

# **Geospatial Information Distribution System for Data Sharing and Utilization**

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# Introducing me...

- **Ph. D in Keio Univ.(Japan)**
- **Research Fellow, KRIHS(2005~)**
- **Project Researcher in The Univ. of Tokyo(2008~2009)**
- **Member of GI Distribution T/F of MOLIT(2013)**
- **Director of Geospatial Analytics & Monitoring Center, KRIHS(2017~2022)**
- **Big Data Committee Member of Daejeon Metropolitan City(2019~)**
- **Member of National Geospatial Information Expert Committee(2021~)**
- **Advisory member of the Land, Infrastructure and Transport Data Council(2021~)**
- **Interests : Business GIS, Area Marketing, Spatial Analysis for Regional Policy,  
Mechanism of GI Market, Open Data etc.**

# Background and Goal

## Geospatial Information Distribution System

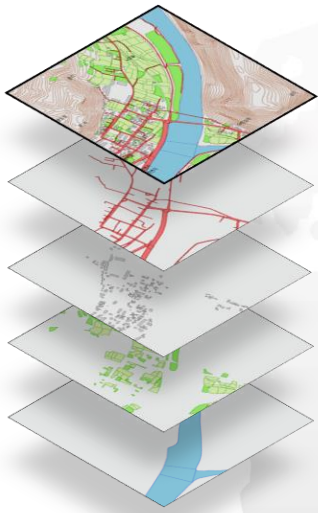


- The goal of GIDS is to allow everyone to share the data
- This requires continuous mechanism among producers, providers, and consumers
- The distribution of geospatial data is based on logical and physical system
- This presentation is to deliver the definition of GIDS and examples
- This will help the participants to think what you should consider in order to set up the policies on the distribution system in your countries



# Contents

## Geospatial Information Distribution System

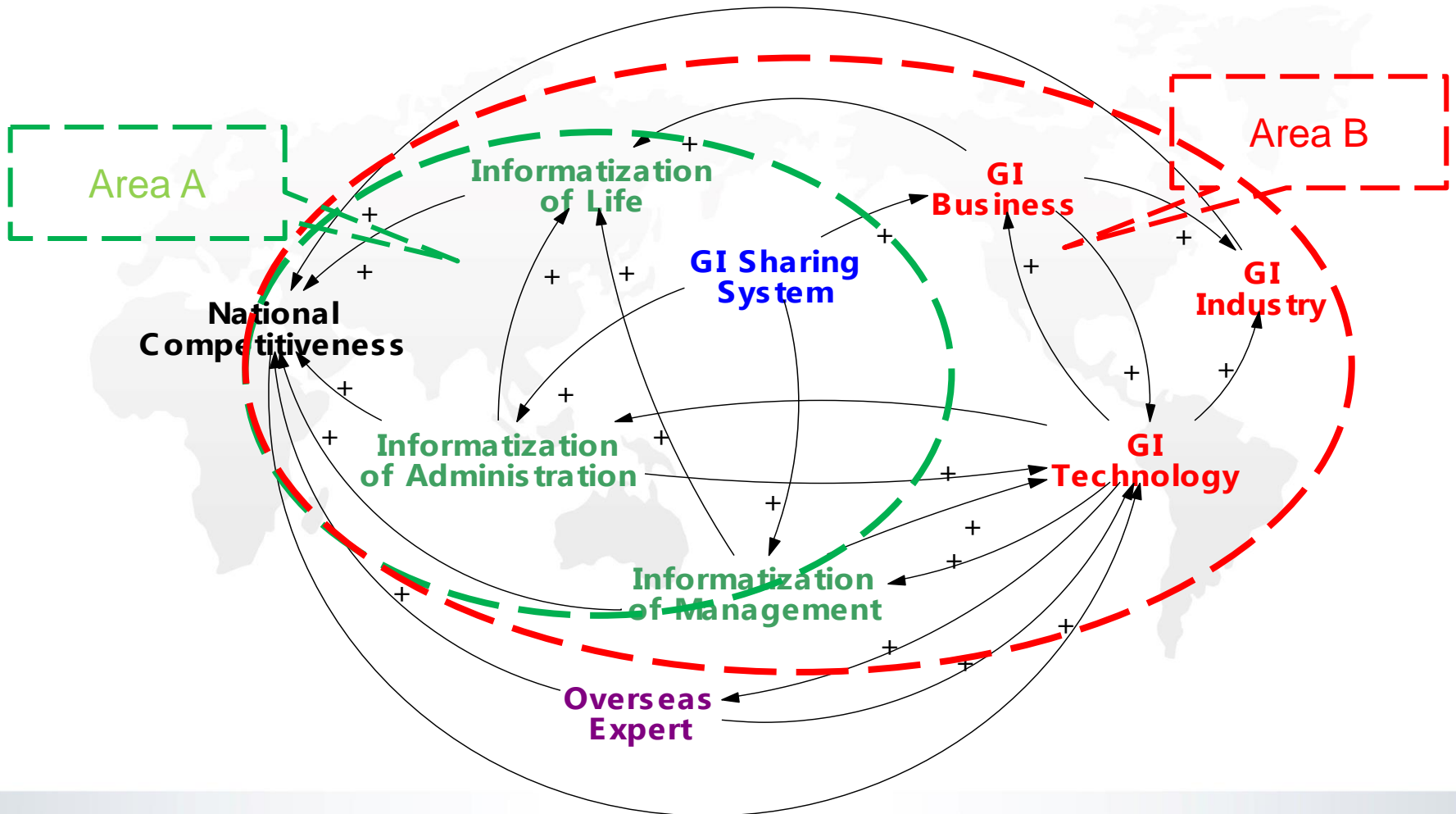


- **Approach for GIDS**
- **Case of GIDS in S. Korea**
- **Recommendations for Establishing GIDS**

