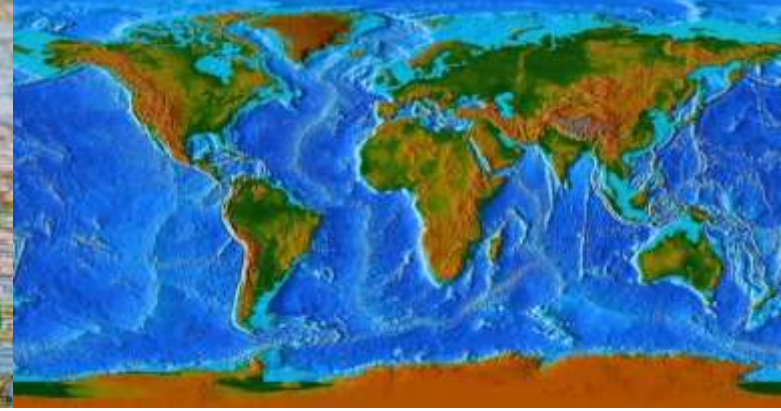



First International Workshop on Operationalizing the Integrated Geospatial Information Framework

9 – 11 September 2019, Celso Furtado Conference Room, ECLAC, Santiago, Chile

The Integrated Geospatial Information Framework
Bridging the Geospatial Digital Divide

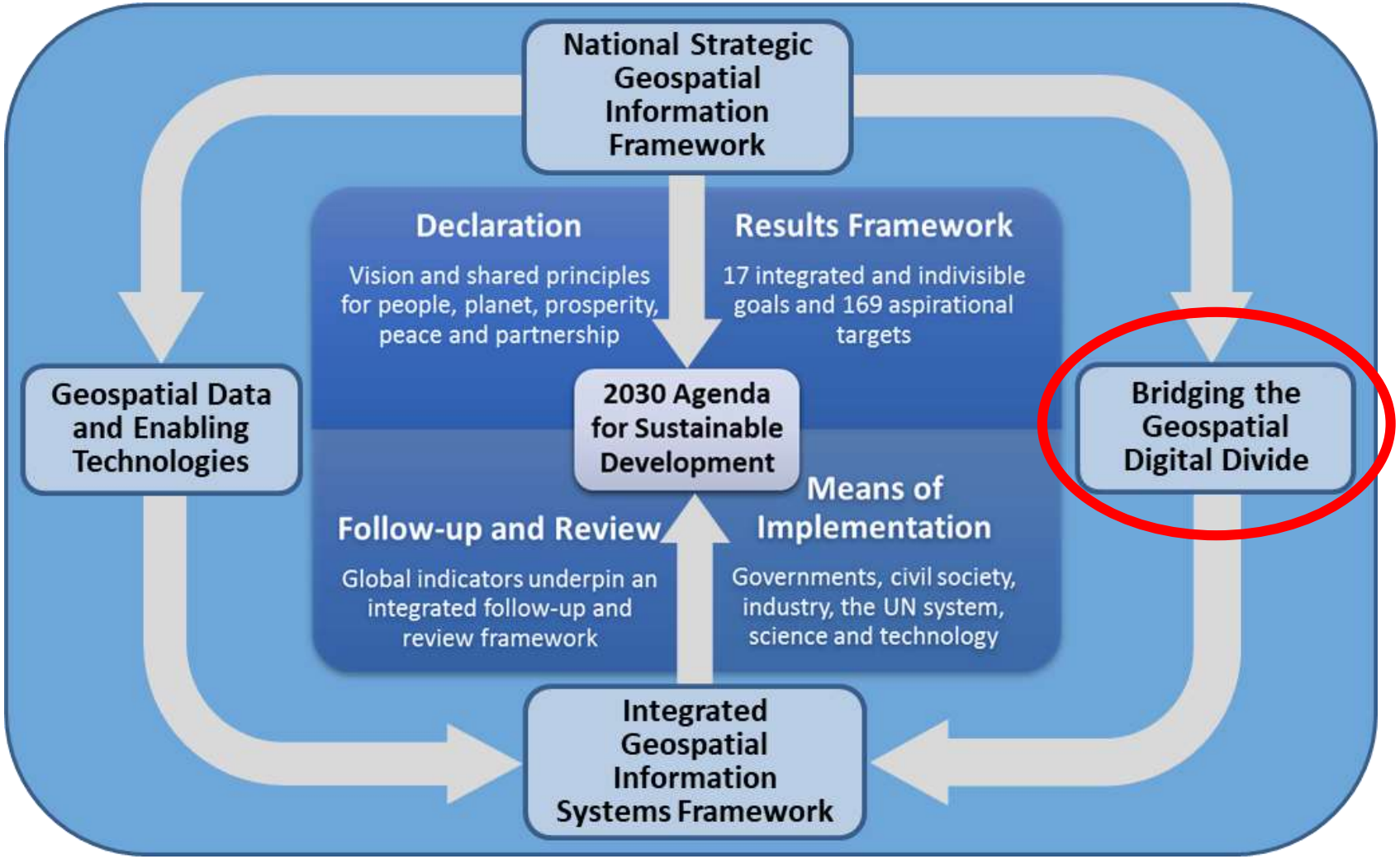
Greg Scott, UN-GGIM Secretariat

Environmental Statistics and Geospatial Information Branch

United Nations Statistics Division

Department of Economic and Social Affairs

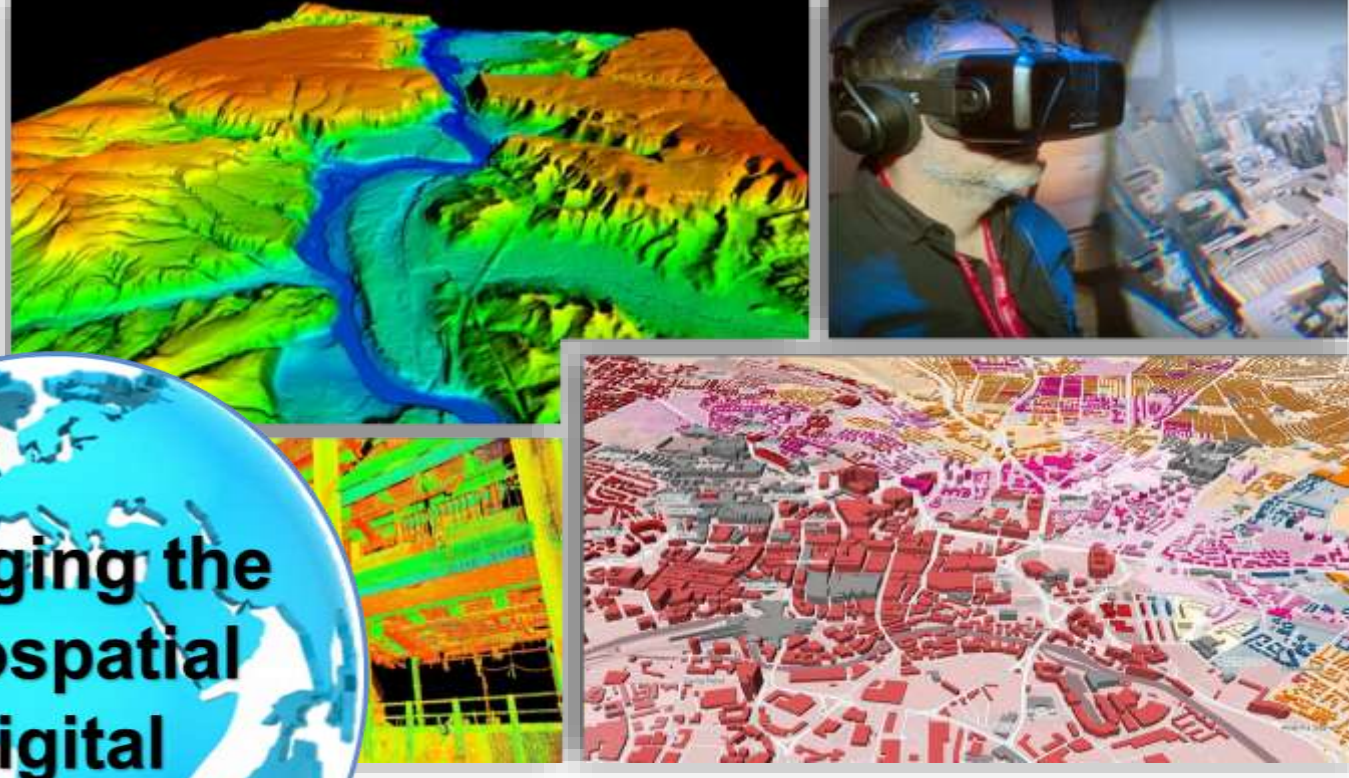
United Nations, New York



Framed by the 2030 Agenda for Sustainable Development, this figure presents the major components that will assist our efforts in charting a geospatial roadmap towards nationally integrated geospatial information management for evidence-based policies and decisions for the wellbeing of people and planet.

