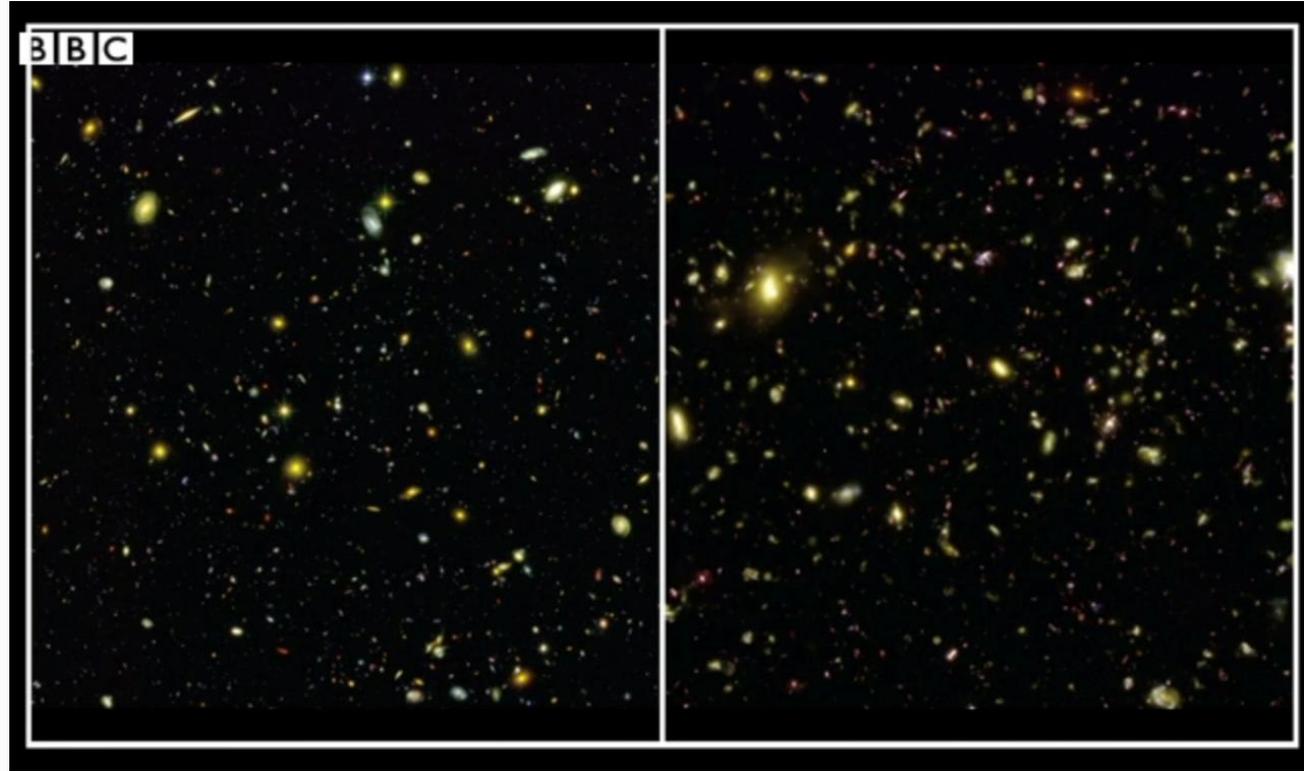
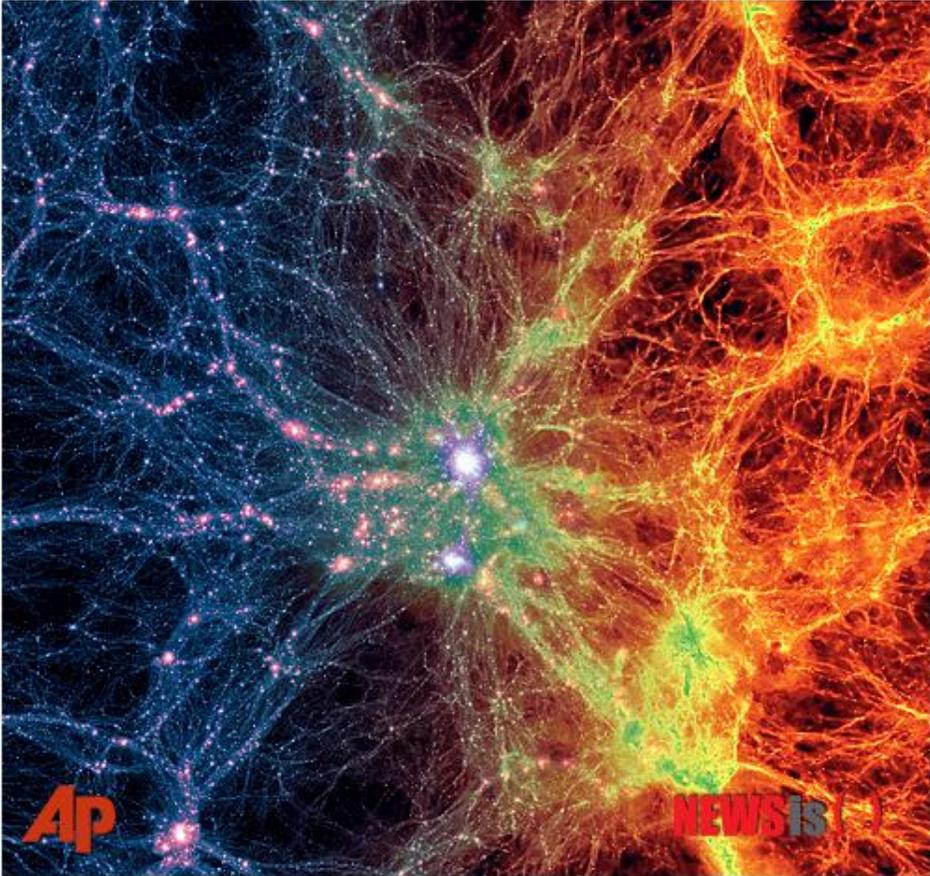


MAGO₃D

A Brand New Live 3D Geo-Platform

Sanghee Shin(shshin@gaia3d.com)

우주생성 과정 시뮬레이션 재연 성공... '천지창조'에 한걸음 더



<Source: <http://www.bbc.com/news/science-environment-27299017>>

【서울=뉴시스】최현 기자 = 7일(현지시간) BBC 뉴스와 AP통신 등에 따르면 미국과 독일, 영국 등으로 이뤄진 국제 공동 연구진이 우주의 생성과 진화 과정을 실험실에서 컴퓨터 시뮬레이션으

<Source: 2014년 5월 8일 중앙일보>

[김대식의 'Big Questions'] “세상은 컴퓨터 시뮬레이션, 신은 우주 최고의 해커”

<23> 우주엔 우리만 존재하나

2014-04-06 오전 2:19:58 / **평일SUNDAY**

언제나 그렇듯 문제는 인플레이션이었다. 수요는 급증하는데 공급이 한정됐으니 말이다. 무슨 수요였냐고? 더 행복하고 건강하고 싶다는 하찮아 보이는 희망의 수요다. 그런데 참 이상하다. 조금만 편해도 까맣게 잊고 살다가 갑자기 모두 그리고 동시에 자비와 구원을 울부짖으니.... 서(西)로마가 멸망한 후 홀로 남게 된 동(東)로마 시민들은 애타게 기도한다. 우리만은 살려달라고. 내 귀여운 딸만은 강간당하지 않게 해 달라고. 내 목만은 잘리고 싶지 않다고.



모두가 같은 신에게 기도한다면? 신은 누구의 소원을 들어주어야 할까? 6세기 동로마에선 새로운 이론이 등장한다. 인간은 신과 직접 소통할 수 없다고. 서울에서 보낸 소포가 단번에 로마로 배달될 수 없듯이. 이데아 세상에 존재하는 하나님은 어떻게 '벌레' 같은 인간의 목소리를 바로 들을 수 있던 말인가! 다행히 신의 아들 예수는 인간이기도 하다. '테오토코스(theotokos)', 즉 신의 어머니인 성모 마리아가 계시니 말이다. 성모 마리아는 자비스로우시기에 순교한 성자들 부탁에 귀를 기울인다.

<Source: 2014년 4월 6일 중앙선데이>

Neil deGrasse Tyson says it's 'very likely' the universe is a simulation

Graham Templeton



Sometimes, physicists can get too up in their own heads.

At the most recent Isaac Asimov Memorial Debate, recently held at New York's Hayden Planetarium, scientists gathered to address the question for the year: Is the universe a computer simulation? It's an older question that you might imagine, and if we interpret it a bit more broadly then it's really one of the oldest questions

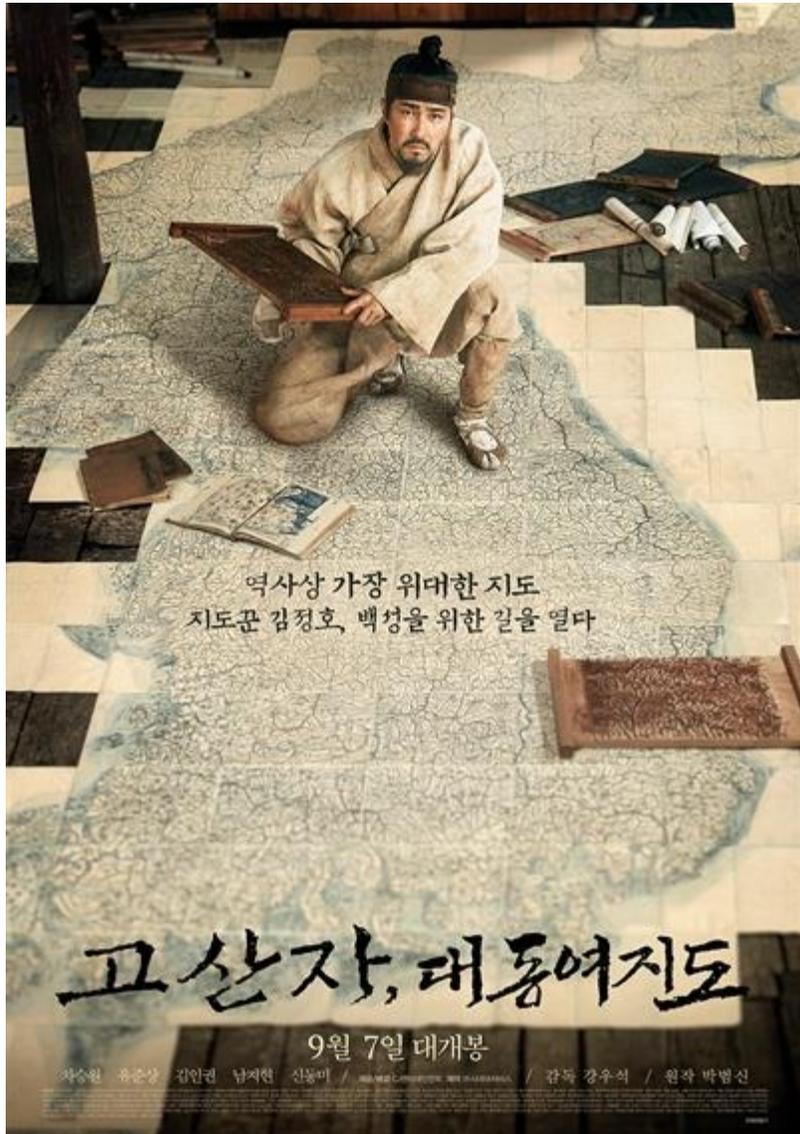
<Source: <http://www.extremetech.com/> April 22, 2016>