**GIDS : Geospatial Information Distribution System**

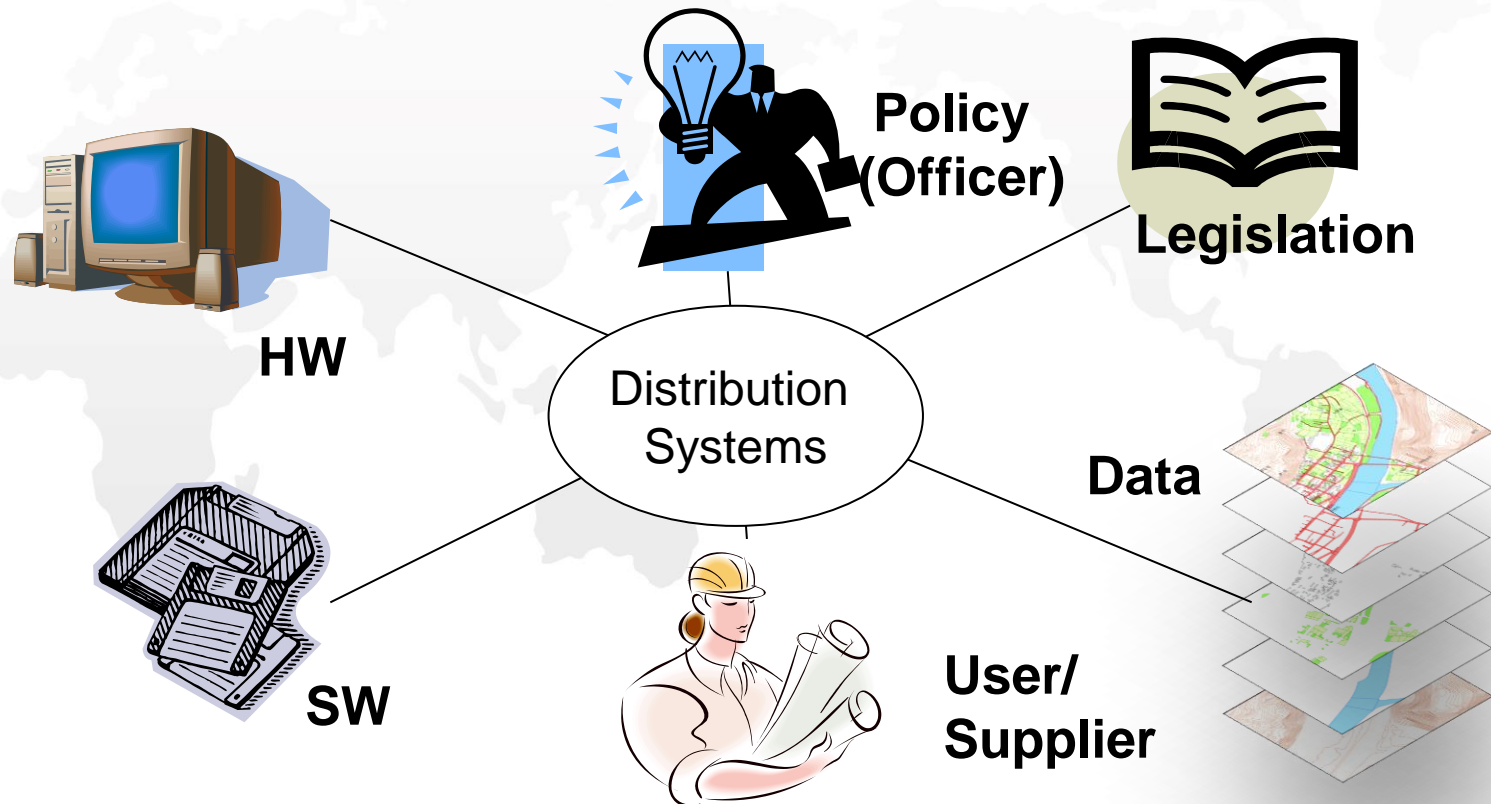
# Question 1

**What do you think the purpose of GIDS?**



## Question 2

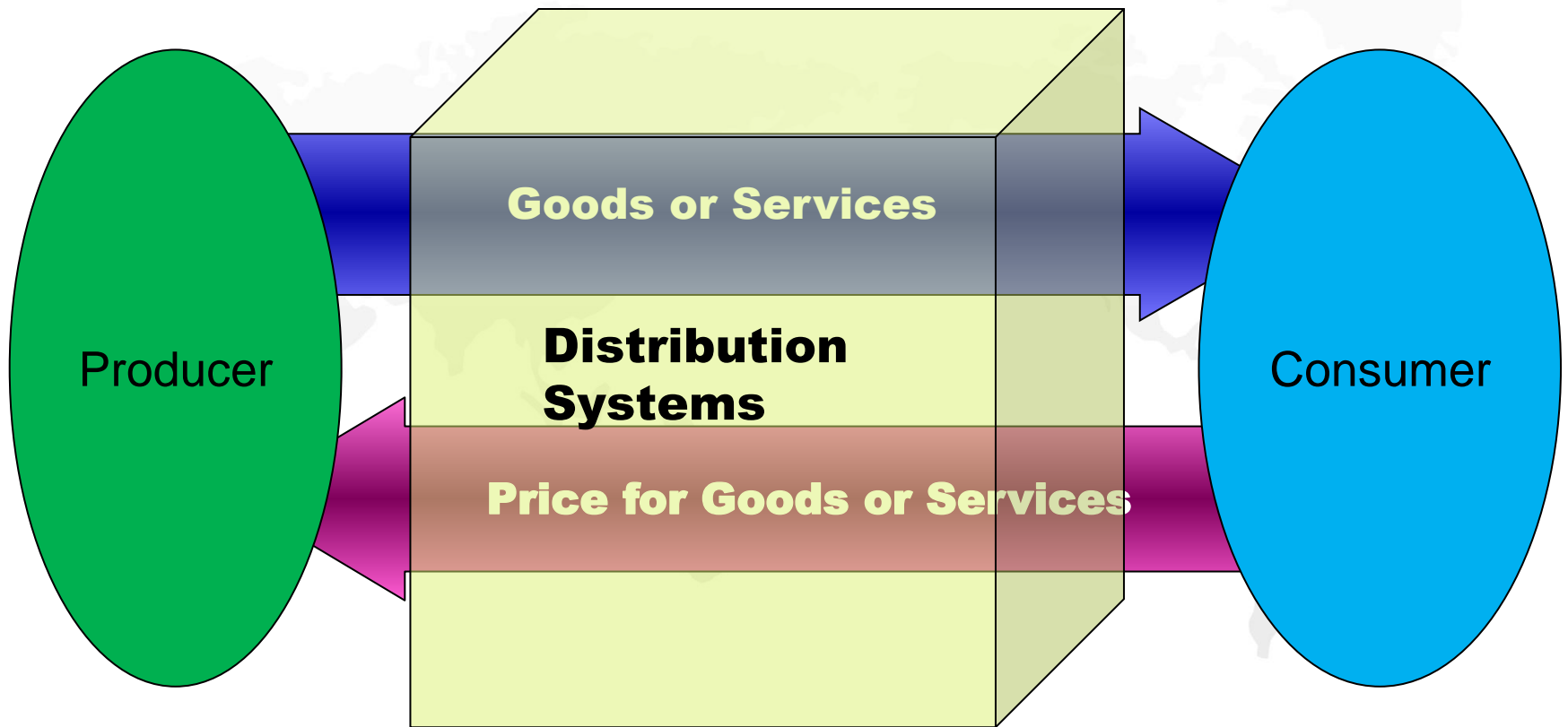
**Do you think that GIDS is a type of information systems?**