“Within the past generation, hundreds of millions of people have emerged from extreme poverty, and access to education has greatly increased for both boys and girls. Further, the spread of information and communications technology and global inter-connectedness has great potential to accelerate human progress, to bridge the digital divide, to develop knowledge societies, and scientific a technological innovation”

2030 Agenda for Sustainable Development,

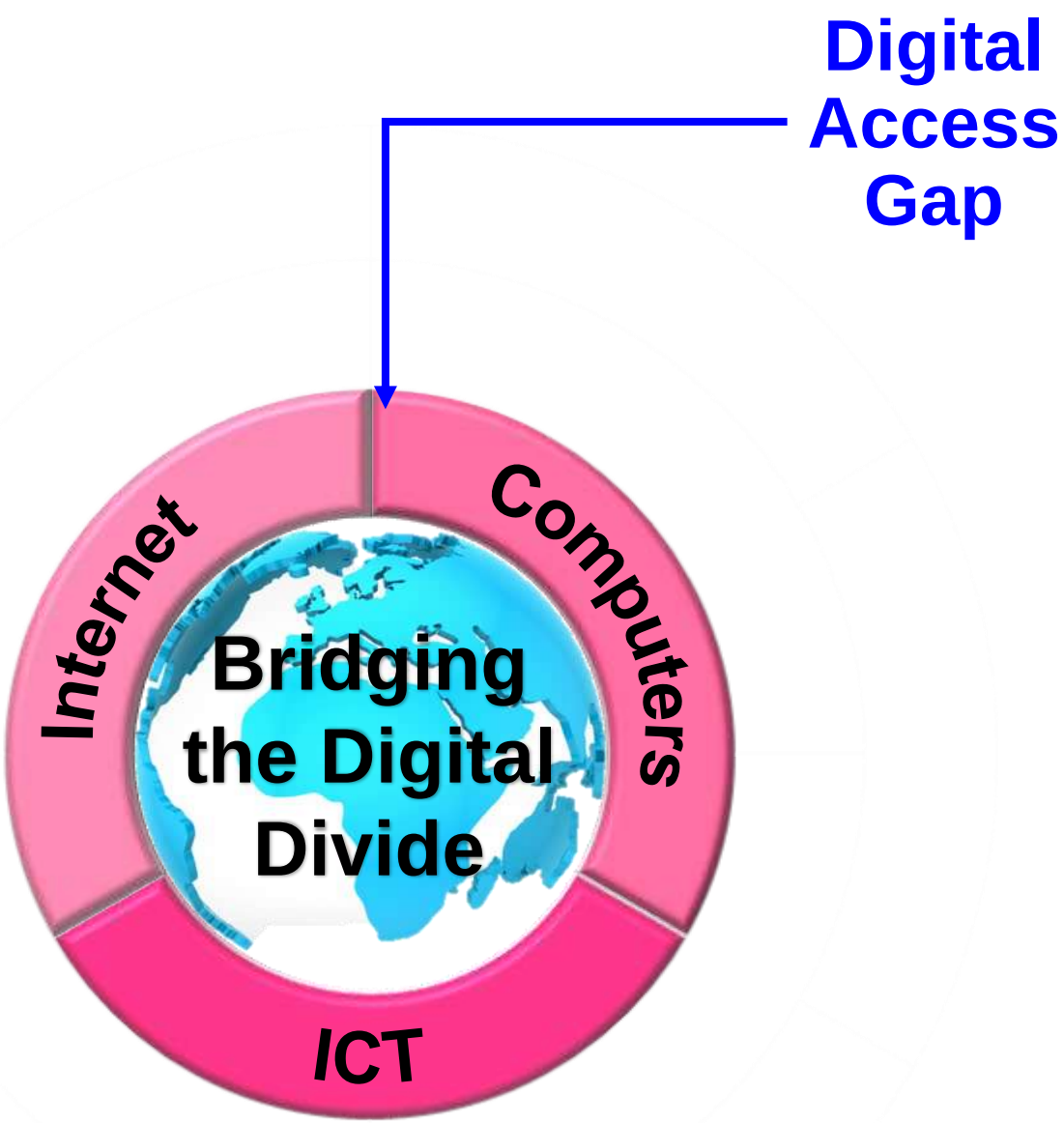


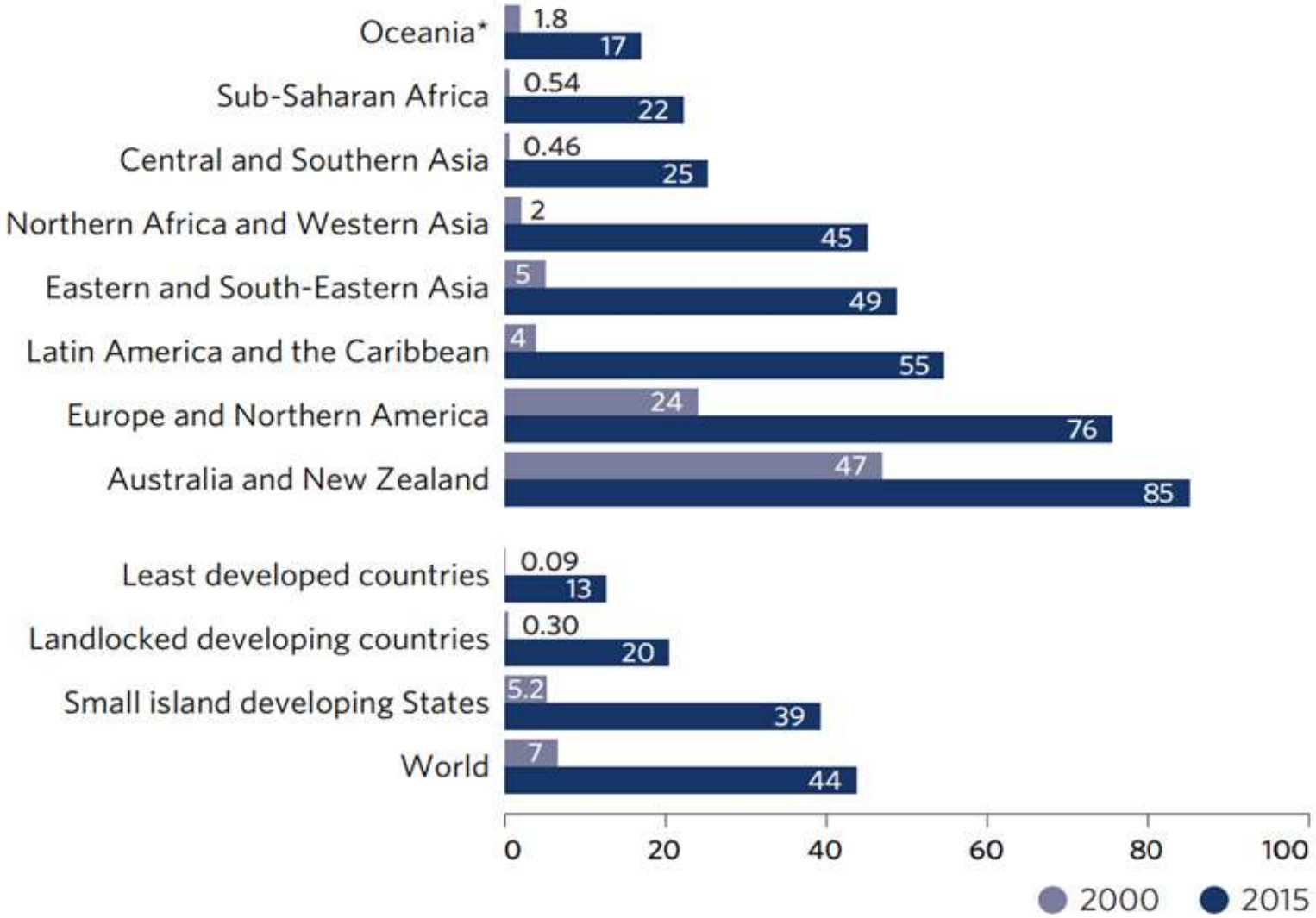
ng and exploiting the new data needs, nation systems, analytics and associated nabling technologies and tools to support the implementation of the SDGs is going to take strategic policy leadership and transformational change - a digital transformation that is able to bridge the ‘geospatial digital divide’ which continues to inhibit development progress for all developing countries.