FUTURE REALITY



¹Marketsandmarkets; ²Survey Monkey; ³IHS; ⁴IDC; ⁵Digital-Capital; ⁶Nick Bostrom, Neil Tyson DeGrasse; ⁷Snapchat; ⁸Company disclosures; ⁹Nvidia, ImageNet Challenge; ¹⁰Nvidia, AWD; ¹¹Ericsson Consumer Lab; ¹²Pubmed, Nielsen

메릴린치는 매트릭스가 실제일 가능성이 20~50%라고 주장했다. [사진 비즈니스 인사이더]



<Source: https://en.wikipedia.org/wiki/World_map>



John Hanke

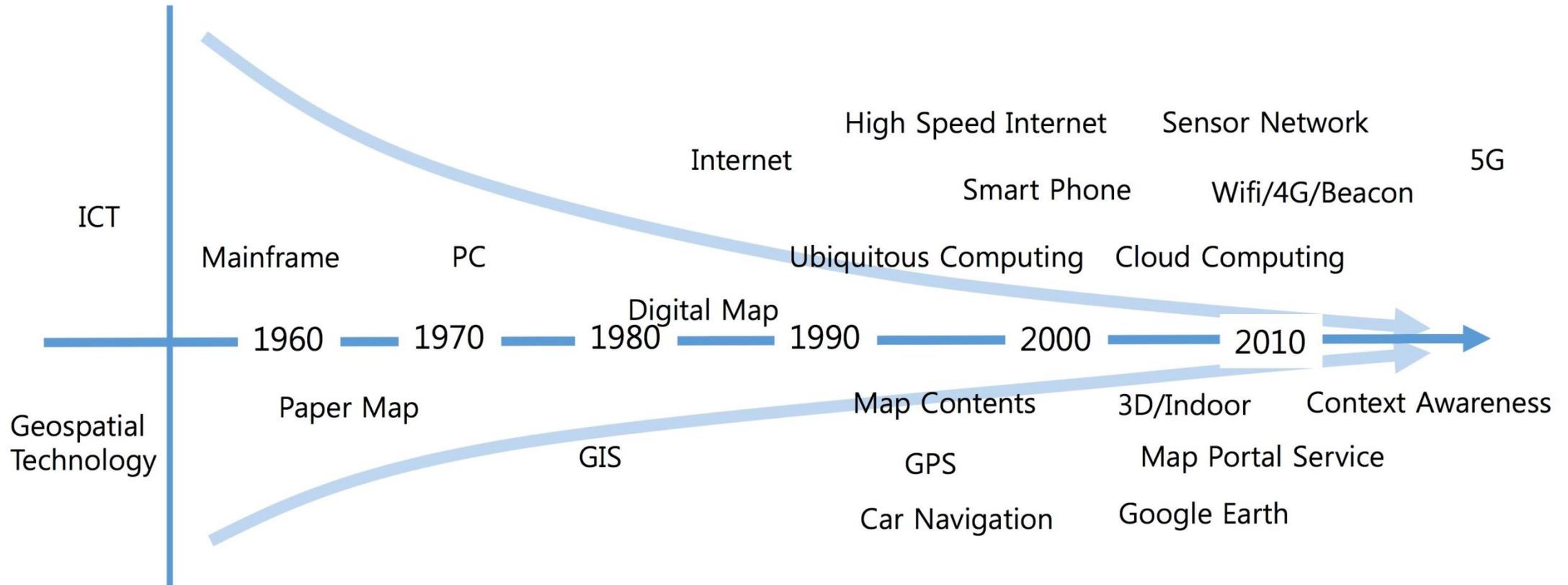
From Wikipedia, the free encyclopedia

John Hanke (born 1967) is an American entrepreneur and business executive. He is the founder and current CEO of Niantic, Inc., a software development company spun out of Google that designed Pokémon Go and Ingress. Hanke previously led Google's Geo division, which included Google Earth, Google Maps, Local, StreetView, SketchUp, and Panoramio.

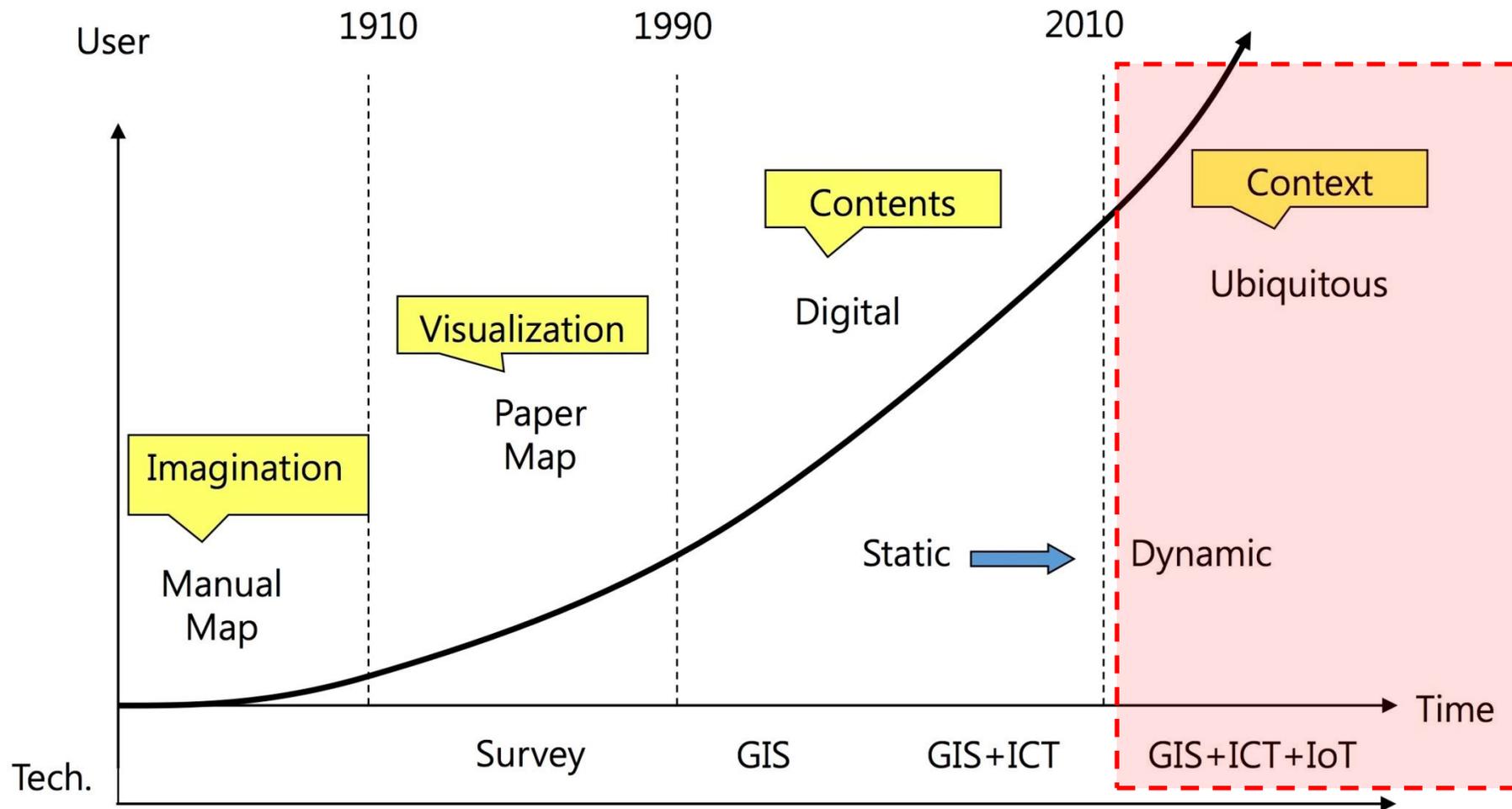
Trends?