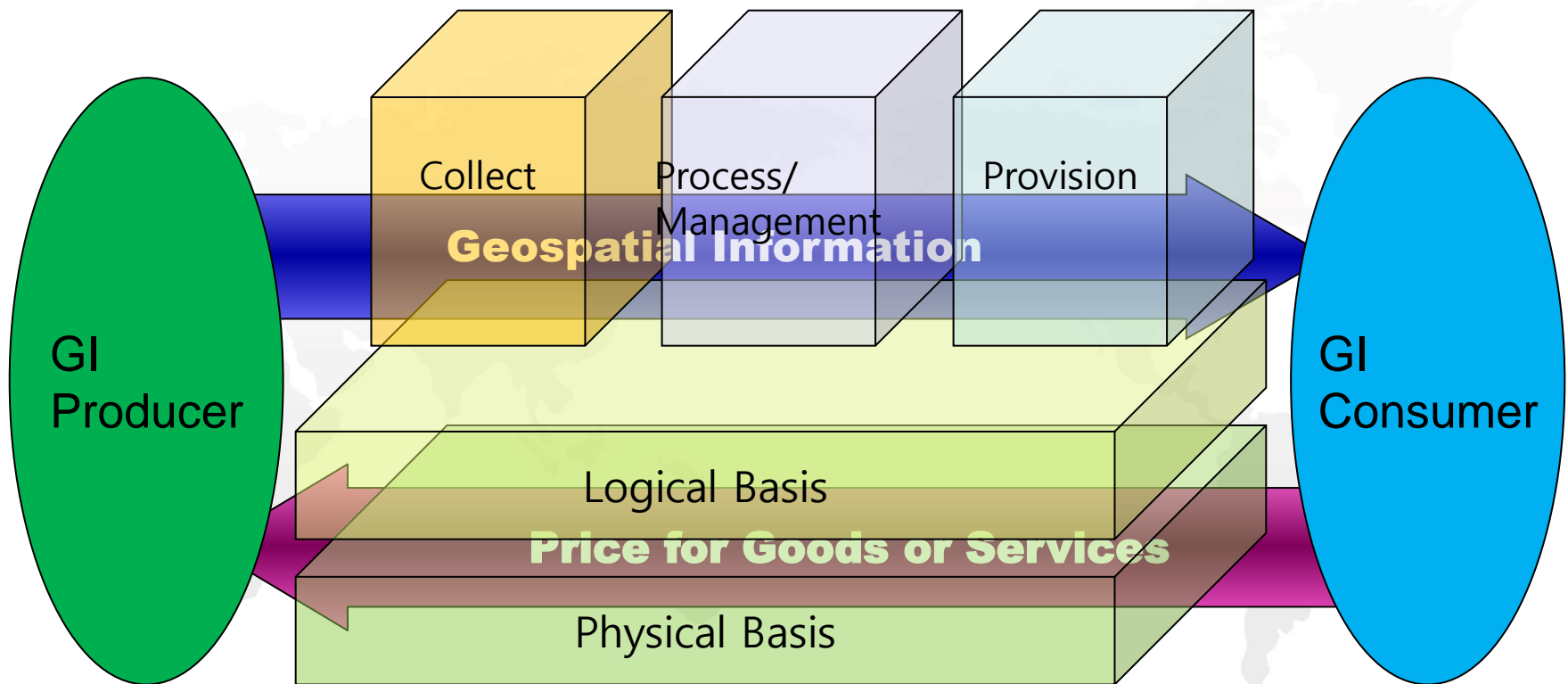
# **Approach for GIDS**

# Concept of Distribution Systems



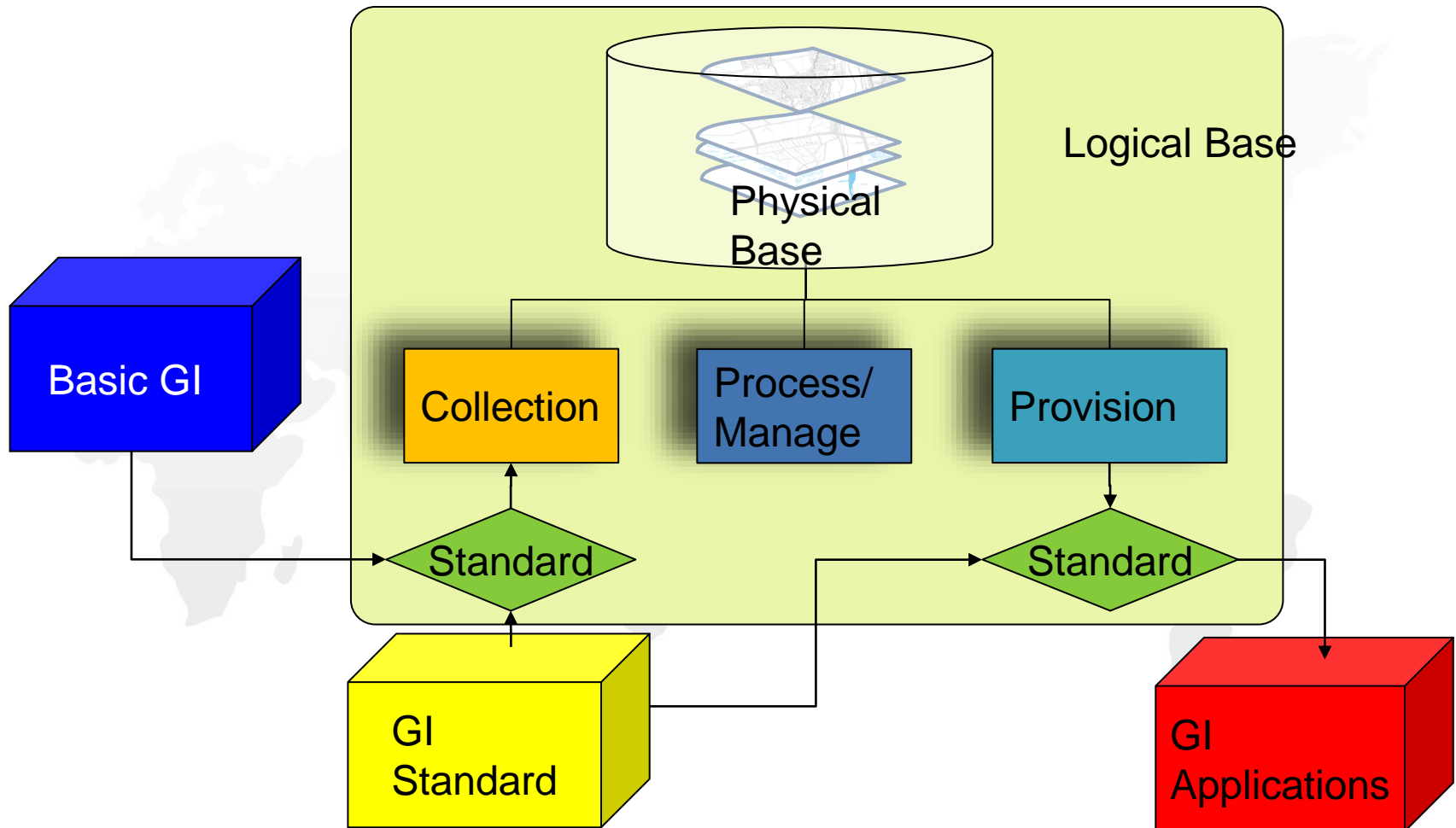