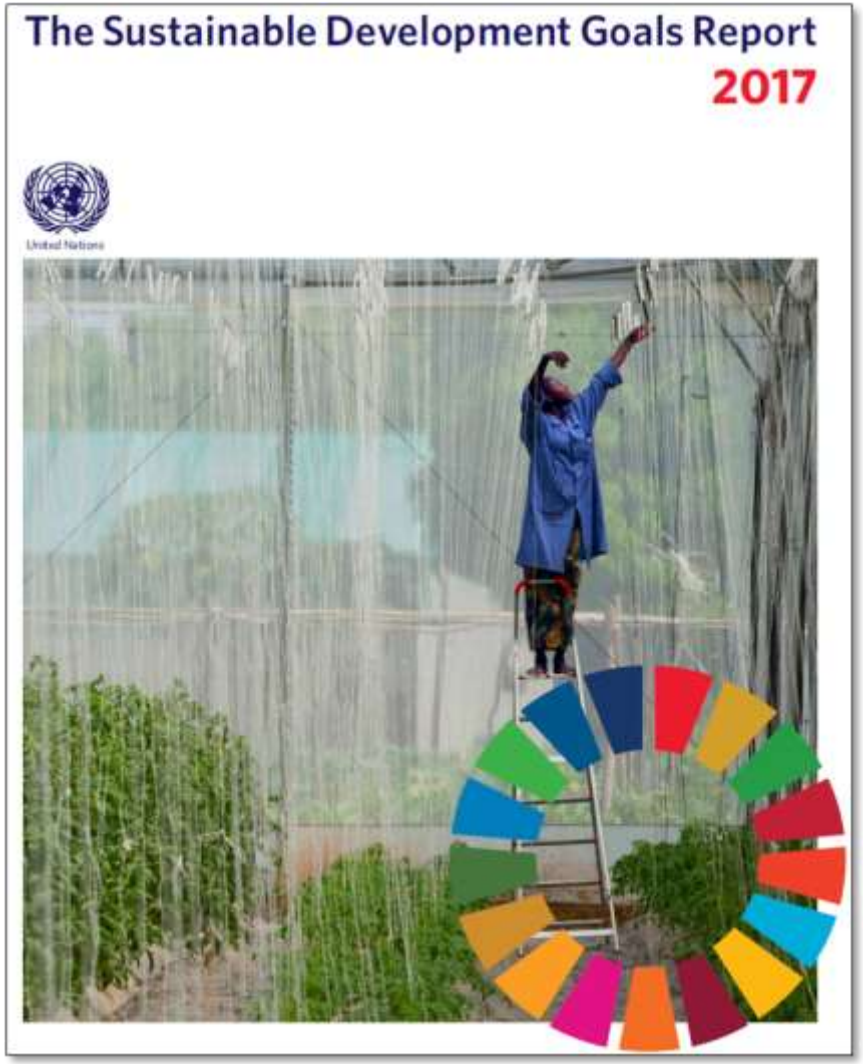
Greg Scott, November 2016

The Problem

- Despite an abundance of data and associated technologies now readily available globally, for many developing countries, having access to reliable and consistent mapping data and analytics still remains completely out of reach.
- In the new era of ‘digital transformation’ there remains a vast divide between developed and developing countries, where the ‘haves’ and ‘have-nots’ of complete and detailed national mapping is real – and where many nations are being denied opportunity to contribute to the global digital economy, and are being left behind.
- Constrained by political will, knowledge and understanding of mapping and NSDIs – many developing countries are yet to attain effective and sustained access to digital technology, the Internet and the corresponding computer literacy that is needed to contribute to the information society.
- They are yet to bridge the ‘digital divide’ before contemplating increased awareness and understanding of geospatial information and mapping.
- To exploit the emerging science, data, analytics, mapping, enabling tools and technologies, particularly through web services, developing countries must now extend well beyond the digital divide; to bridging the ‘geospatial digital divide’.


Digital Access Gap
Internet
Computers
ICT
Bridging the Digital Divide





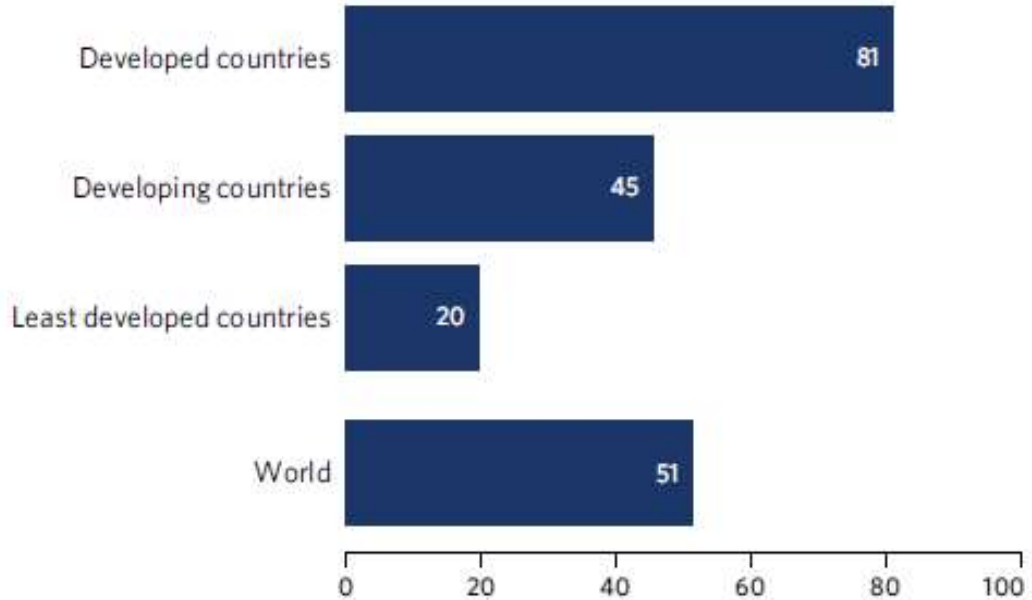
In 2016 fixed-broadband penetration reached 30% in developed countries, but only 8.2% and 0.8% in developing regions and least developed countries (LDCs), respectively. In the developed regions, about 80% of the population are online, compared to 40% in developing regions and 15% in LDCs. **Although Internet use in LDCs has tripled over the last five years, the percentage of users today only reaches the level enjoyed by developed countries in 1998.**

More than half the world's population is online; attention must now be directed to the other half

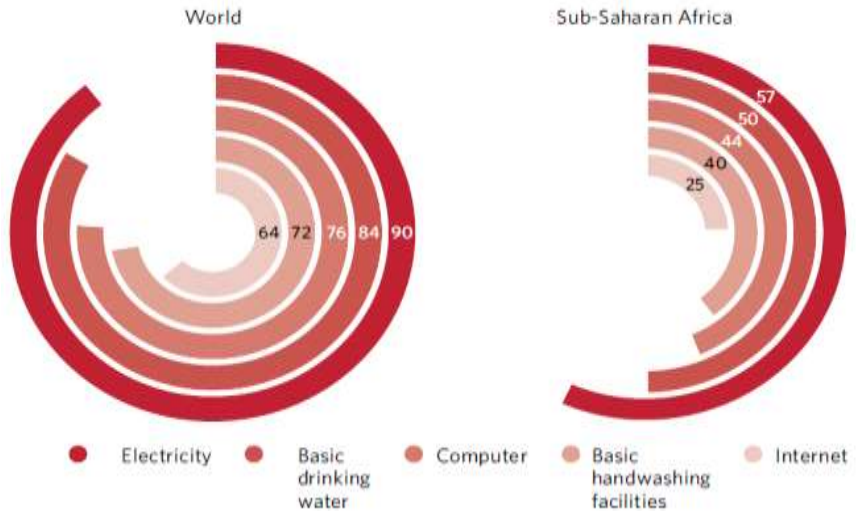
The Internet can be a gateway to development, and a means of implementation for many of the SDGs. At the end of 2018, more than half the world's population (3.9 billion people) used the Internet—an important step towards a more inclusive global information society. Over 80 per cent of people in developed countries were online in 2018 compared to 45 per cent in developing countries, and only 20 per cent in LDCs.

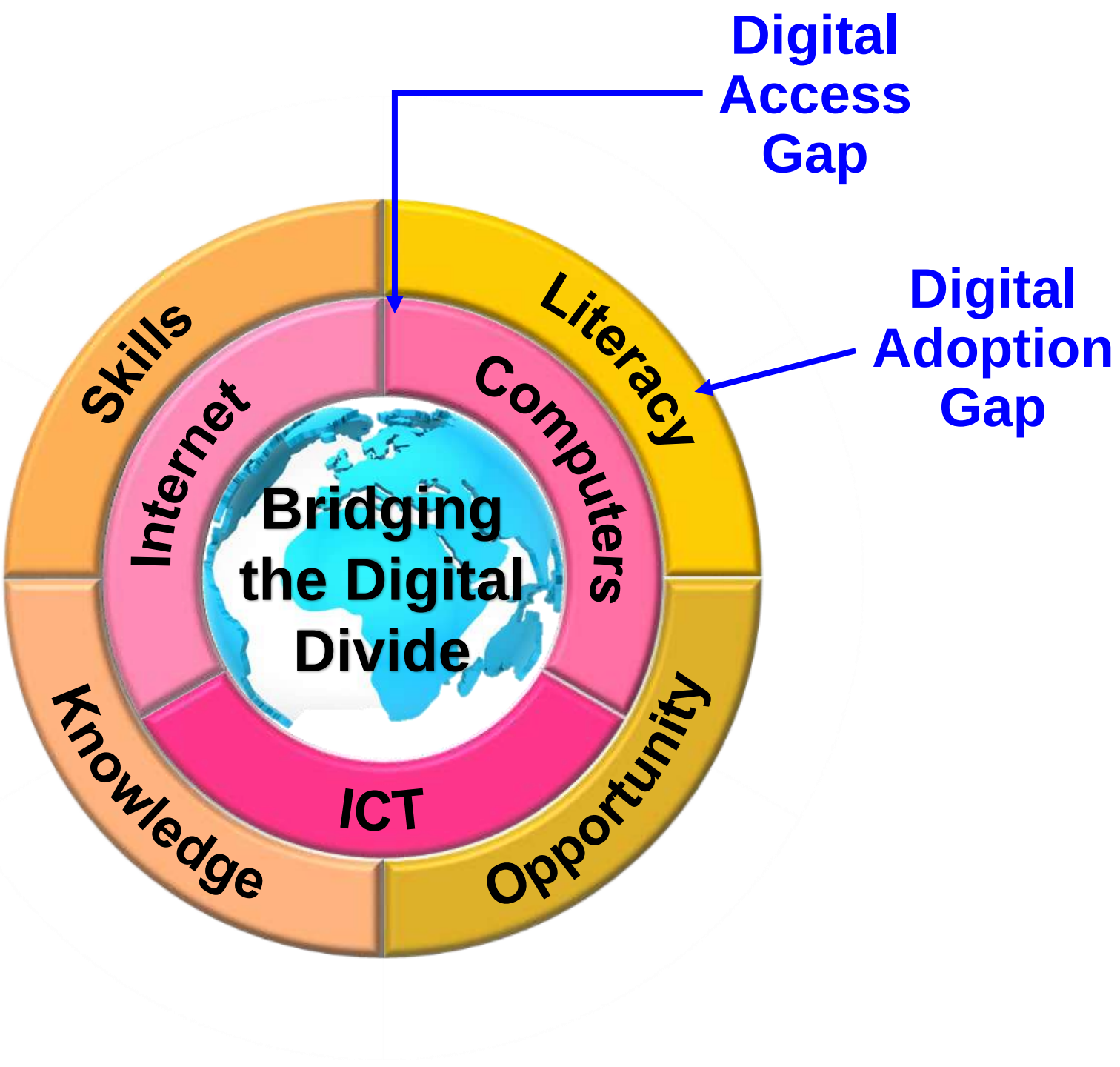
Access to broadband networks is believed to have a significant impact on global economic output. An increase of 1 per cent in fixed broadband penetration—the number of subscriptions per 100 inhabitants—is associated with a rise of 0.08 per cent in global GDP, on average. The impact is higher in developed countries than in developing countries. Globally, growth in fixed broadband subscriptions has been sustained, with the penetration rate rising from 3.4 per 100 inhabitants in 2005 to 14.1 in 2018.