Comparing the evolution of ICT and SIT

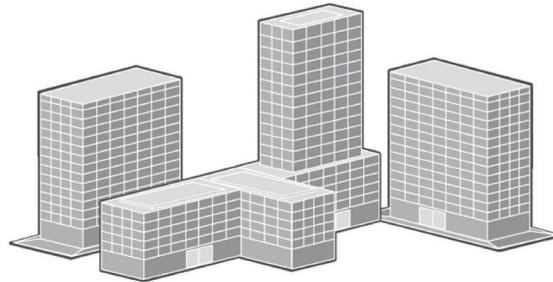


Change Process of Spatial Information



<Source: Sakong, Hosang(2007)>

Location Technology Evolution



Region-Centric

Geospatial
Information

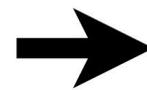
1980s



Feature-Centric

Geospatial
Information

1990s



Human-Centric

Geospatial
Information

2000s

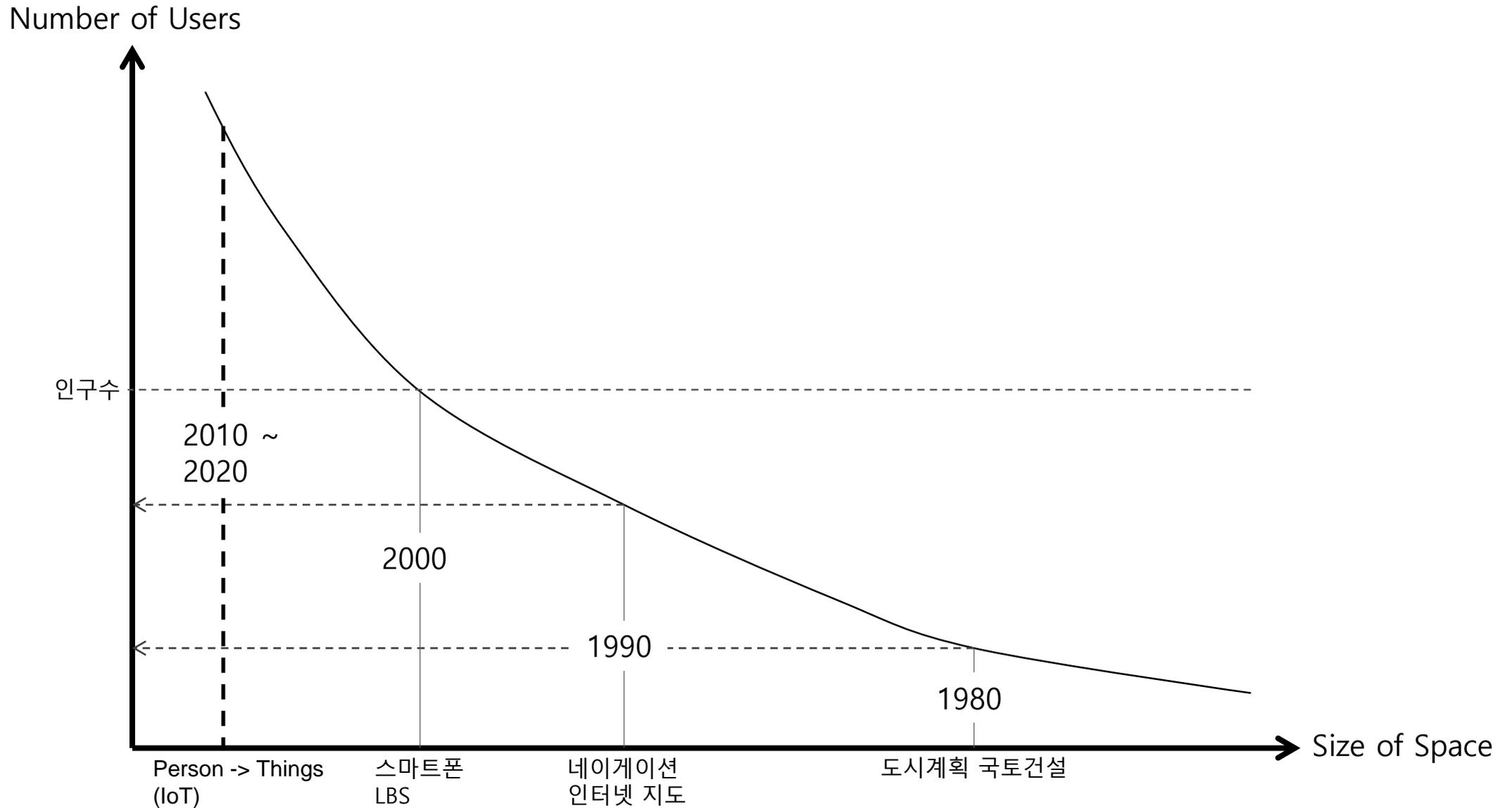


Device-Centric

Geospatial