# Concept of GIDS



Geospatial Information Distribution Systems

# GIDS Model



# Producers and Scope of GI

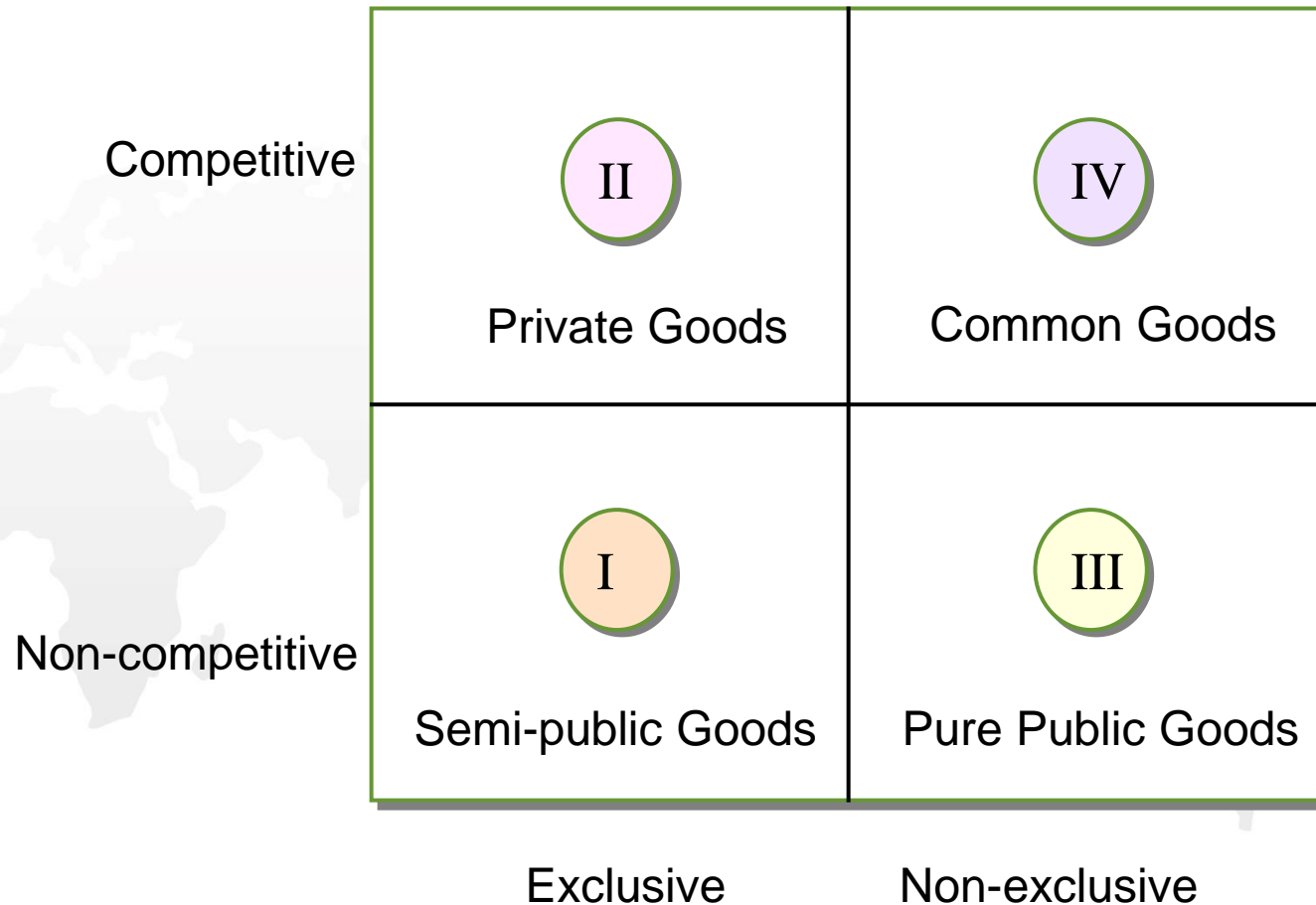
## ■ GI Producers:

- Who? : Central and local gov't, public corporate, private sector, individual
- Source GI Producers : Organizations that produces GI for distribution  
Ex : National Mapping Agency, National Geographic Information Institute
- Derivative GI Producers : Organizations that produces GI for their own use

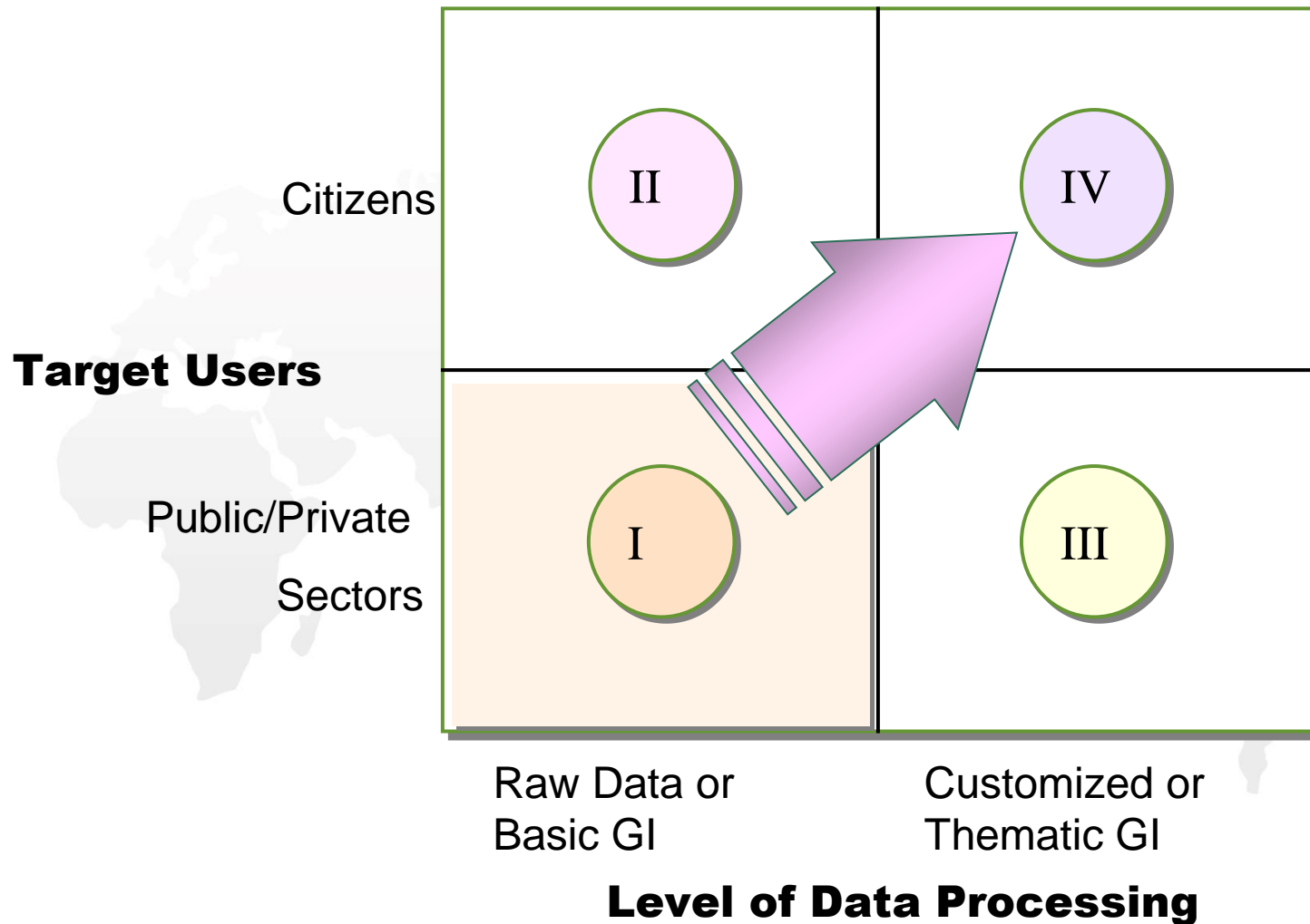
## ■ Scope of GI for Collection Process:

- There can be differences between the scope of GI for GIDS
- Usually, the GI that is commonly used, especially based on source GI

# Economic Categorization of GI



# Distribution Subject of GI



# GI Collection

## ■ Type of GI Collection

	Centralized	Decentralized
Subject	Basic GI	Thematic information goods and services
Method	Managed by distribution system that merges basic GI from different organizations	Different users register information and service on distribution system and the system manages the node links
Collecting Entity	Distribution organization	Registered by individual producers
Advantage	Improved accessibility based on single accessing path	Various approaches and searching methods for GI-services

# Type of Distribution Information System

## ◆ Clearinghouse

- Search Metadata to locate and get details of geospatial information (i.e. Library Catalogue)

