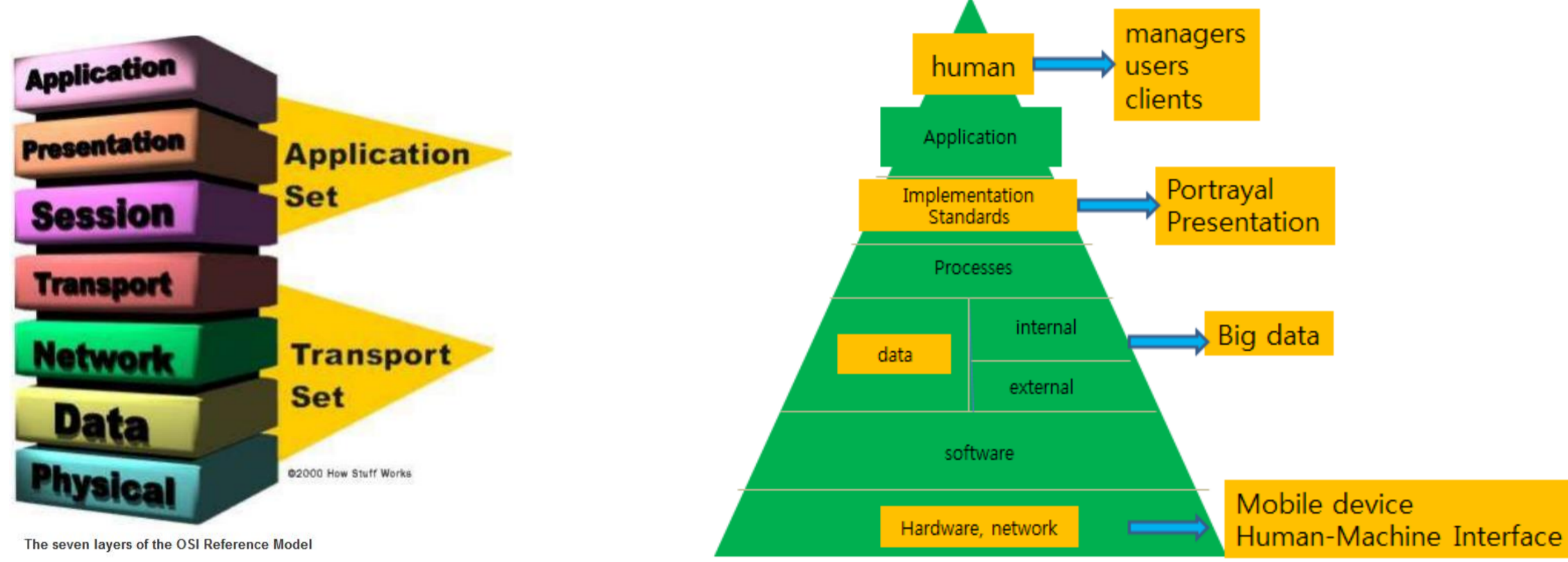
## 1. Introduction

**1. Purposes**  
IHO and IOC made GEBCO of which aims are sharing data, information and technology of bathymetry and undersea features. Since 2012, GEBCO guiding committee have discussed the necessity of more systematic and effective outreach activities of GEBCO rather than sporadic outputs and distributed information service. This study aims to check out the expectation of Information technology to promote GEBCO outreach activities in the future.

**2. Methods**  
We review IT standards and trends analyses and apply the meanings to bathymetric data themselves and related data

## 2. The previous standards and OSI models

### 1. Comprehensive 7 layers & Pyramid of GIS + keyword in IT in 2014



As outreach activities are obliged to adapt to IT environment, we should be keen to changes in computing environments based on common models (7 layers model) and connect them with cutting edge technologies and issues such as big data, HC interface, wearable computing, 3D printing. The most important components is to define "Human", on the top of pyramid. We designated human to leaders, decision makers and ordinary users and specific clients.

Using diverse hardware and devices, bathymetry data will not any more (x,y,z) figures but visible and dynamic phenomena.

## 3. Analyses of IT trends and key factors in market

### 1. Social problem-solving ICT

Innovative business models replace ad-driven campaigns in **emerging markets**.

With technology innovation hubs springing up across the continent, technology **communities within many developing countries** are gaining access to state of the art facilities, events, mentorship and training; making it more likely that they'll devise **impactful solutions**.

Early ICT successes that relied on service **delivery and civic mapping** are creating an appetite among developers and civil society organizations to confront power through public information.

2014, I predict that machine to machine (M2M) technology will be important for ICT for development as it **reaches critical mass**.