Proportion of population using the Internet, by country groupings and globally, 2018 (percentage)



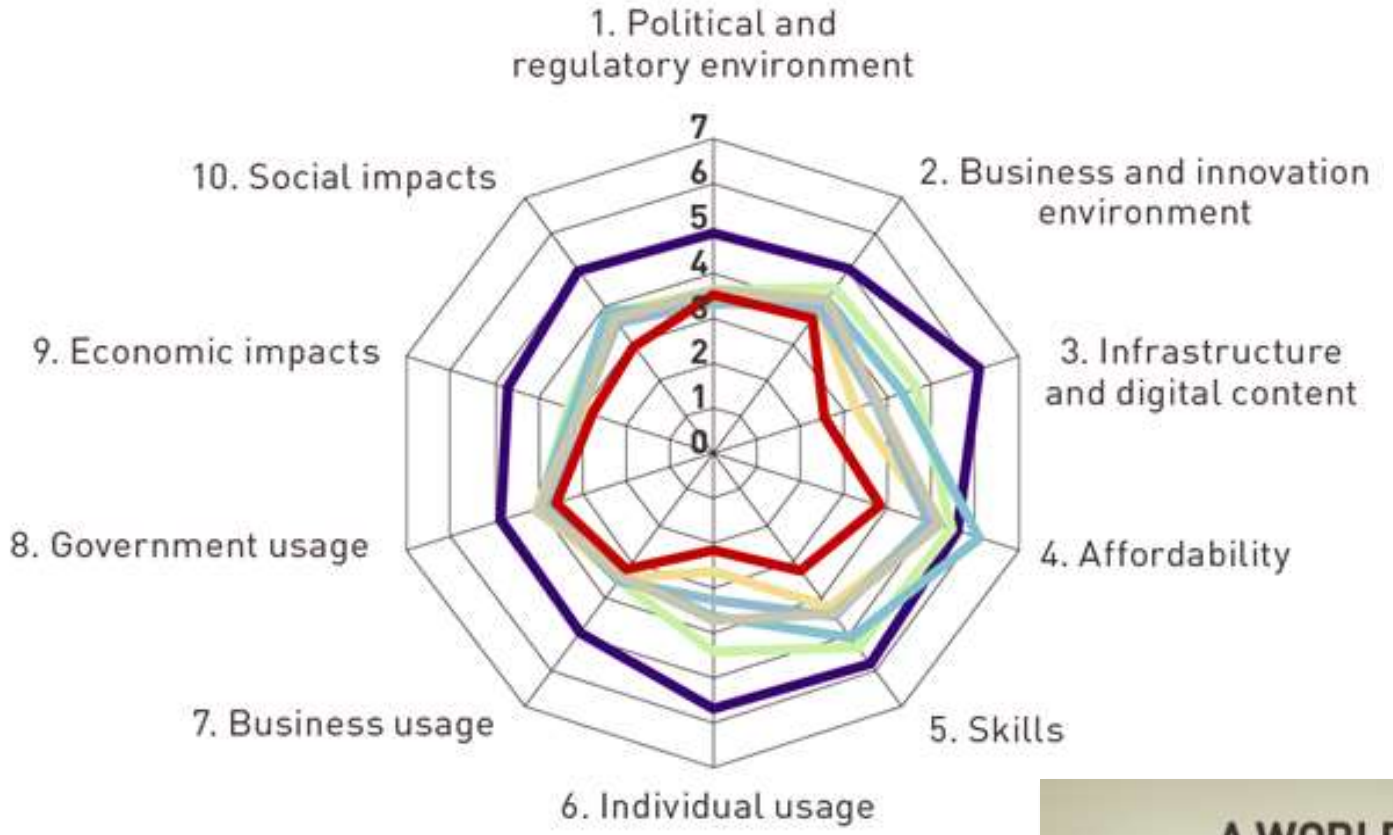
Proportion of schools with access to basic school resources globally and in sub-Saharan Africa, upper secondary, 2017 (percentage)




Digital Access Gap
Digital Adoption Gap
Skills
Literacy
Internet
Computers
Bridging the Digital Divide
ICT
Knowledge
Opportunity