## ◆ Portal (Geospatial One Stop, or GOS)

- Direct provision of data and service

## ◆ Geospatial Platform

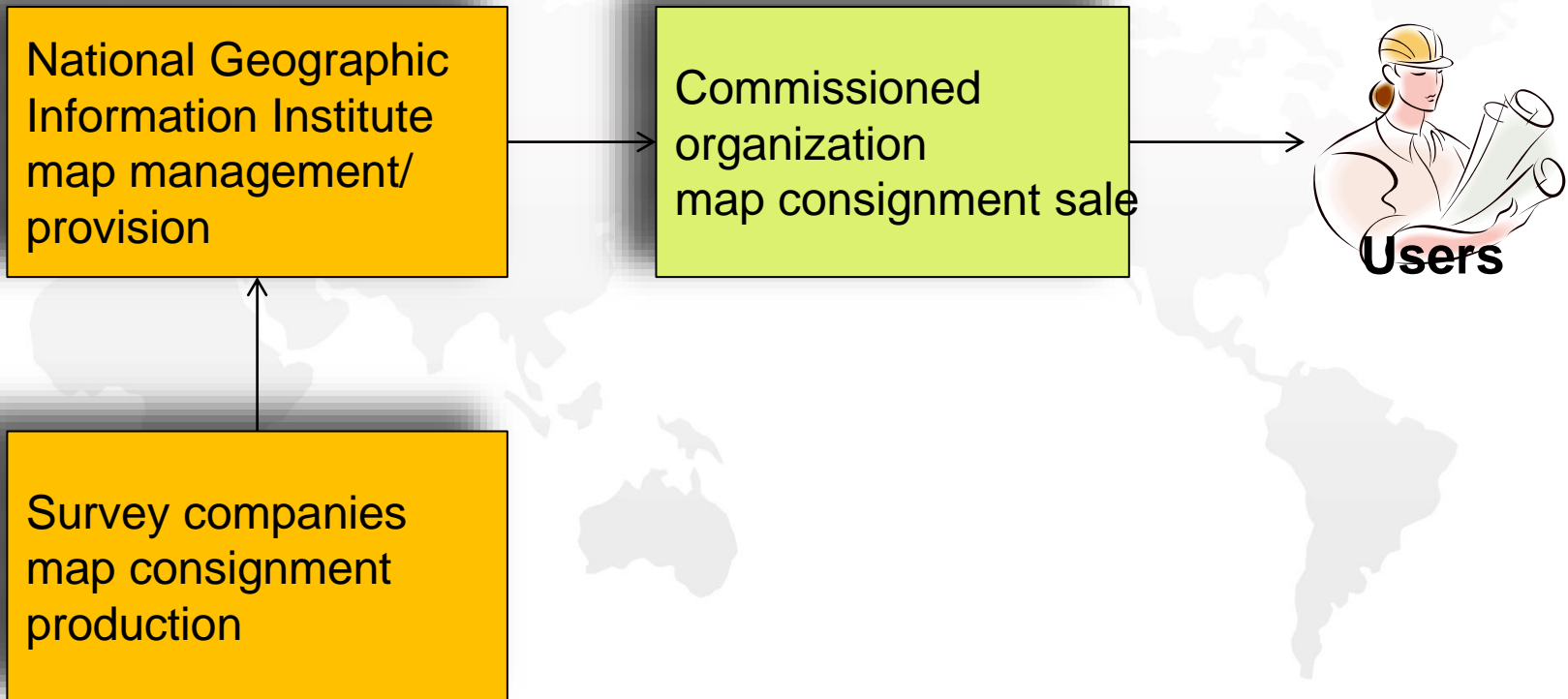
- Comprehensive service and data provision + User participation



# **Case of GIDS in S. Korea**



# History of Map Distribution System



# Background of GIDS(NSIC.go.kr)

- No friendly information exchange among the institutions that produce the spatial data, data are repeatedly created
- Produced data is not commonly utilized

=> **National Spatial Information Clearinghouse (NSIC)**

# GIDS Sector Plan of NGIS Master Plan

## National Spatial Information Clearinghouse(NSIC)

- Initiated in 2000 by the Ministry of Construction and Transportation(present Ministry of Land, Infrastructure, and Transportation), according to the 2<sup>nd</sup> NGIS master plan



# History of GIDS

## Pioneer

Pilot project

- Ministry of Construction and Transportation
- Ministry of Information and Communication

2001~2004

- Geographic information distribution network construction
- Regional management office construction (9 regions)
- metadata construction

## Expansion

2005~2008

- Publishing a Spatial information Webzine
- NGIS integrated portal construction
- Distribution Node construction

## Integration

2009~2011

- Execution of NSIC ISP
- Regional gateways
- Marine spatial information

## Acceleration

2012~2015

- Smart NSIC service
- Production and distribution of Converged information
- V-world Platform

## Integration Linkage

2016~

- NSDI Portal
- Open Market
- NGII Geospatial Platform
- K-GEO Platform

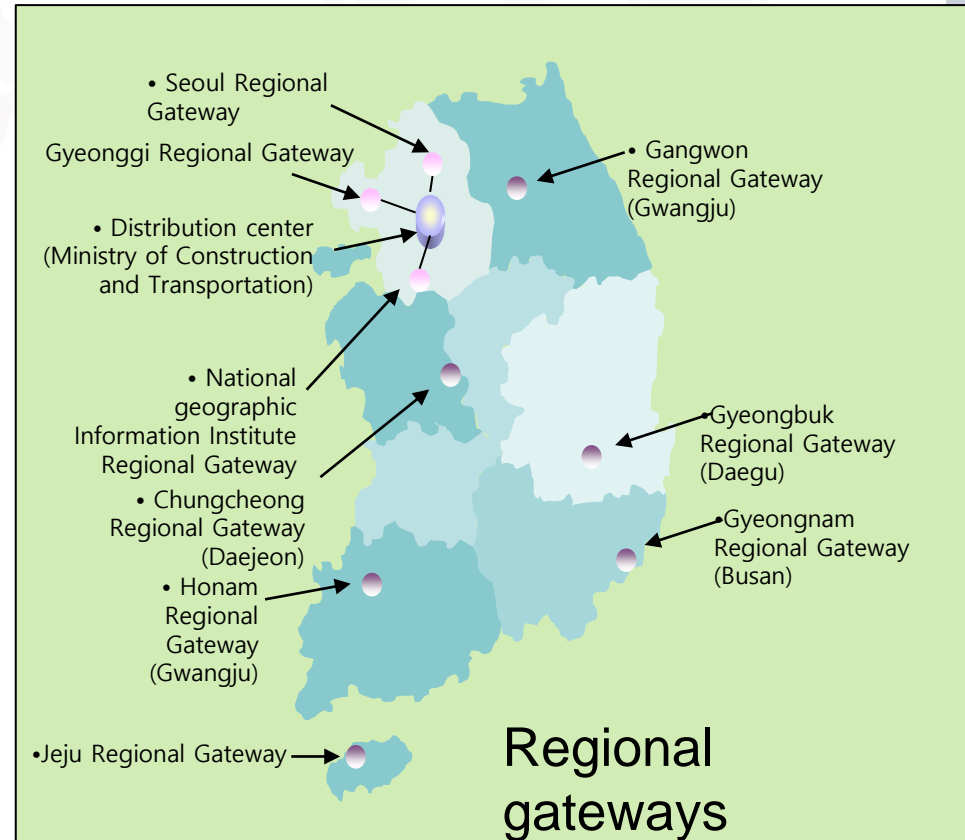


# Components of NSIC In S. K.(past)

Center of National Spatial Information Clearinghouse	Central institution to synthetically manage and distribute the spatial data produced by the national GIS projects and others
Regional gateway	Regional institution that sells or distributes the spatial data and metadata produced by the region
Supplier	The institution which provides the produced and owned spatial data to the center of National Geographic Information Clearinghouse or the regional gateway
User	The individual, enterprise, research center, or institution that purchase the spatial data and use it accordingly