Information

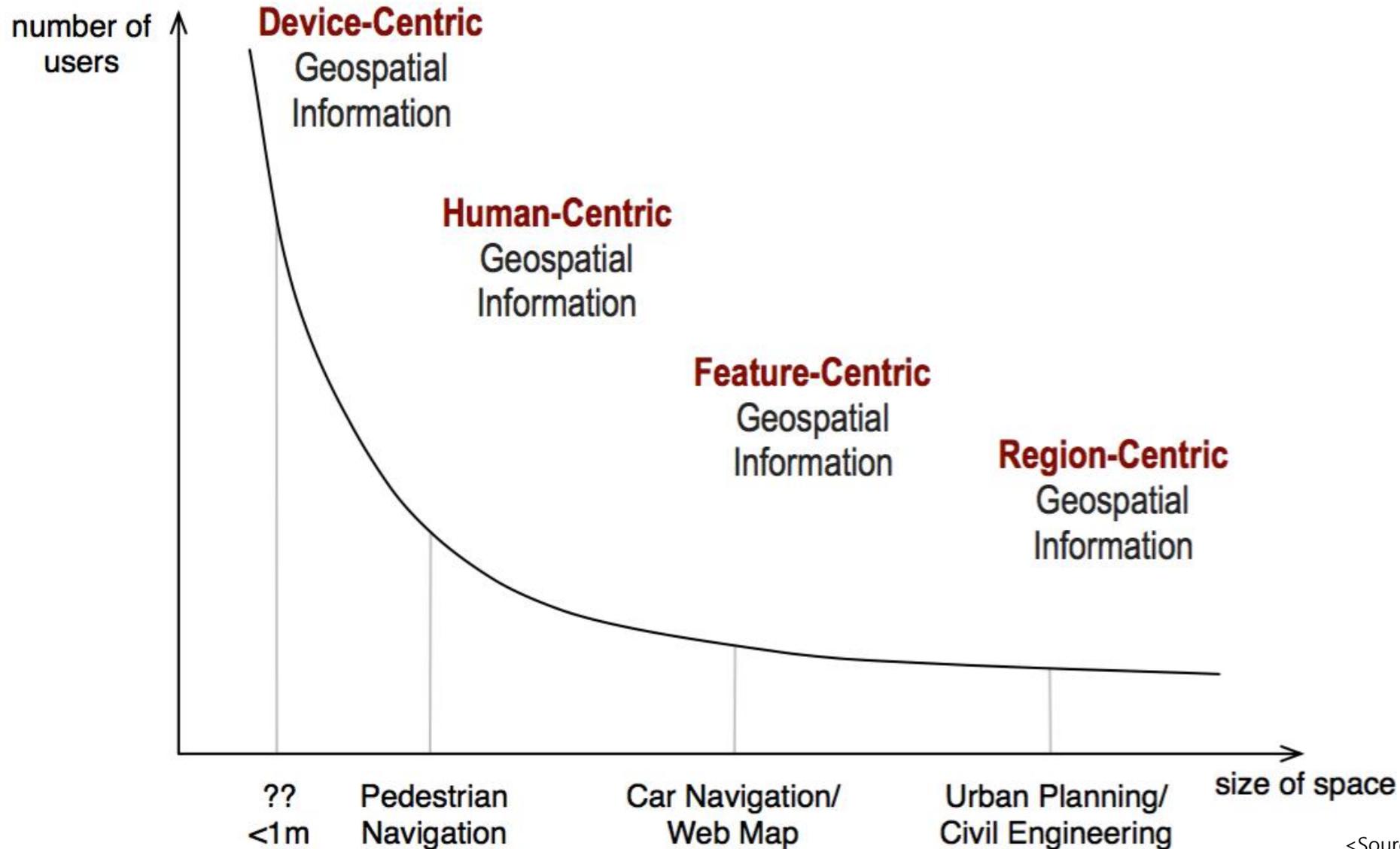
2010s

Location Technology Evolution

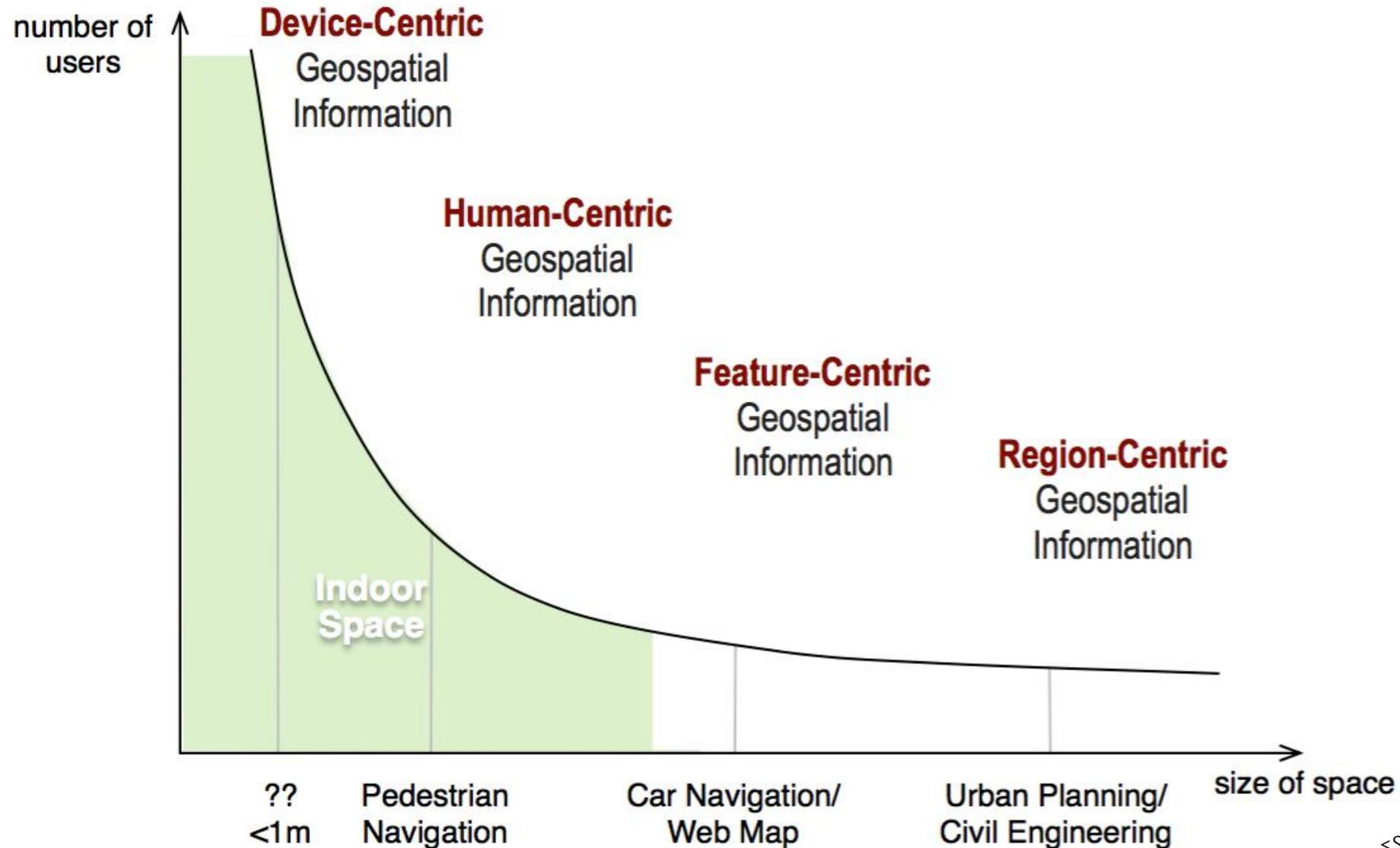


Source: 이기준, 2012, "공간정보관련 현안 이슈와 대응전략" 발표 자료를 재구성

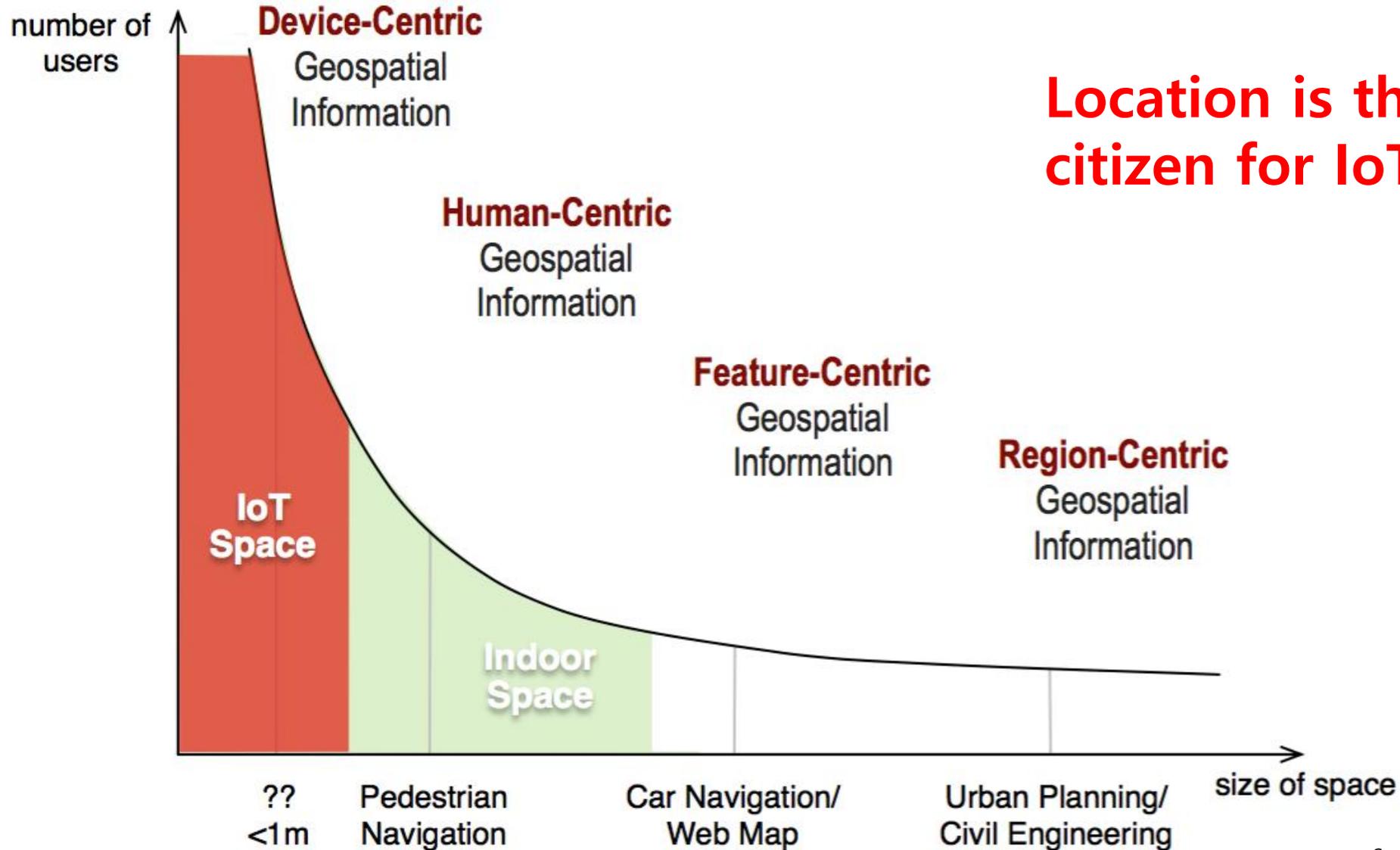
Location Technology Evolution



Location Technology Evolution

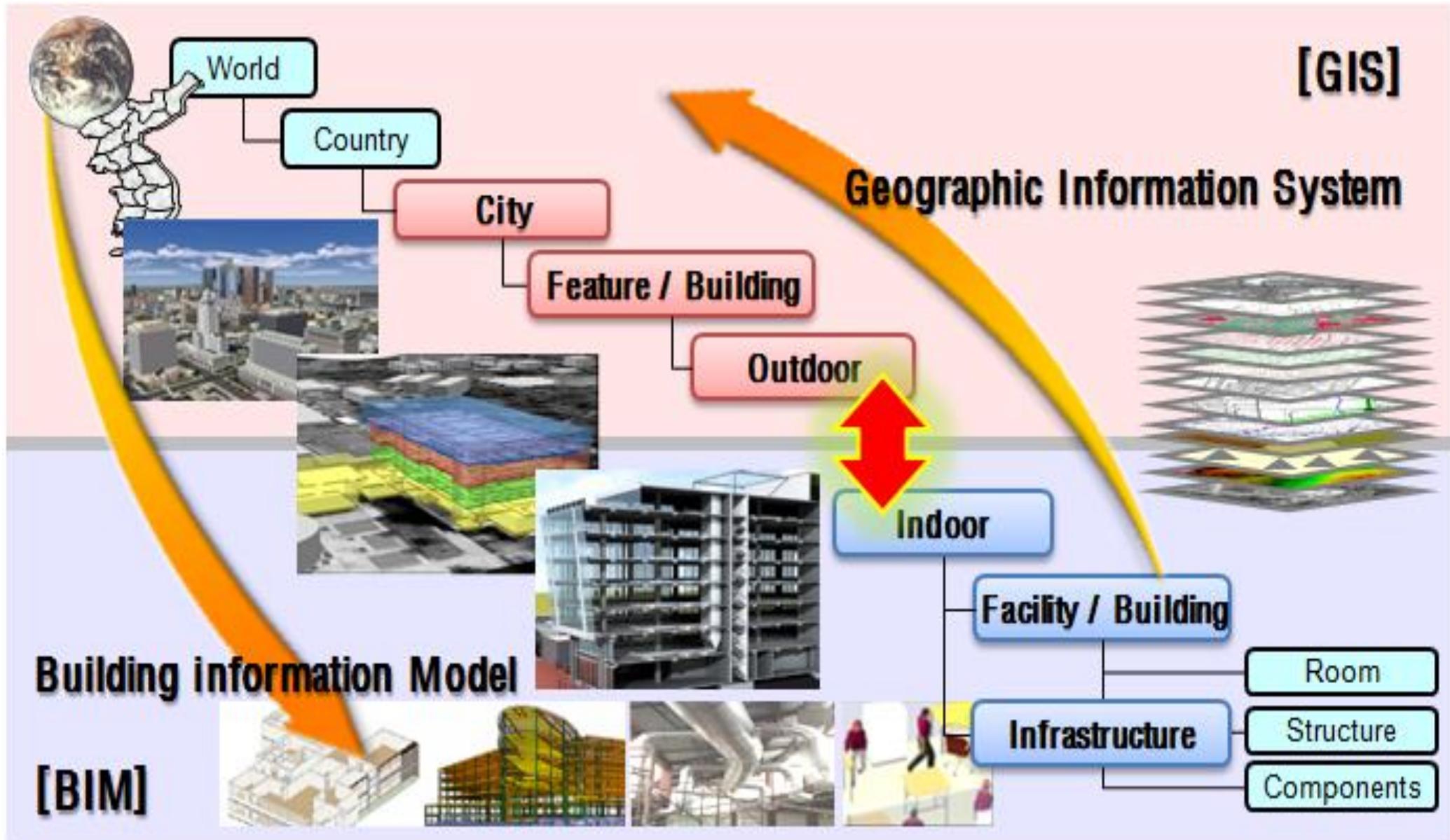


Location Technology Evolution

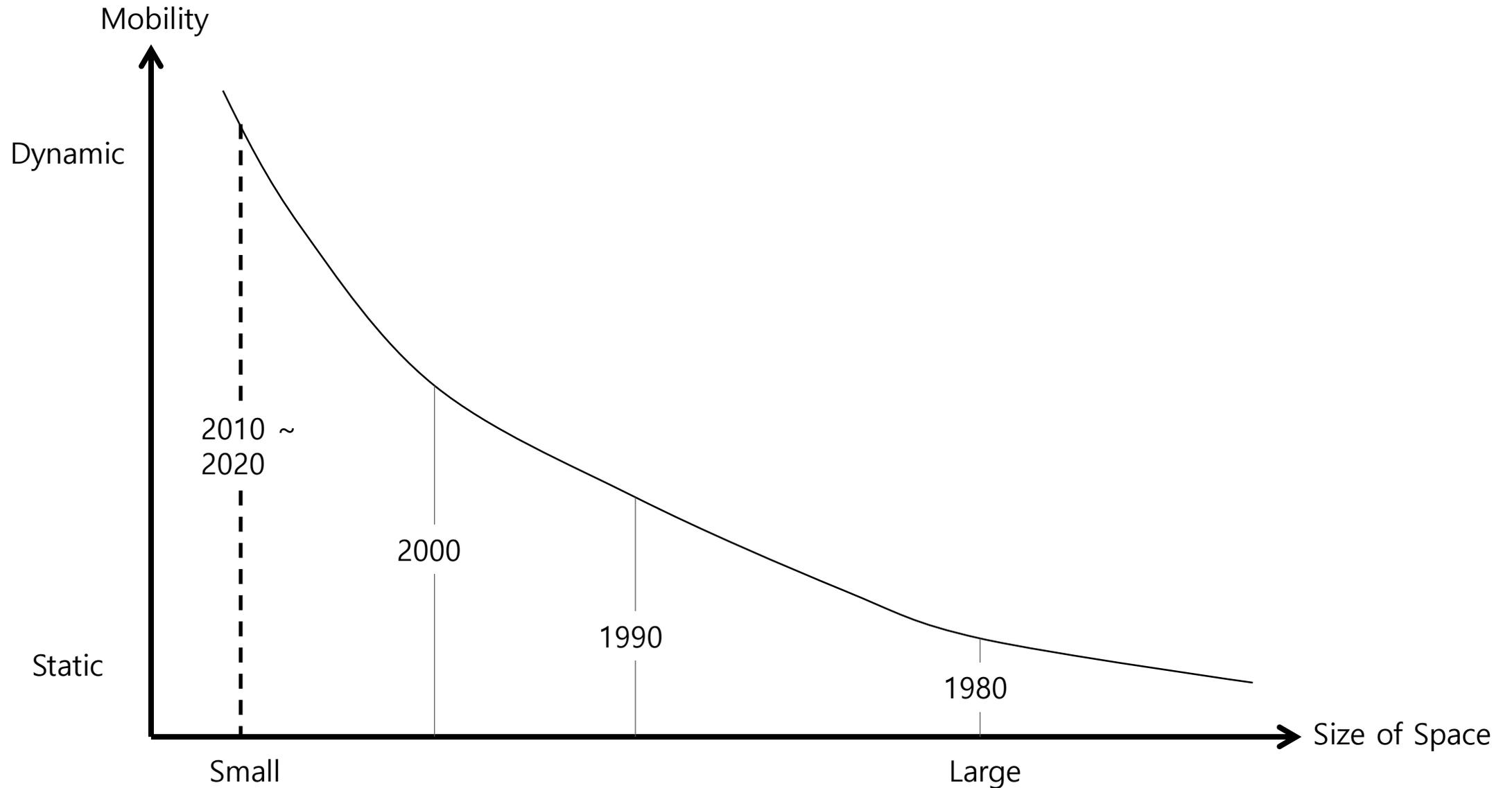


Location is the first class citizen for IoT!