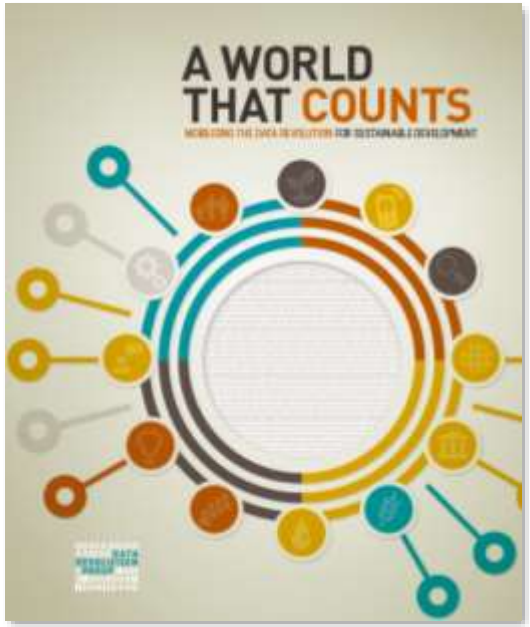
INEQUALITIES IN ACCESS TO AND USE OF ICT SERVICES*

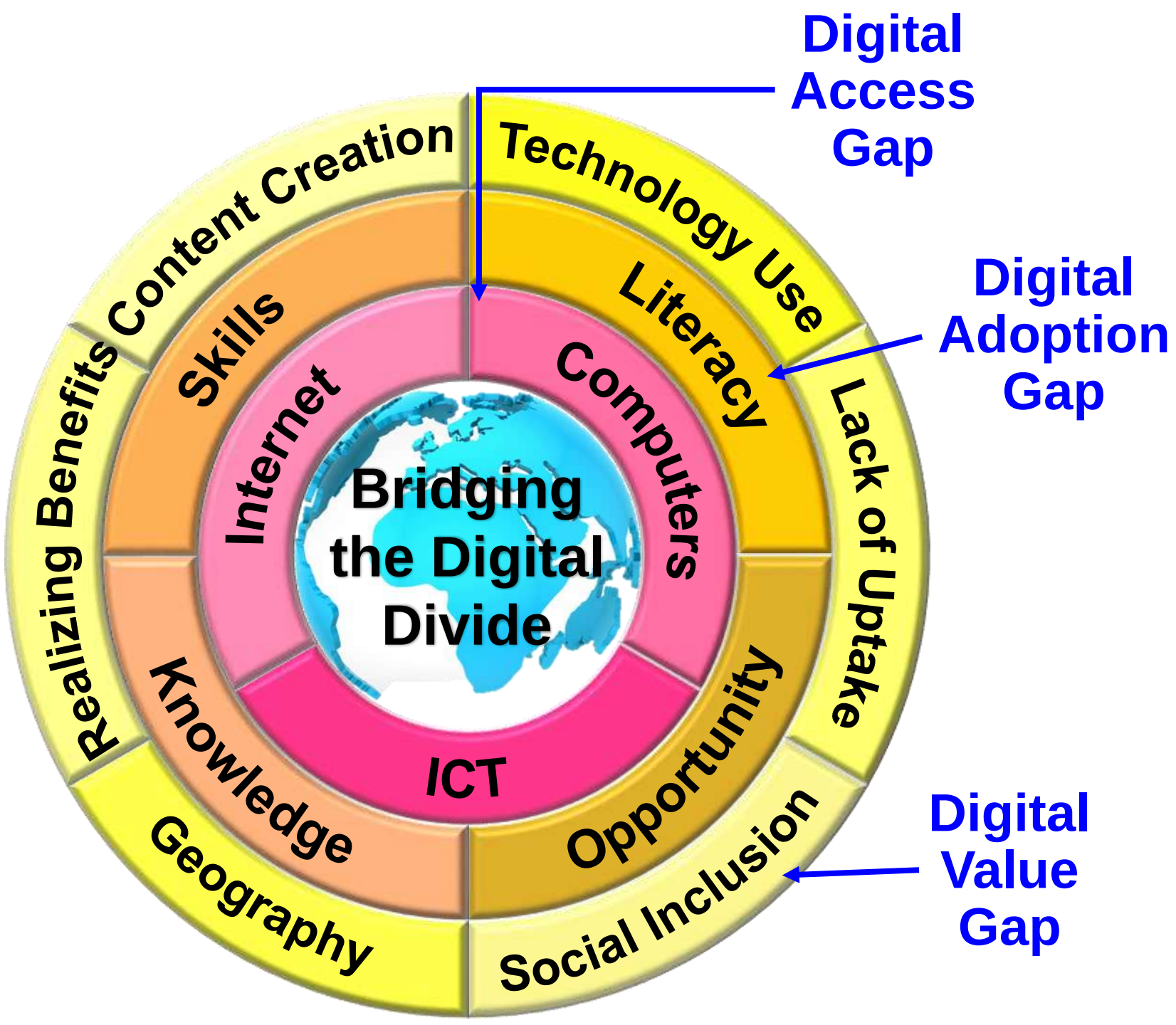
- Advanced economies
- Southern, Central and Eastern European Countries
- Commonwealth of Independent States and Mongolia
- Developing Asia
- Latin America and the Caribbean
- Middle East and North Africa
- Sub-Saharan Africa



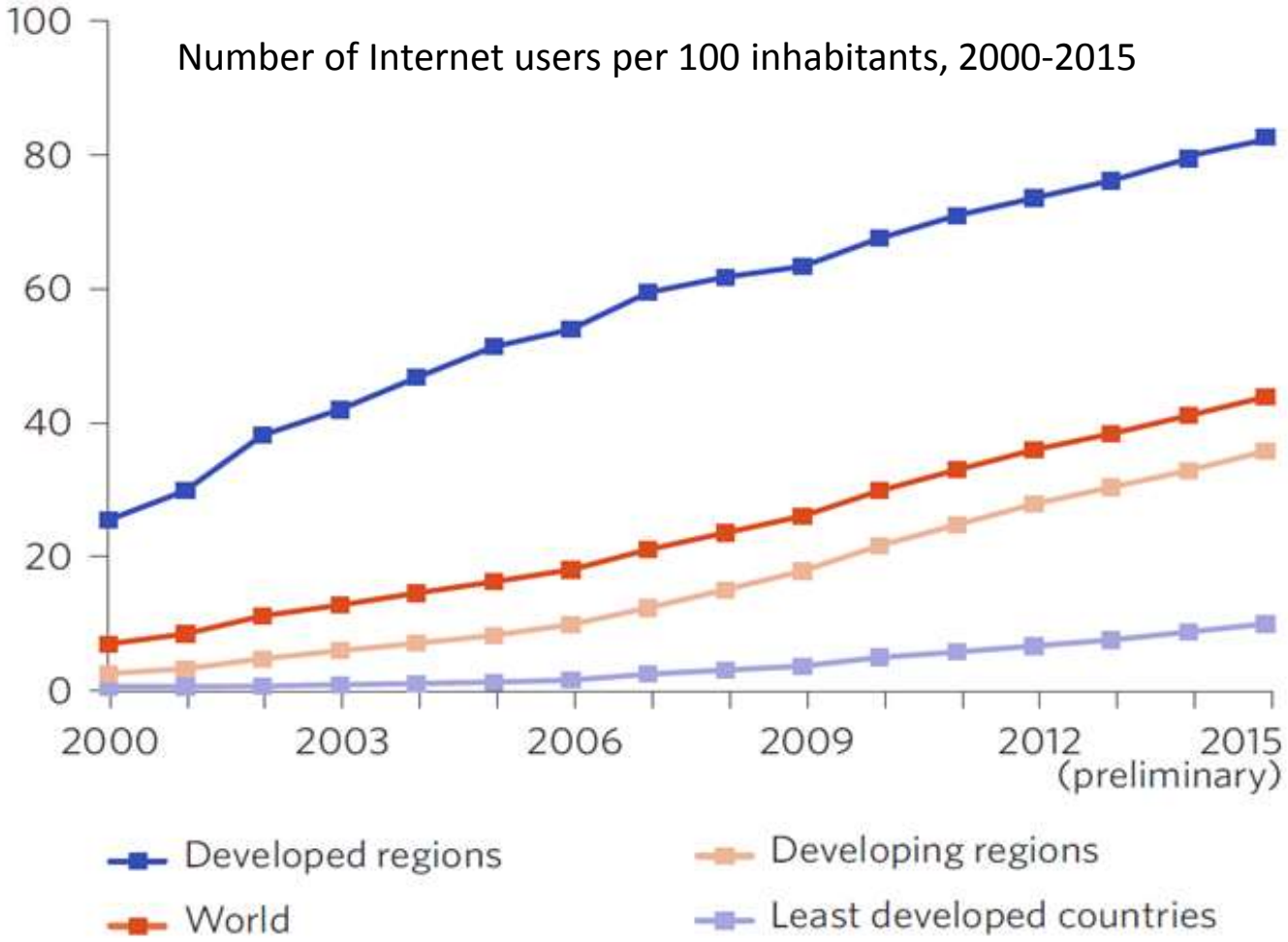
** Regional score averages based on the Global Information Technology Report 2013, by the World Economic Forum*

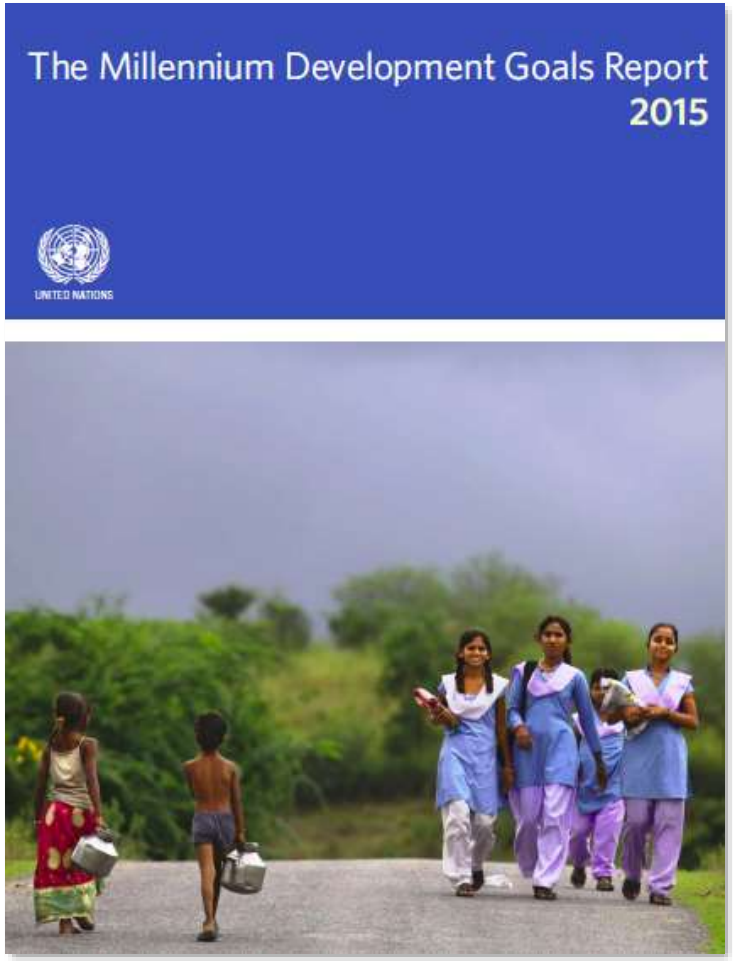
Major gaps are already opening up between the data haves and have-nots, between developed and developing countries, between information-rich and information-poor people. Without action, a whole new inequality frontier will open up, splitting the world between those who know, and those who do not. Many people are excluded from the new world of data and information by language, poverty, lack of education, lack of technology infrastructure, remoteness or prejudice and discrimination.