We will see improved food security and increased agricultural yields, rural education transformed, disease outbreaks detected, mothers sent vital information, and all of this done by sophisticated systems that take advantage of a **basic mobile phone**.

The **750m girls and women** around the world who don't have phones, but can afford one designed for them and at the right price.

<http://www.theguardian.com/media-network/media-network-blog/2013/dec/04/ict-for-development-trends-2014>

Google or any other platform for the standardized bathymetric data platform. GEBCO outreach group is to consider adapting UI, UX, 3D printing to GEBCO products

### 2. Key success factors in information technology market

Highlighted competition for **platform leadership** - competition and collaboration on multiple fronts

Changing consumer behaviors - growing **importance of UI and UX**

Growing **importance of content** - content differentiation and development of exclusive Content

Evolving business models - development of new **value-added services and business models**

PC -> NOTEBOOK -> mobile devices

Mobile device Diversity and Management  
Mobile Apps and Applications  
The internet of things  
Hybrid Cloud and IT as Service Broker  
**Cloud/Client Architecture**

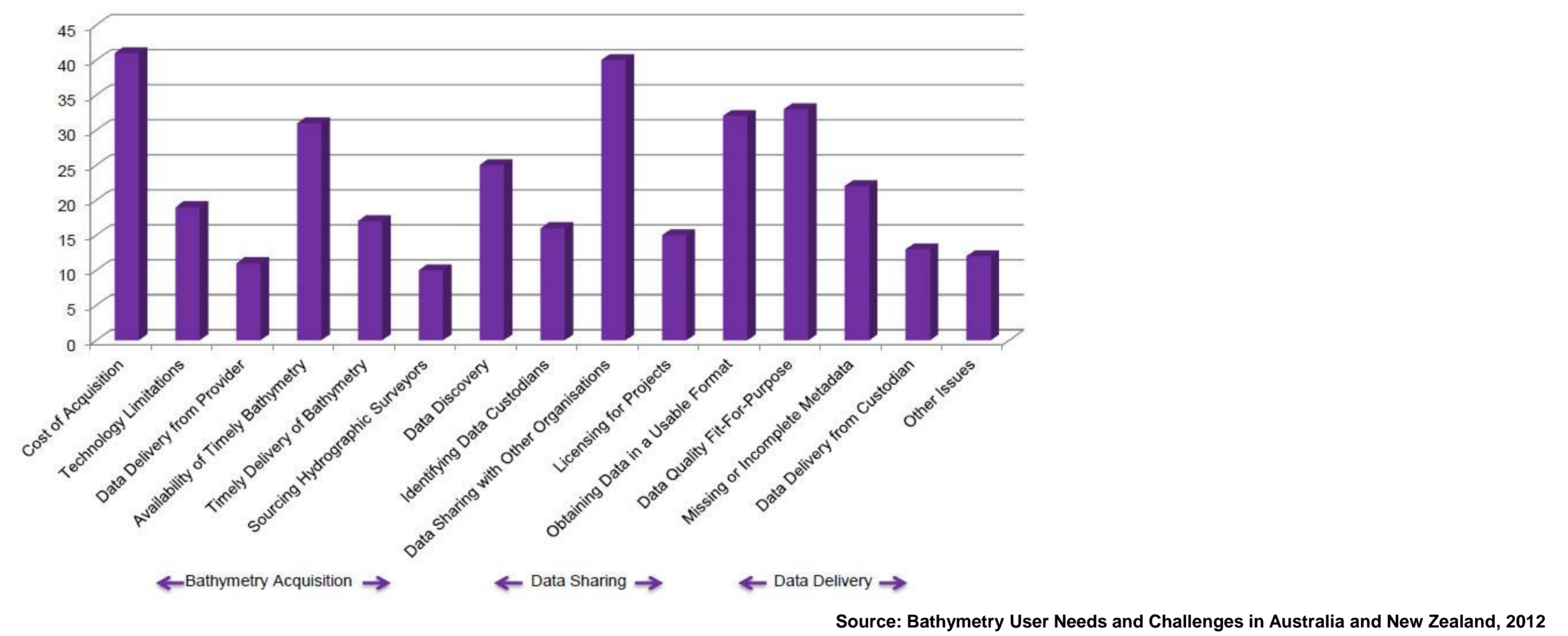
The Era of Personal Cloud  
Software defined Anything  
Web-scale IT  
Smart Machines and **3-D printing**