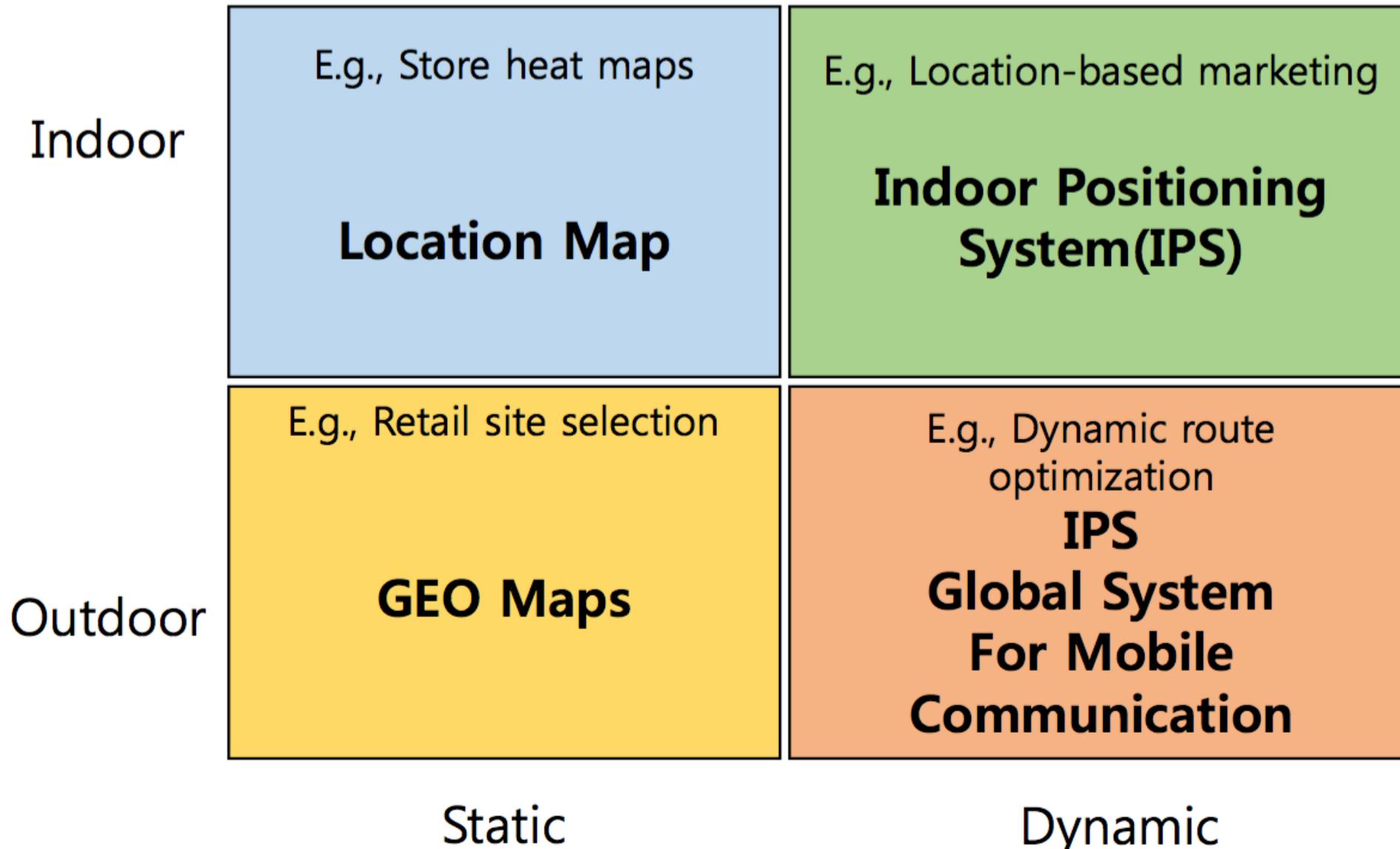
Location Technology Evolution



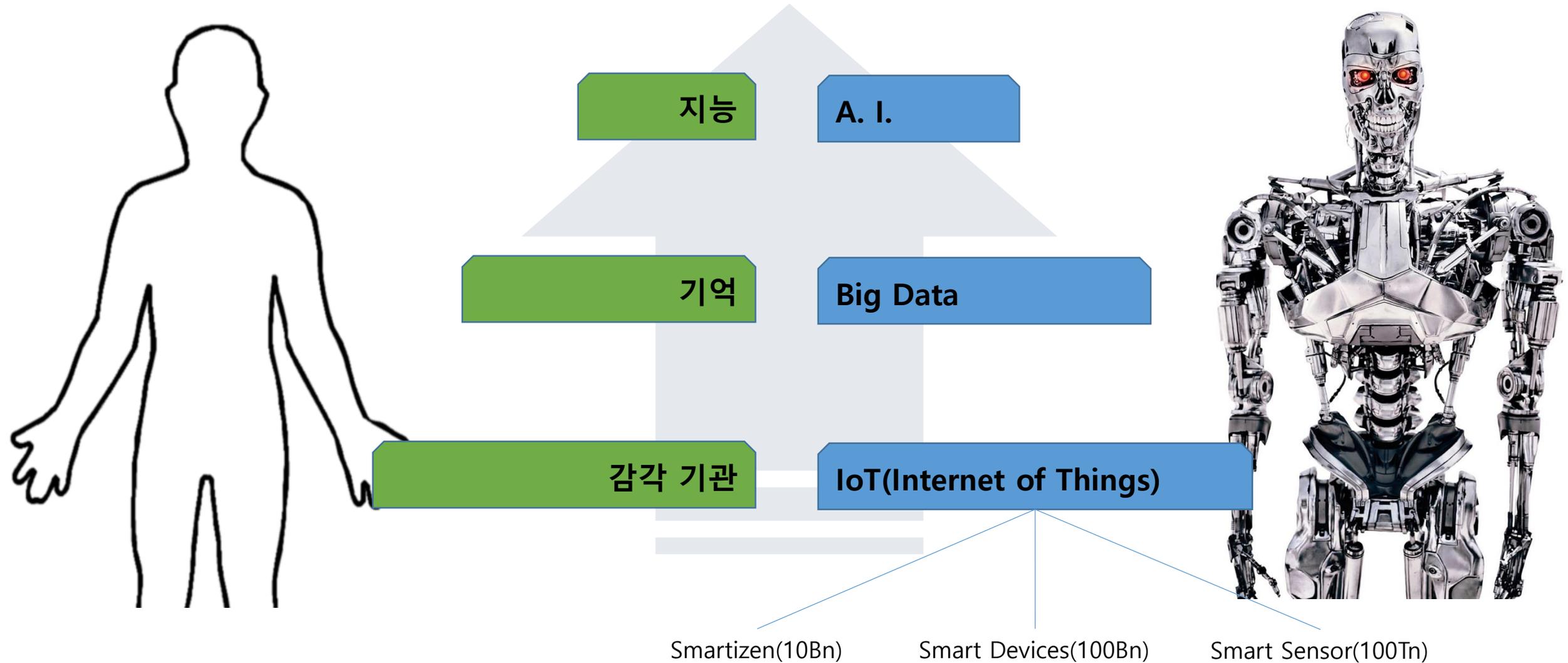
Location Technology Evolution



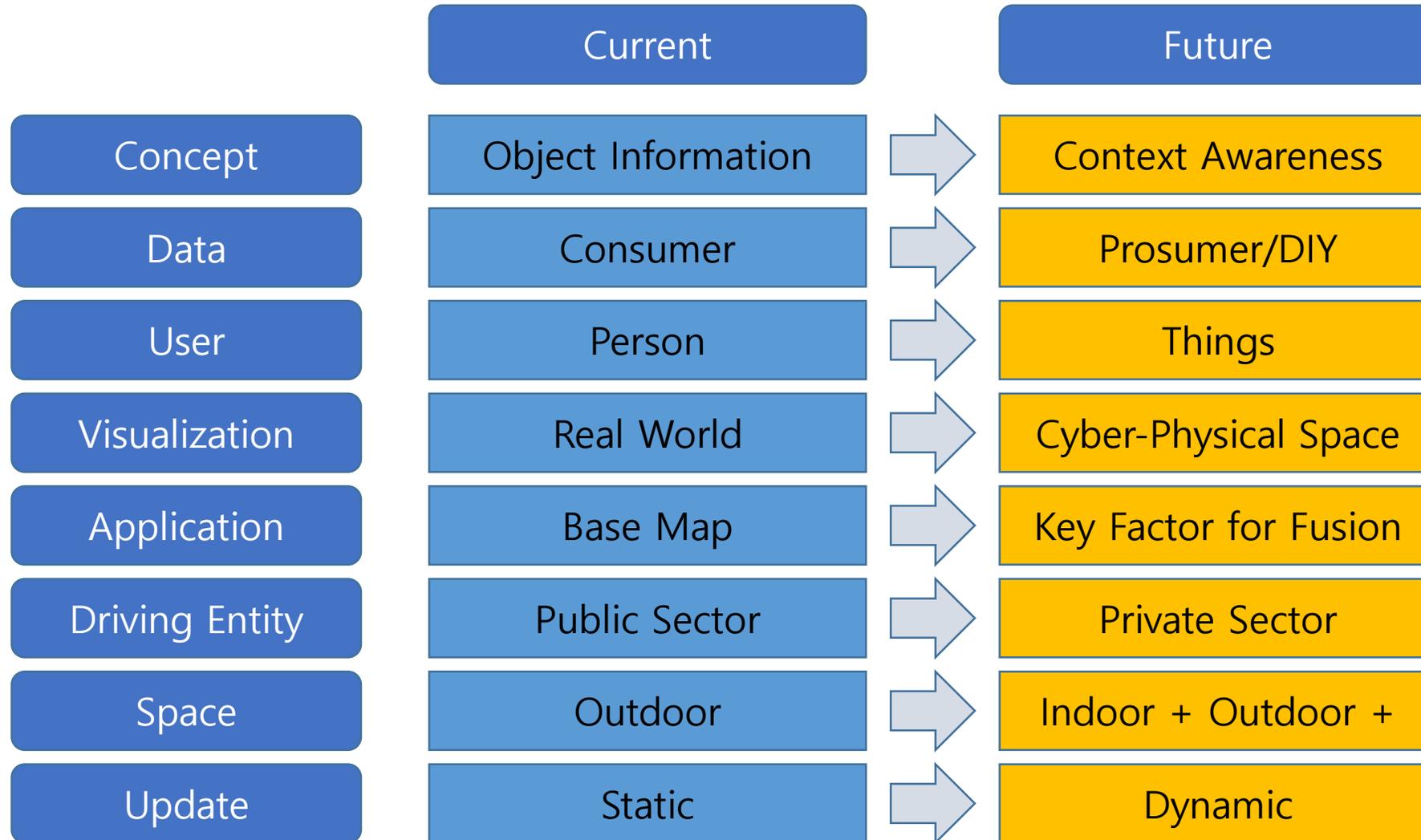
Location Technology Evolution



IoT, Big Data and A.I.



Paradigm Shift of Location Technology



Any Problems? Bottleneck!!



What MAGO3D is.



Goal.

A Platform.

- 1 Integration from space to desktop in a single platform
- 2 Management/Providing on various type of GIS data including indoor/outdoor and point cloud.
- 3 For 4D over 2D/3D merging
- 4 Processing/Visualization on real-time massive data such like weather, IOT, and etc



Identity?