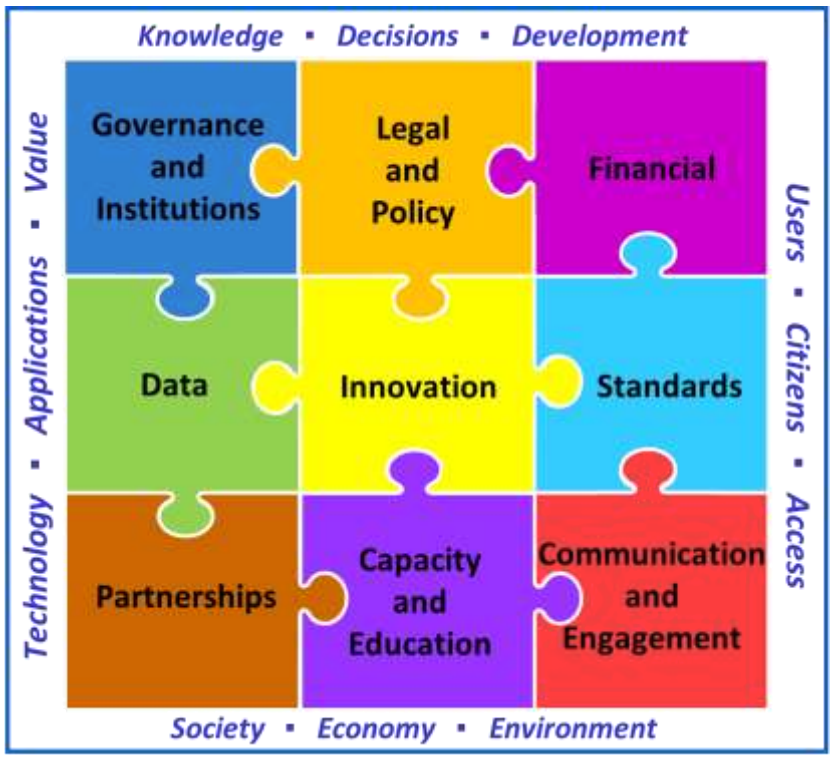

Digital Access Gap
Digital Adoption Gap
Digital Value Gap
Bridging the Digital Divide
Internet
Computers
ICT
Skills
Literacy
Knowledge
Opportunity
Content Creation
Technology Use
Realizing Benefits
Lack of Uptake
Geography
Social Inclusion

The digital divide between the rich and the poor is growing

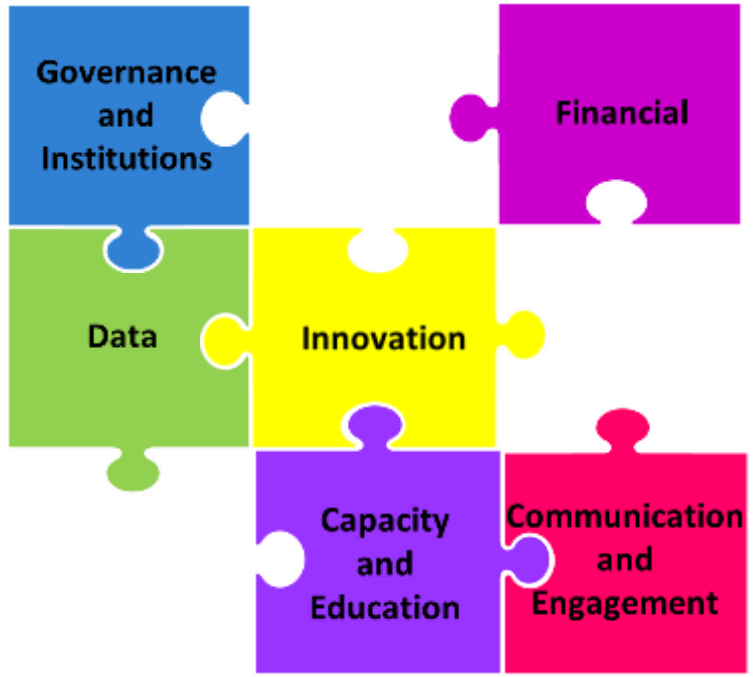




The digital divide is particularly pronounced with respect to Internet use and quality of access. Internet bandwidth and national backbone capacities remain a major challenge in many developing countries. There are also major inequalities across countries in terms of costs of ICT services, availability of ICT skills and availability of relevant and local content. It will be essential to address the widening digital divide. Only then will the transformative power of ICT and the data revolution be harnessed to deliver sustainable development for all.


Knowledge ▪ Decisions ▪ Development
Governance and Institutions
Legal and Policy
Financial
Data
Innovation
Standards
Partnerships
Capacity and Education
Communication and Engagement
Technology ▪ Applications ▪ Value
Users ▪ Citizens ▪ Access
Society ▪ Economy ▪ Environment


Content Creation
Technology Use
Realizing Benefits
Lack of Uptake
Skills
Literacy
Internet
Computers
Bridging the Geospatial Digital Divide
Knowledge
Opportunity
ICT
Geography
Social Inclusion


Governance and Institutions
Financial
Data
Innovation
Capacity and Education
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Bridging the Geospatial Digital Divide
Internet
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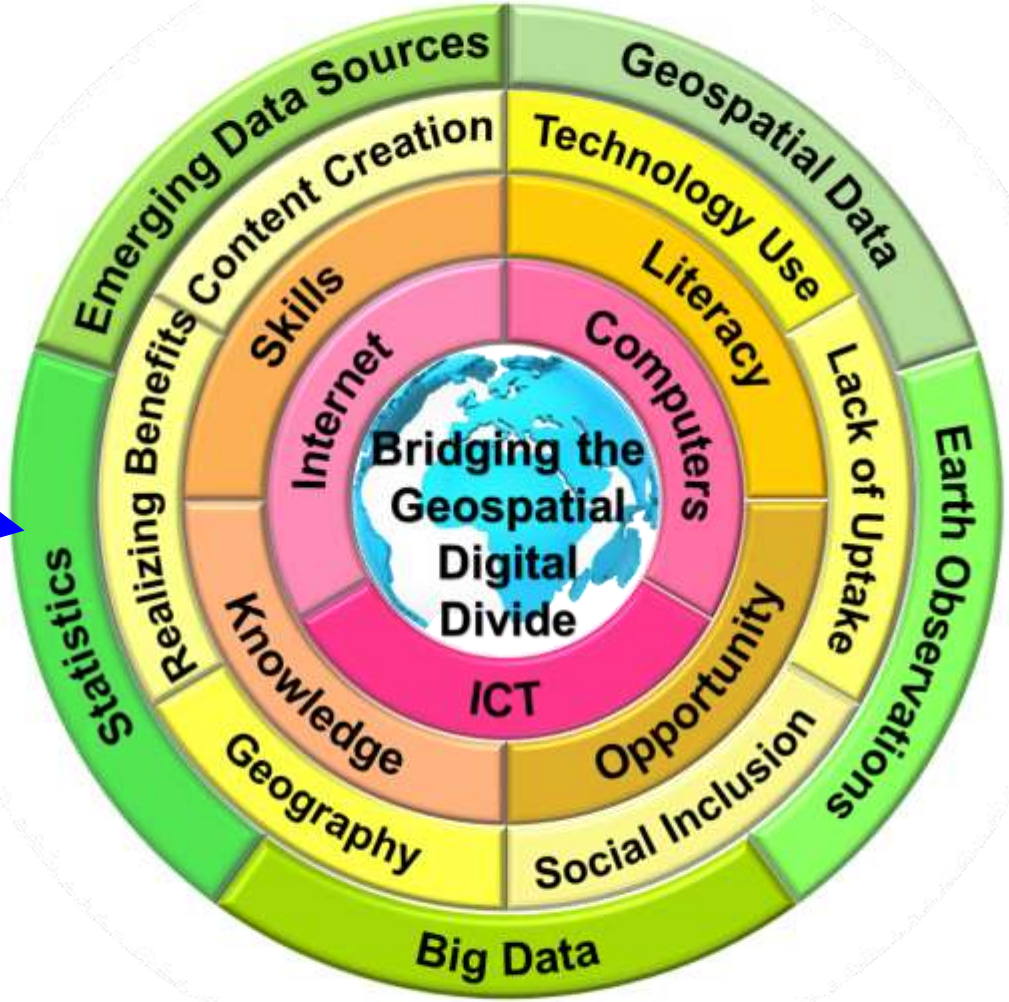
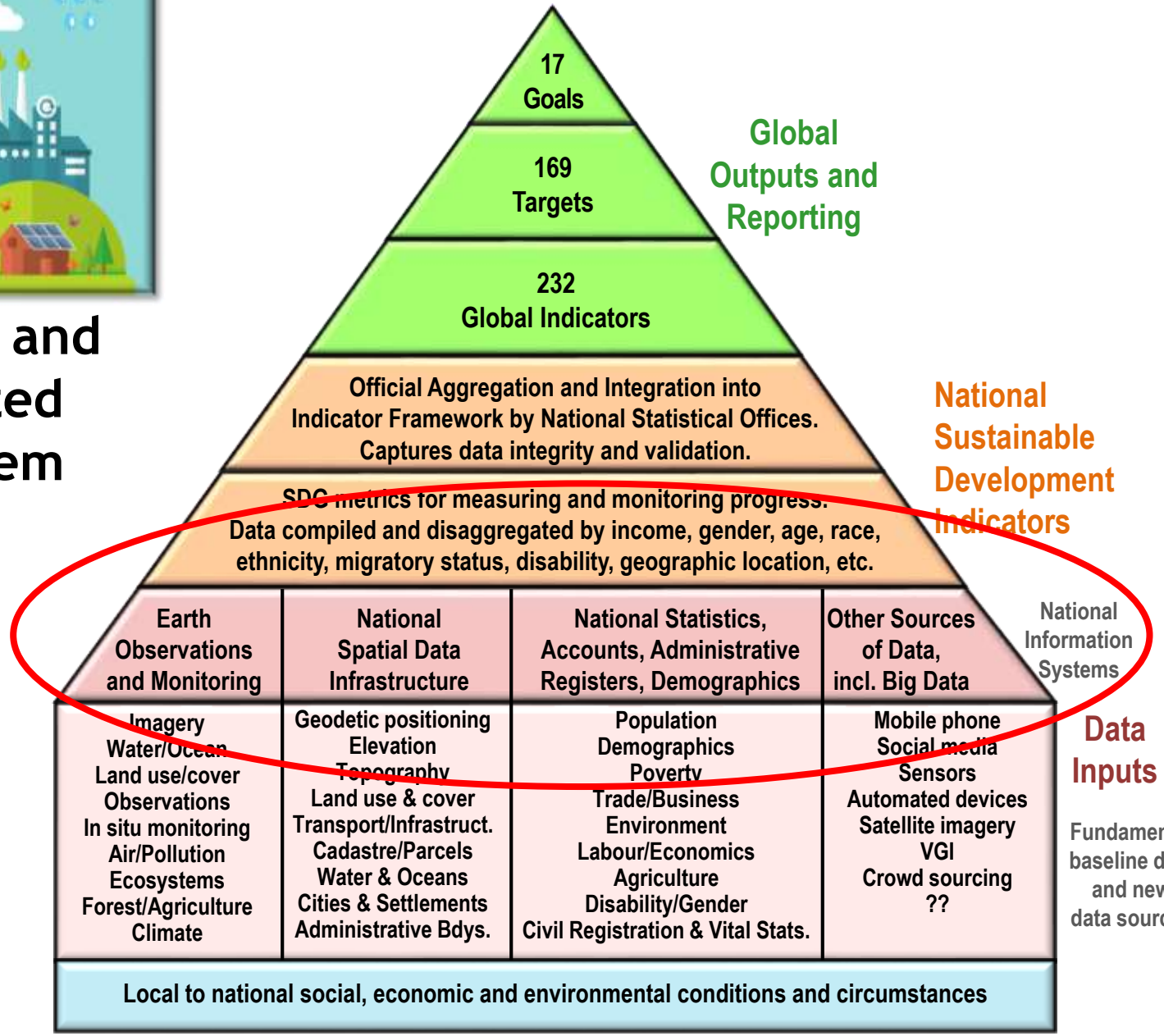
Data Ecosystem Gap