2014 ICT Industry Outlook of Korea

Gartner Group, 10 trends technology and strategy

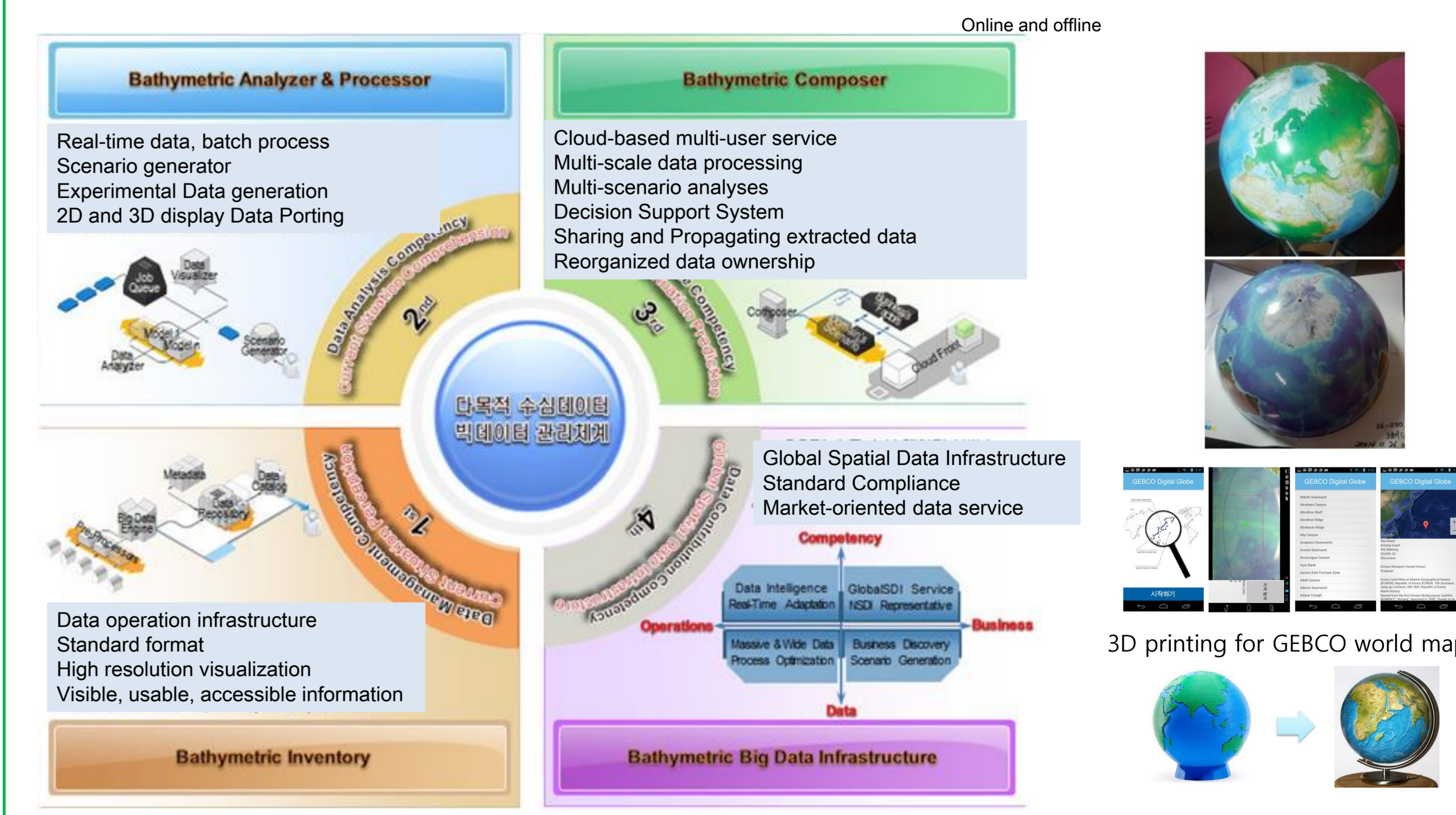
## 4. Meaning of Main Issues to GEBCO outreach activities

### 1. Define clients who are interested in bathymetry and ocean data



### 2. Big data Processing and Data Mining

### 3. Smart Globe



## 5. Conclusions

Rapid changes in information technology, bathymetric data can be one of the good examples to test the concept of Big data and Online and Offline mix programs. GEBCO world map product can be converted to a smart globe with mobile app program and image processing. If real-time data can be managed with considering clients' needs, bathymetry data will be accessible flexibly and on time to solve social problems or disaster response or economic activities. OSI 7 layers seems to be useful for understanding new IT trends and for applying their potential impacts on GEBCO outreach activities