Base Lineup   +  + 

 OpenGeo Suite  Base Lineup +  + packaging

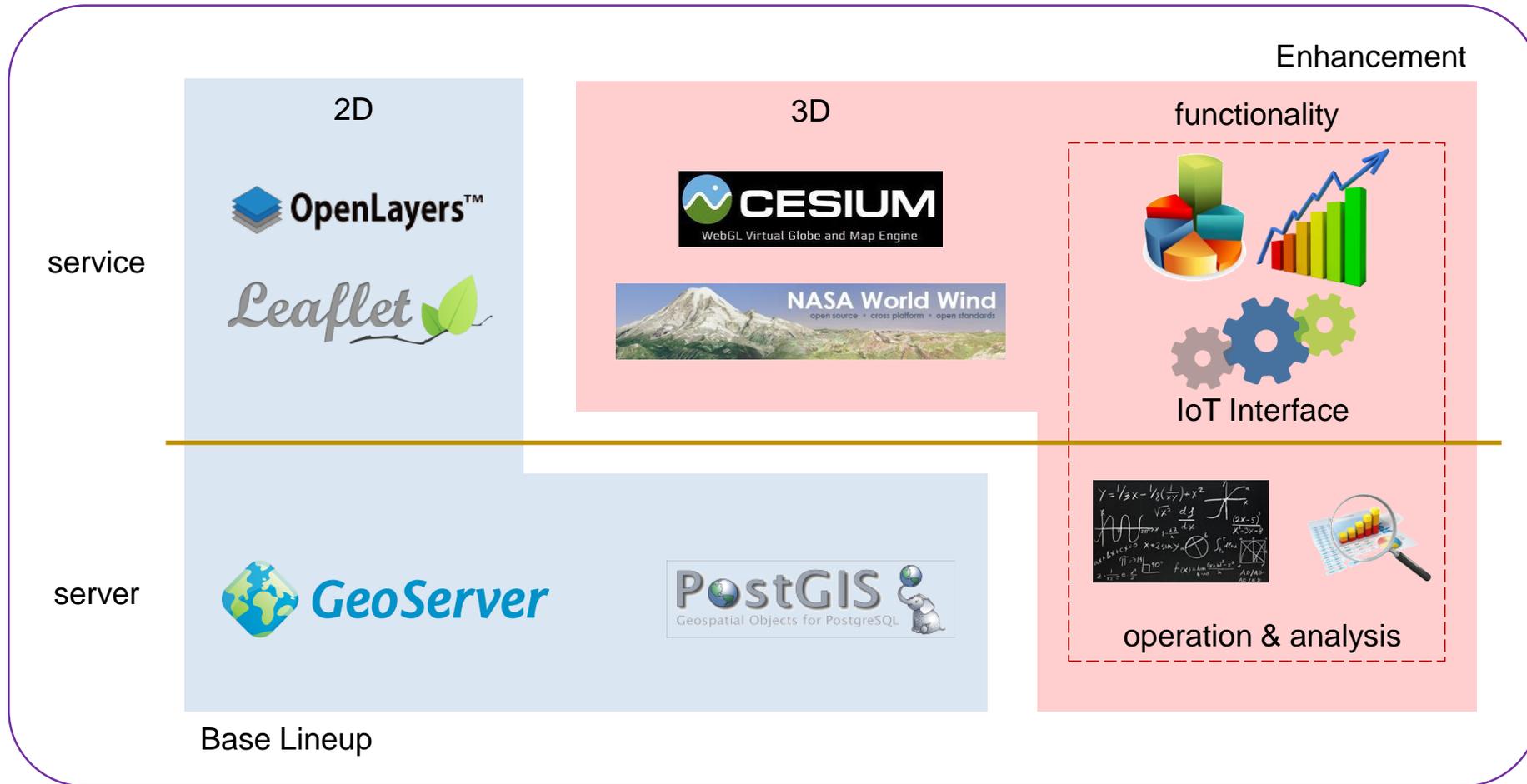
 GeoNode  Base Lineup + 

 GeoSHAPE   GeoNode +  GeoGig

MAGO₃D  ?

Purely open source based!

Identity.



To-Be.

MAGO₃D



Base Lineup



3D



Functionality

3D?



A plugin on any web 3D engines based on WebGL.

MAGO3D is

For web 3D geo-spatial application developments.

NOT an engine, **BUT** a plugin.

Plugin on Cesium(HTML5)



3D visualization with MAGO3D on Cesium

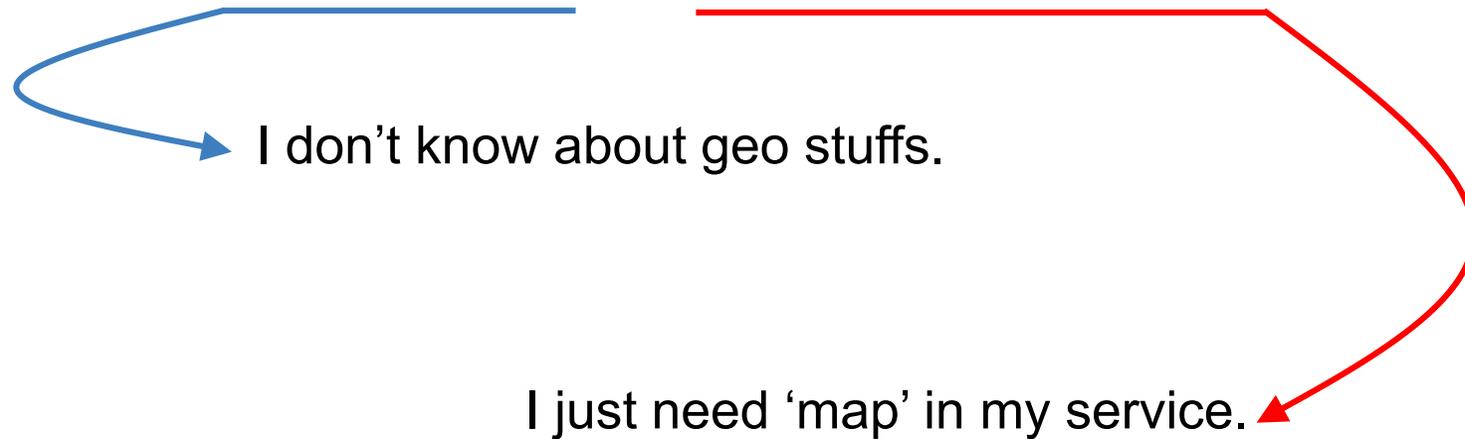
Plugin on Web World Wind(HTML5)



3D visualization with MAGO3D on WWW

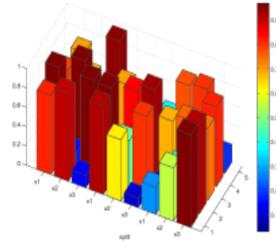
Functionality?

Geo - Spatial



A GIS platform should give more general-purpose functions to be used widely, even in non-GIS-specific fields.

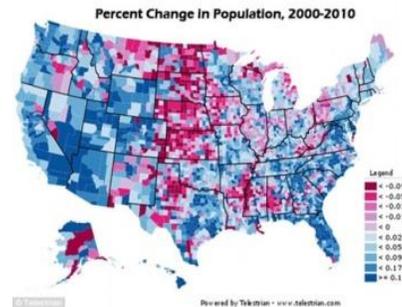
Functionality.



To offer functionalities
which is on or can be coupled with geo-spatial



To makes easy approach/handling
on function results
in 2D/3D environments.



What we are doing with MAGO3D.



Indoor Handling



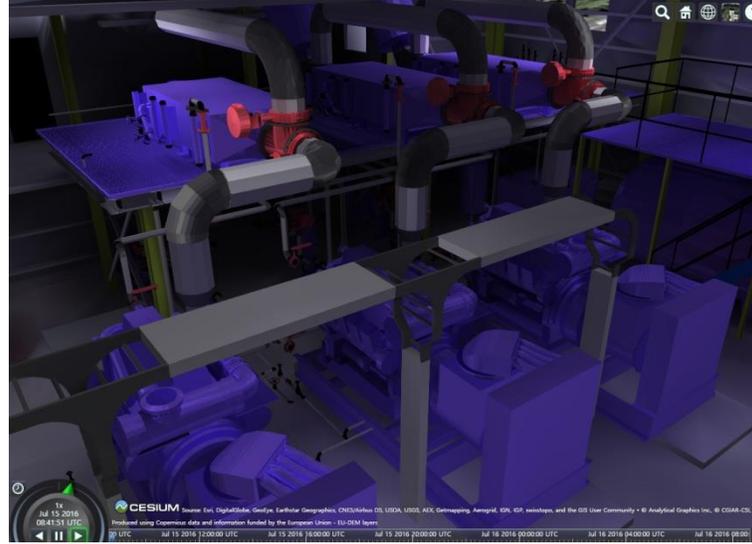
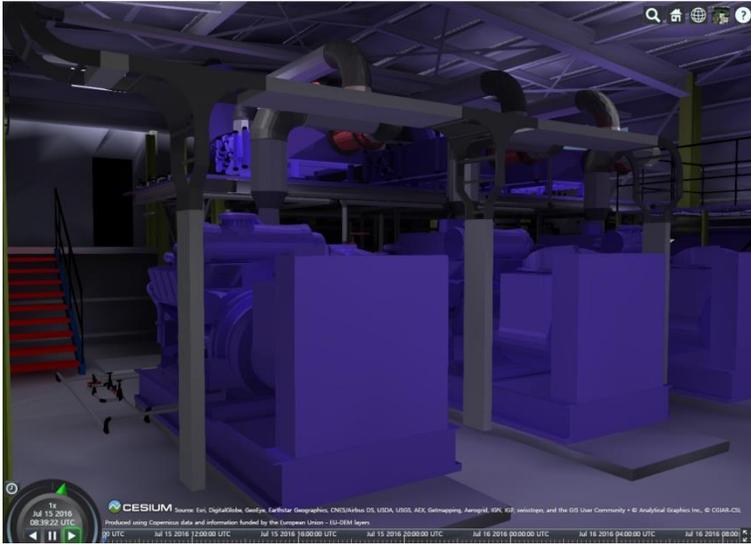
scene from indoor to outdoor through windows



vice versa

Seamless integration between indoor and outdoor.