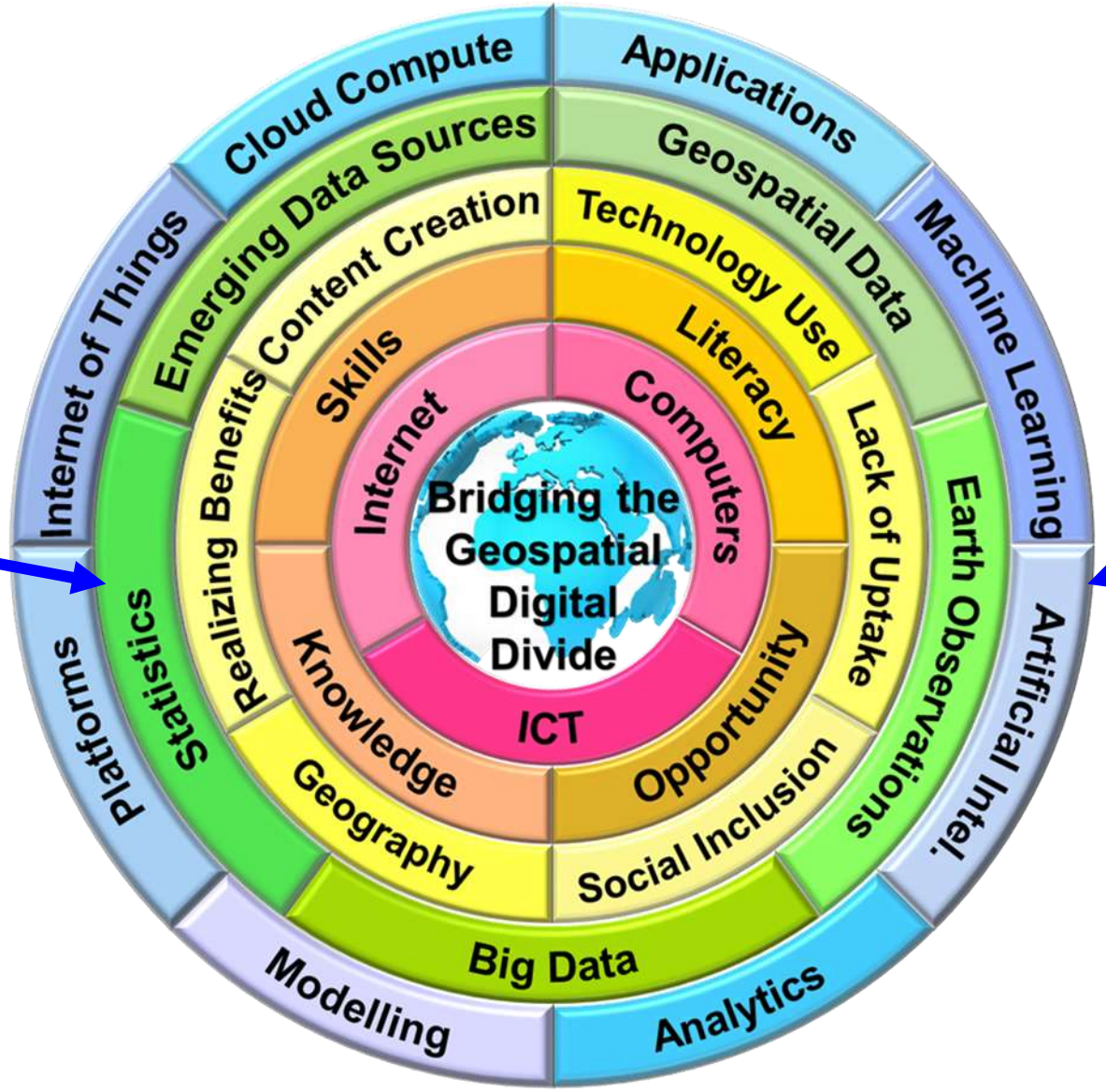


An integrative and interconnected data ecosystem



There needs to be more institutional collaboration, coordination, integration and interoperability across the various national data frameworks, information systems and platforms.