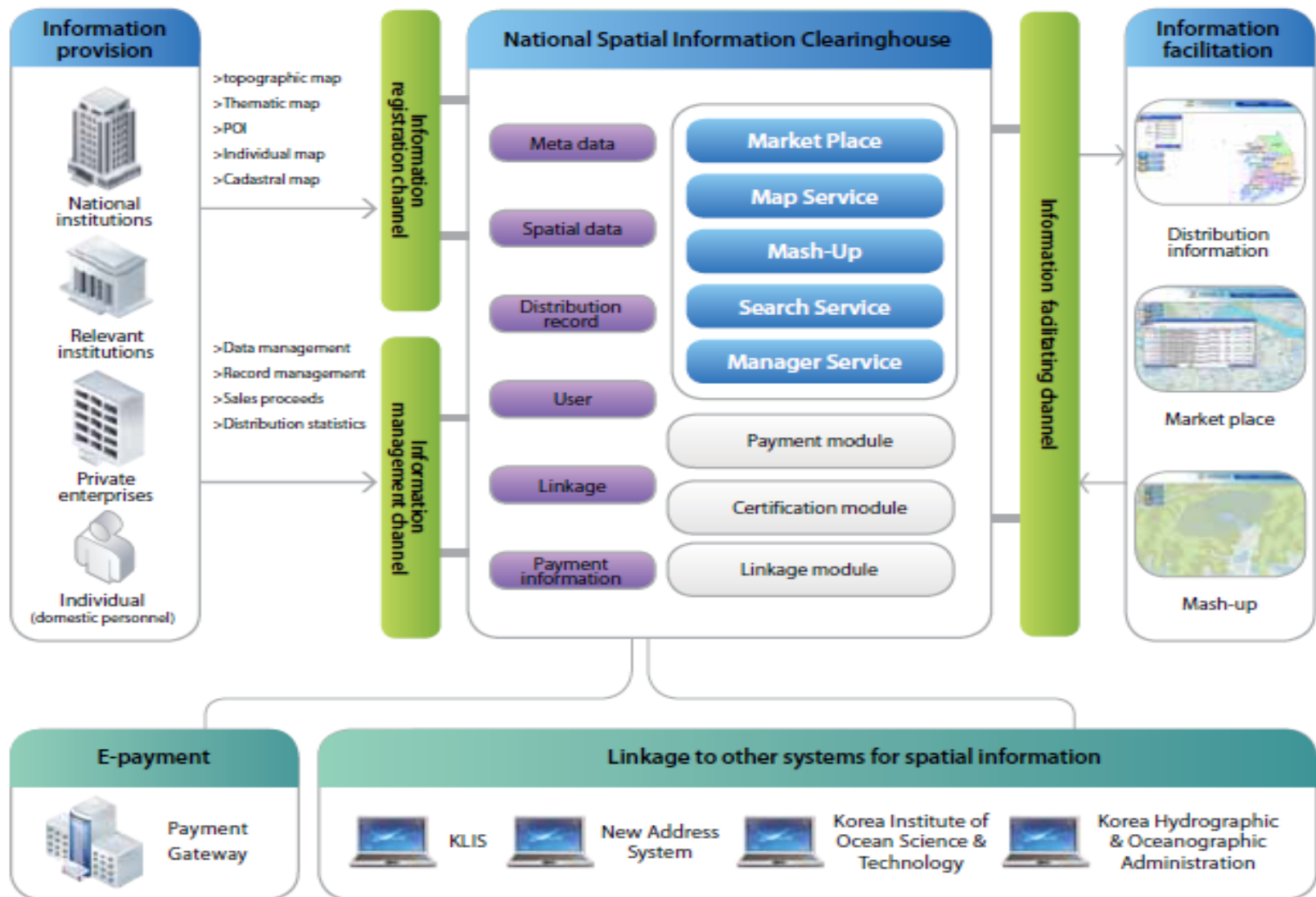
# Regional Gateway of NGIC(past: 1<sup>st</sup> stage)

- Online Service of the spatial data to users via Internet
- 1 central center and 9 regional gateways by region



<http://www.nsic.go.kr>

# Configuration Diagram of NSIC(past : 2<sup>nd</sup> stage)





# Data Searching and Downloading

국가공간정보유통시스템  
NSIC National Spatial Information Clearinghouse

유통시스템 소개 공간정보 조회/구매 고객지원 공급자페이지 도움말/안내

위치검색

지번주소 ○ 새주소 ○ 도엽번호

시도 선택  
시군구 선택  
읍면동 선택  
리 선택

초기화 검색

강원도  
서울특별시  
인천광역시  
충청북도  
충청남도  
대전광역시  
전라북도  
대구광역시  
광주광역시  
전라남도  
경상북도  
경상남도  
부산광역시  
제주특별자치도

인덱스 설정

보기 레이어명

☐ 1:1000 GRS80  
☐ 1:5000 GRS80  
☐ 1:10000 GRS80  
☐ 1:25000 GRS80  
☐ 1:50000 GRS80  
☐ 1:250000 GRS80  
☐ 1:1000 배경(Besset)  
☐ 1:5000 배경(Besset)  
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☐ 1:25000 배경(Besset)  
☐ 1:50000 배경(Besset)  
☐ 1:250000 배경(Besset)  
☐ 지반 레이어