Indoor Handling

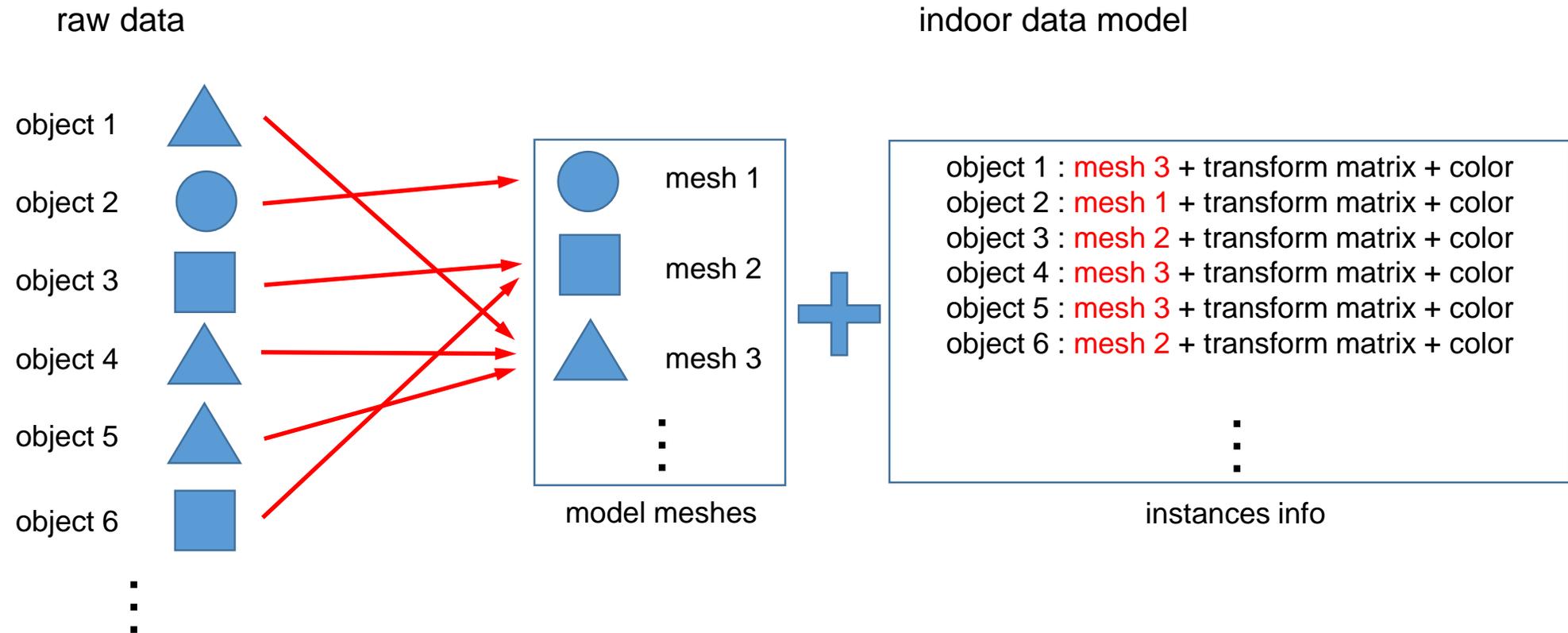


power plant and flow system in a camp in Antarctic

MAGO3D can handle massive indoor data

to the extent that at least 100k objects can be in a scene.

Indoor data model invented for indoor handling



LiveDroneMap

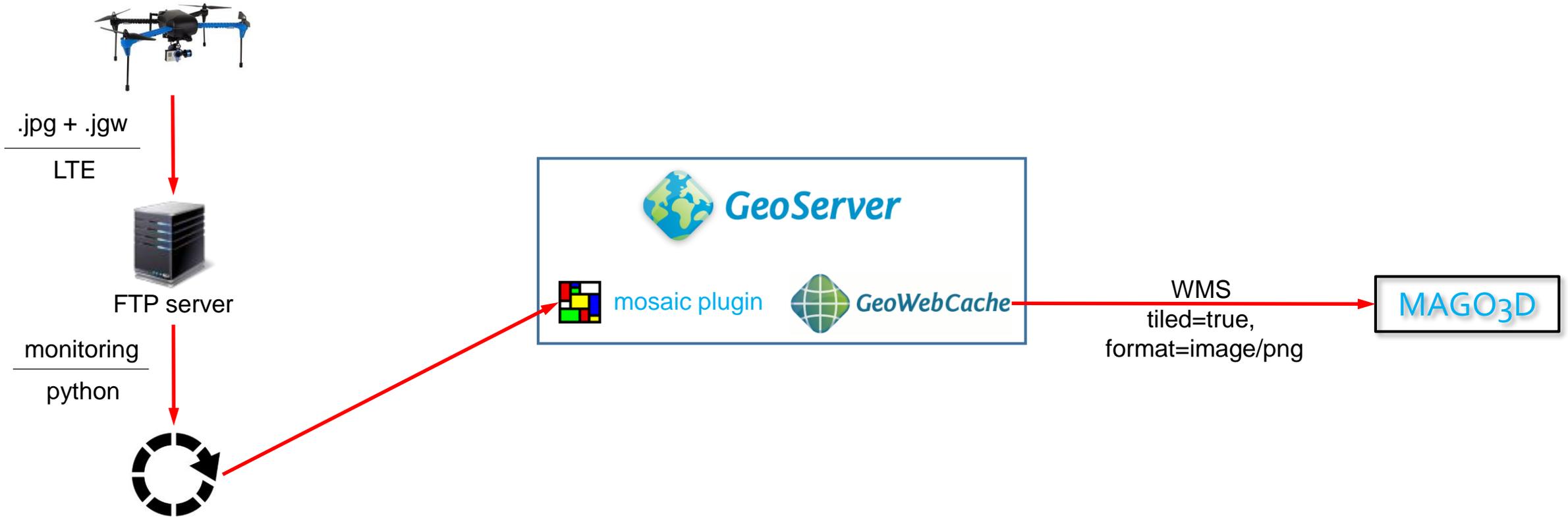
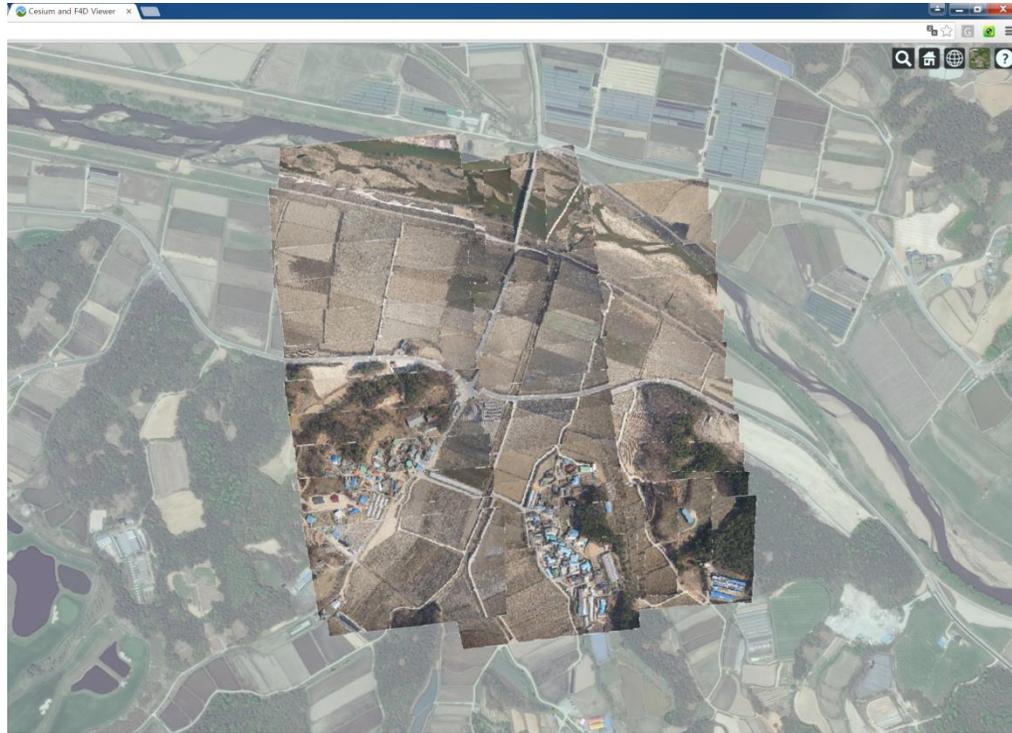


image process with gdal

- null value trimming
- format conversion (to GeoTiff)
- SRS conversion (to EPSG:4326)
- building tile pyramid

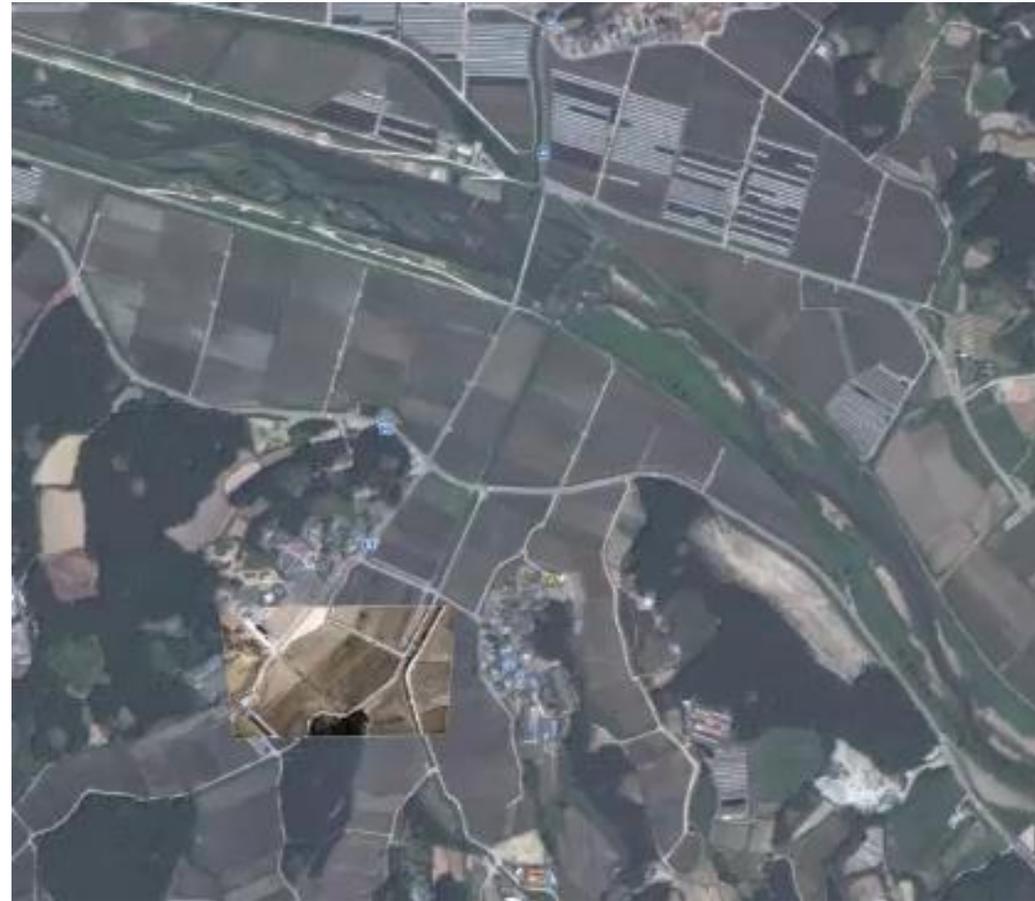
Time less than 5 min taken to process
from FTP receiving to MAGO3D visualization
with 41 drone-captured images.