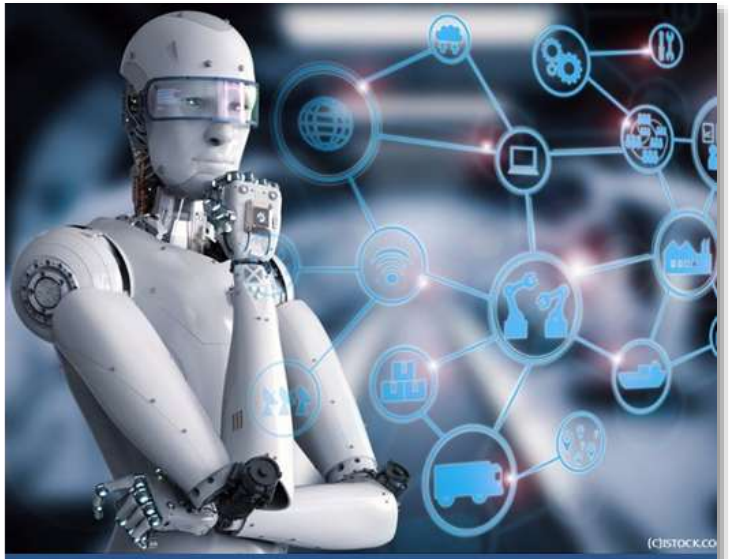
Data Ecosystem Gap



Geospatial Technology Gap

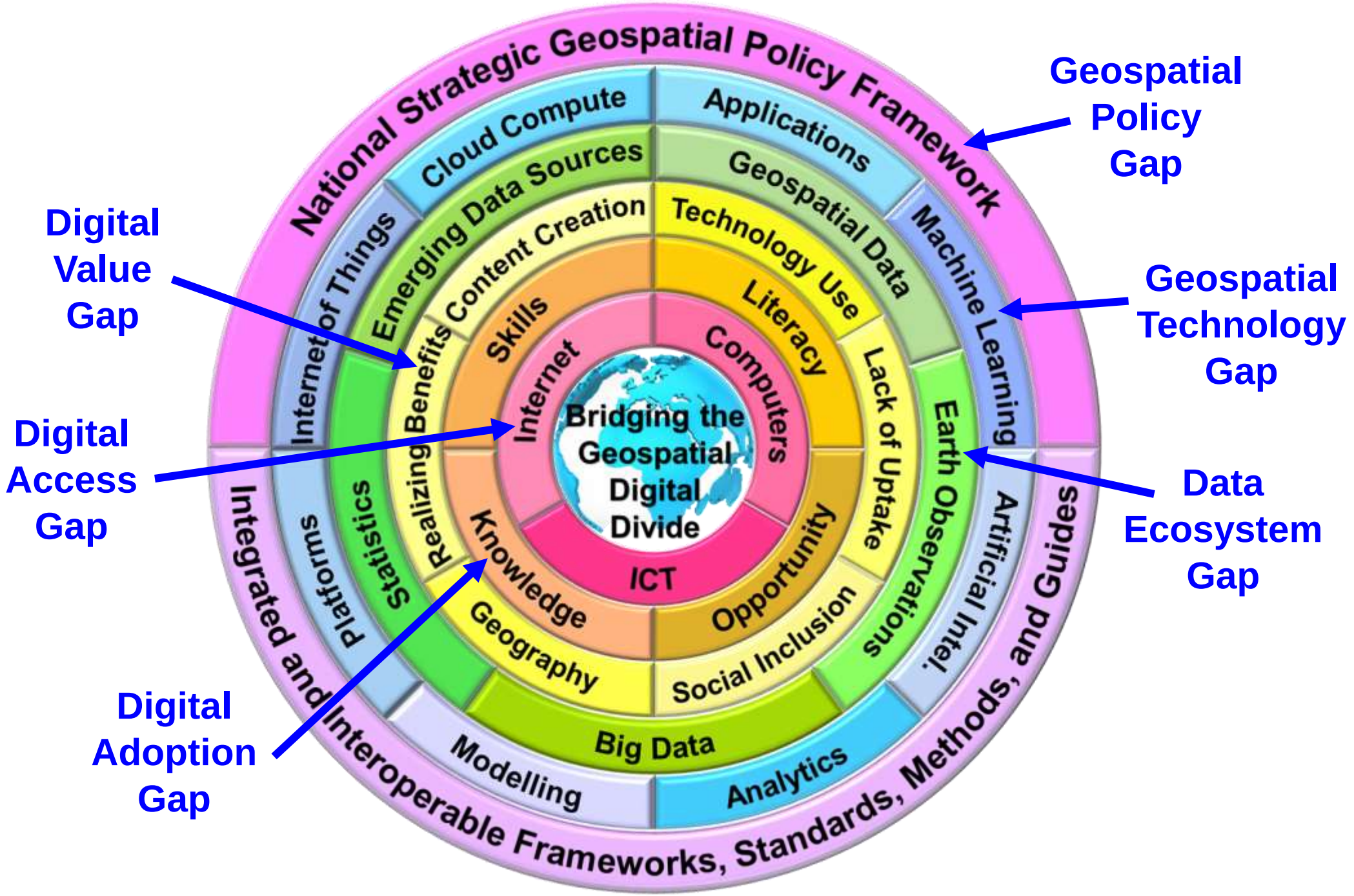
Data is not technology and technology is not data – but they are both tightly coupled, and can no longer be treated as separate entities.

Geospatial information represents much more than the 'digital map' of a nation; it is the 'digital currency' for evidence-based decision-making. Geospatial information is a critical component of the national infrastructure; both a blueprint of what happens where, and the means to integrate a wide variety of data across multiple sectors.



The disruptive nature of digital transformation, technology, innovation, and their exponential impacts, means that society's expectations on how, and at what level of detail, we record what is happening where and when are changing at a rapid pace.

While 'data' is still the primary information currency, the many disruptive technology enablers and applications are challenging the norm for the mission of national geospatial information authorities.

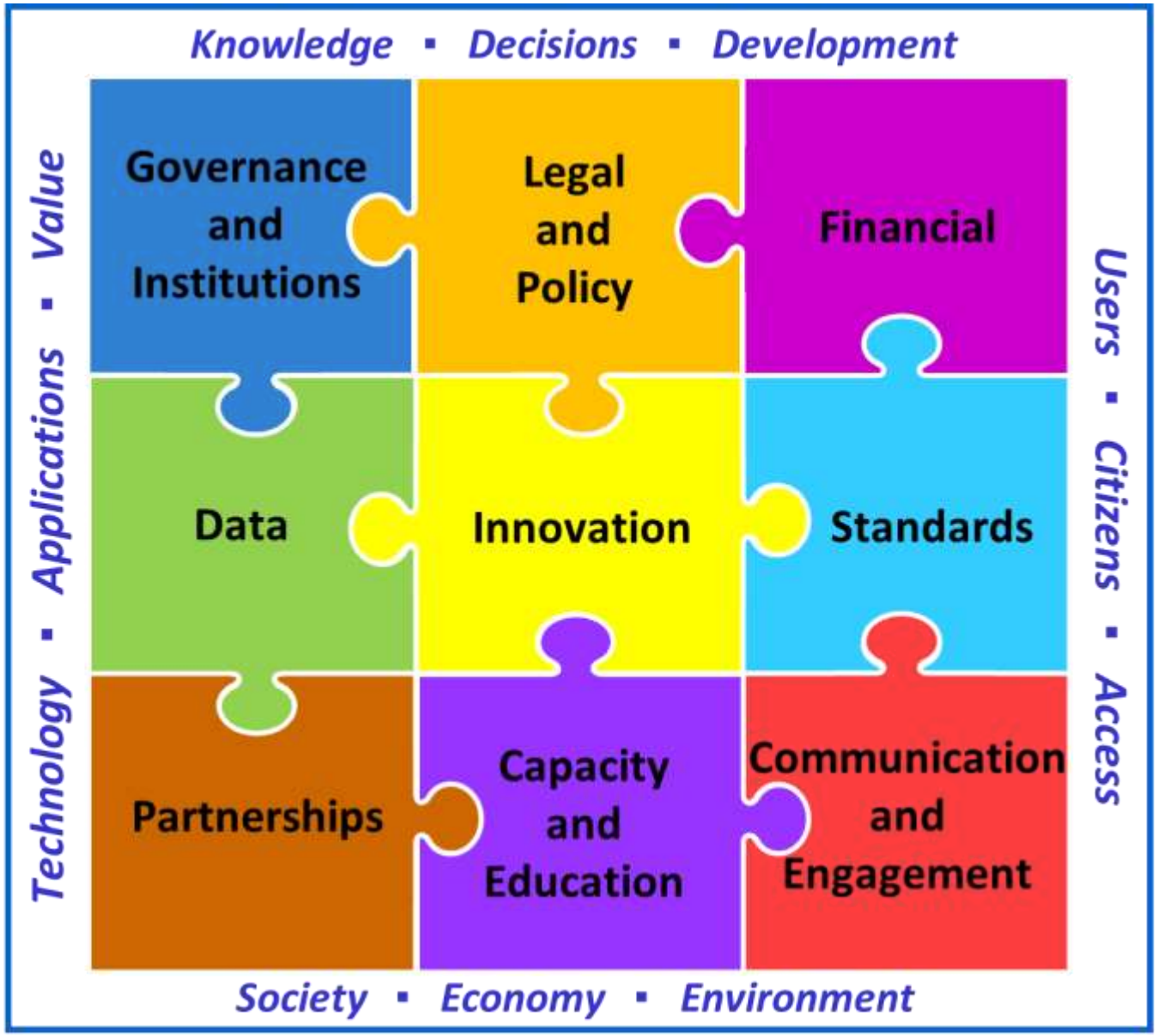

National Strategic Geospatial Policy Framework
Integrated and Interoperable Frameworks, Standards, Methods, and Guides
Cloud Compute
Applications
Emerging Data Sources
Geospatial Data
Internet of Things
Machine Learning
Content Creation
Technology Use
Benefits
Skills
Literacy
Lack of Uptake
Realizing
Computers
Internet
Statistics
Earth Observations
Platforms
Artificial Intel.
Knowledge
Opportunity
Geography
Social Inclusion
Big Data
Modelling
Analytics
ICT
Bridging the Geospatial Digital Divide
Digital Value Gap
Digital Access Gap
Digital Adoption Gap
Geospatial Policy Gap
Geospatial Technology Gap
Data Ecosystem Gap

9 Strategic Pathways

Governance

Technology

People



Anchored by 9 Strategic Pathways, the Framework is a mechanism for articulating and demonstrating national leadership in geospatial information, and the capacity to take positive steps.

The Solution

- To overcome many immediate shortcomings, countries have been ‘bridging’ by applying ‘fit-for-purpose’ methods and approaches to many of the applicable geospatial problems in developing countries.
- These include not only using heavy technology and infrastructure, but also adopted and/or adapted frameworks and practices, particularly with regard to land administration and management.
- However, as the digital transformation and disruptive technologies quickly evolve and change, these legacy approaches may not be suitable and appropriate in the longer term. Will they remain flexible and agile enough, or will they create more burden for developing countries in the future?
- Leapfrogging with technology, Cloud services, the semantic web, and analytics is what is needed – but there is still a fundamental reliance on Internet bandwidth.
- The future will require us to use the technology to manage the data, and for how we (or machines) interact with the data. This is where machine learning, AI and the IoT will be most valuable and will gain more relevance.