LiveDroneMap



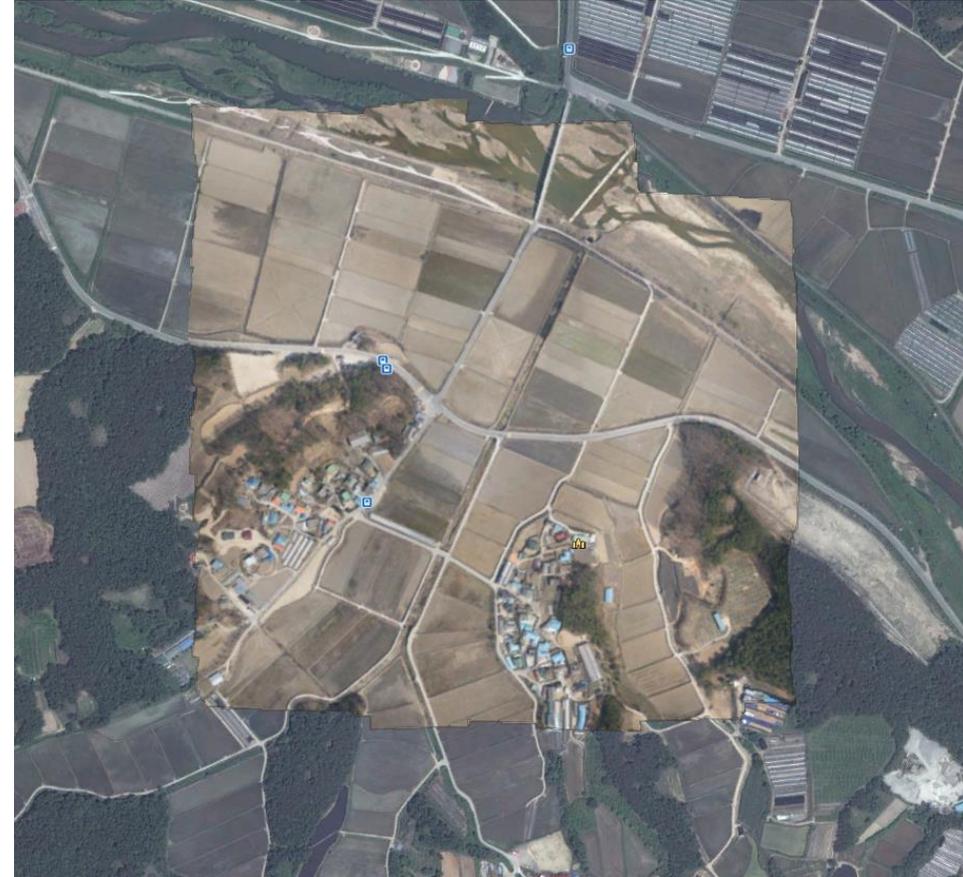
LiveDroneMap can be useful in various fields, specially in fields with priority for urgency such like emergency/disaster prevention or monitoring.

LiveDroneMap – Realtime Data Processing



<Source: 서울시립대학교 센서 및 모델링 연구실(2016)>

LiveDroneMap – Rapid Post Processing

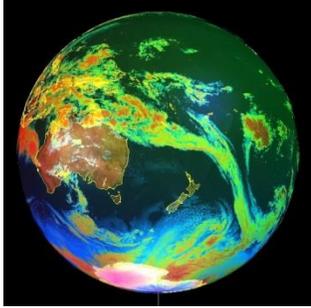


<Source: 서울시립대학교 센서 및 모델링 연구실(2016)>

What we will do with MAGO3D.



Data Type Scope Extension



meteorological/weather data



point cloud



real-time data
(IOT, sensor/observation data)



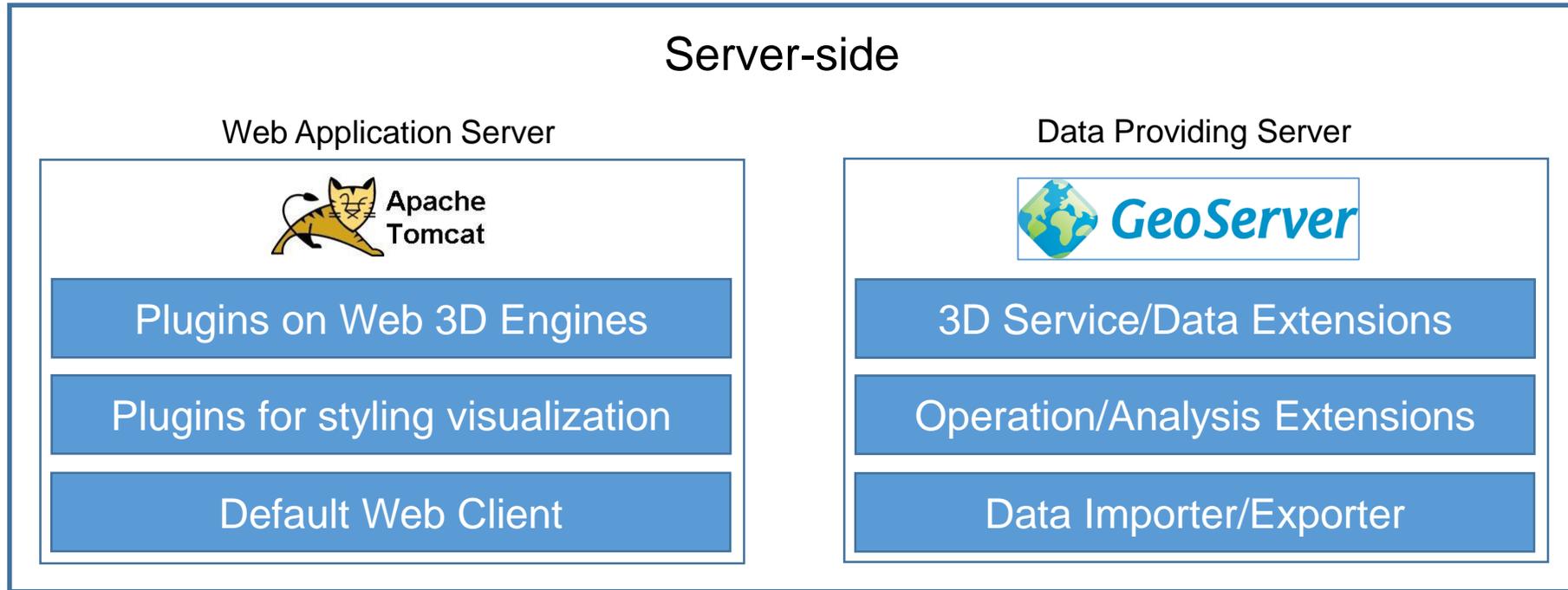
MAGO3D will be capable of handling more types of data.

Functionality Enhancement

type	items
analysis	density map, standard ellipse, cost expectation over cost surface data, whisker analysis, detection abnormality from IOT data, etc
operation	raster operation(filtering, smoothing...), coverage rebuild, etc
styling	volume rendering, 3D vector/streamline, cubing, etc

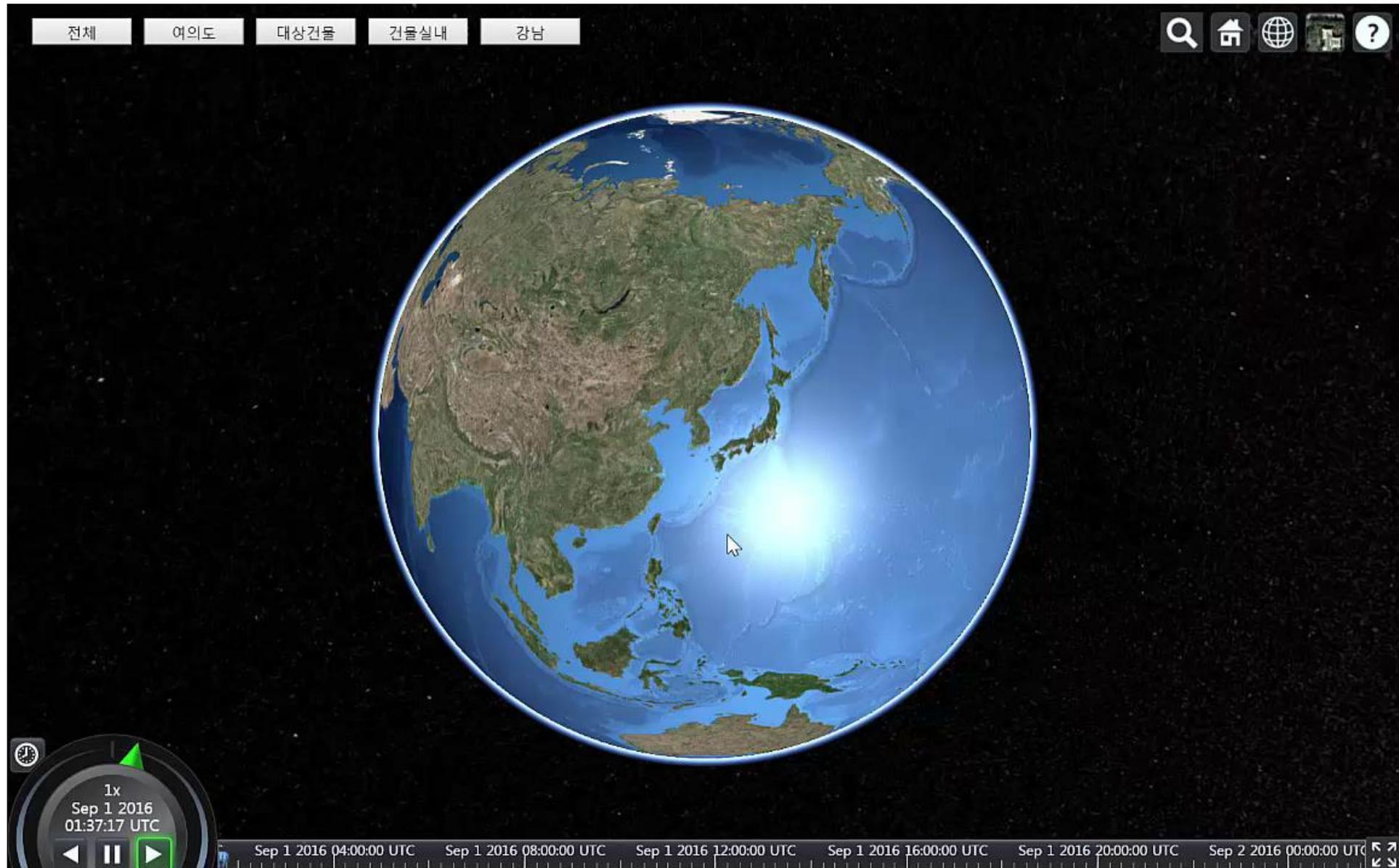
MAGO3D will have more functionalities
on operation, analysis, UI, and styling visualization.

Server-side Extension



Server structure will be implemented to make MAGO3D an enterprise-level platform.

Demonstration



All source codes are available at <https://github.com/gaia3d>

Thank you!