기본지도 분류지도 주제도판

공간검색결과

검색결과 43 건

15페이지

선택	구분	보기	기본정보	공급자정보	지도분류정보	제작년도	단가
<input checked="" type="checkbox"/>	FILE		GRS80 공개 유상 DXF 1:5,000 [36701025] 지형도-이분류/수도권 1:5000 수치지형도[36701025]/2007	국토지리정보원	지형도	2007.05	-1,000원
<input checked="" type="checkbox"/>	FILE		GRS80 공개 유상 DXF 1:5,000 [36701016] 지형도-이분류/수도권 1:5000 수치지형도[36701016]/2007	국토지리정보원	지형도	2007.05	-1,000원
<input type="checkbox"/>	FILE		GRS80 공개 유상 DXF 1:5,000 [36701015] 지형도-이분류/수도권 1:5000 수치지형도[36701015]/2007	국토지리정보원	지형도	2007.05	-1,000원
<input type="checkbox"/>	FILE		GRS80 공개 유상 DXF 1:25,000 [36701012] 지형도-이분류/수도권 1:25000 수치지형도[36701012]/2007	국토지리정보원	지형도	2007.05	-1,000원
<input type="checkbox"/>	FILE		GRS80 공개 유상 DXF 1:25,000 [36701011] 지형도-이분류/수도권 1:25000 수치지형도[36701011]/2007	국토지리정보원	지형도	2007.05	-1,000원

전체선택 선택해제

1 2 3

장바구니 담기 장바구니 내리기

다운로드  
NSIC Download

필요한 공간정보를 선택하여 다운로드 하면 사용자 컴퓨터에 해당 공간정보들이 다운로드됩니다.

총 건수 : 2건

선택	구분	제목	속력	포맷	타원체	결재일	다운 횟수	미리 보기
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<input type="checkbox"/>	FILE	수도권 1:5000 수치지형도 [37612050]	1:5,000	DXF	GRS80	2011-11-04	0	

전체선택 전체해제

다운로드

1 2 3 4 5

위치검색

지번주소 ○ 새주소 ○ 도엽번호

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☐ 1:250000 인덱스  
☐ 지반 레이어

기본지도 분류지도 주제도판

국토해양부 헬프데스크 02-2110-6028 이메일 nsd6028@korea.kr



# “National Spatial Information Portal” The Hub of spatial information

National spatial data Infrastructure System

Spatial Big Data System

National spatial data Infrastructure Portal

Korea Real Estate Archive System

Korea Land Information System

National spatial Information Clearinghouse

Cadastral Reexamination System

National spatial data Pool

Korea Planning Support Systems

Onnara Real Estate Information Portal

Spatial Information Open Platform

## Open & Sharing

Policy, PR,  
Data Platform

## Utilization & Convergence

New Industry,  
Job Creation

The spatial information?

List of spatial information?

Geospatial Platform?

## VISION **The Hub of spatial information**

PURPOSE	Securing future growth engine and competitiveness enhancement by promoting spatial information industry	Integrated spatial information hub of the Public and Private.	Growth in a global market through establishment of ecosystem	Job Creation using spatial information
ACTION PLAN	Open	Sharing	Communication	Cooperation

# NSDI Portal

## Spatial Information Service

### Service Overview



Map Service



OpenAPI Service



OpenMarket



Policy - Contents



Announcement - PR



Education - Start-up assistance



PR Support Hall



Introducing to Spatial information



Introducing to Portal System

# NGII Platform

국토정보포털

대한민국의 모든 지도정보제공 공간정보

지도, 위성기준점, 국가수직기준연계, 지역정보 등의 전문적인 공간정보를 제공하고 온라인 다운로드와 지도보기 서비스를 제공합니다.

즐거찾는 메뉴

- 수치지도
- 항공사진 건반응
- 임시지점

국토정보맵

지도를 기반으로 수치지도, 항공사진, 위성기준, 국가수직, 등계정보 등을

통풍지도검색

국토통계지도

역사지도

정밀도로지도

## 공간정보

지도, 위성기준점, 국가수직기준연계, 지역정보 등의 전문적인 공간정보를 제공하고 온라인 다운로드와 지도보기 서비스를 제공합니다.

<h3>지도정보</h3> <p>일반도, 정밀도로지도, 고지도 등을 지도로 제공 받고 관련 자료를 다운로드</p> <p><b>다보기</b></p>	<h3>위성기준점</h3> <p>국토지리정보원의 위성기준점 관련정보, 위성기준점 서비스 안내, 관측데이터 다운로드 서비스</p> <p><b>다보기</b></p>	<h3>국가수직기준연계</h3> <p>중력측량, 한국 지오이드모델, 육해상 높이 변환 모델 구축 등에 관련한 정보 제공</p> <p><b>다보기</b></p>
<h3>독도공간정보</h3> <p>독도에 대한 지리,현황, 사진 등의 전문적인 정보를 제공</p> <p><b>다보기</b></p>	<h3>극지공간정보</h3> <p>극지에 대한 지리,현황, 사진 등의 전문적인 정보를 제공</p> <p><b>다보기</b></p>	<h3>국토변화정보</h3> <p>국토의 변화정보를 신속 정확하게 수집하고 알려서 효과적으로 관리하고 활용 가능하도록 하는 서비스</p> <p><b>다보기</b></p>
<h3>역사지도정보</h3> <p>대동여지도, 해동지도 등의 역사지도와 관련 자료에 대한 정보 및 다운로드 제공</p> <p><b>다보기</b></p>	<h3>위성영상정보</h3> <p>국토위성으로 촬영한 위성영상을 다운로드하고 다양한 위성정보를 제공</p> <p><b>다보기</b></p>	<h3>건물높이공간정보</h3> <p>건물높이 공간정보 데이터를 다운로드 하고 정보를 제공</p> <p><b>다보기</b></p>

## 자료실

지도와 관련한 다양한 자료를 소개하고 다운로드 서비스를 제공합니다.

<h3>근대측량자료</h3> <p>중이정체로 보관된 근대측량자료를 디지털화하여 E-BOOK 형태로 제공</p> <p><b>다보기</b></p>	<h3>대한민국 국가지도집</h3> <p>연도와 국안의 경제, 사회, 문화 활동에 대한 공식적 기록으로 디자인 자료 제공</p> <p><b>다보기</b></p>
<h3>국토모니터링 보고서</h3> <p>국토에 관련한 인구, 경제, 사회, 문화, 환경, 도시개발 등의 국토모니터링 보고서 및 국토조사연간 자료</p> <p><b>다보기</b></p>	<h3>지명사전</h3> <p>지명고 검색하거나 이에 대한 용어, 주소, 지명유래 등의 정보를 제공</p> <p><b>다보기</b></p>
<h3>오픈 API</h3> <p>국토정보의 개방, 공유, 참여의 일환으로 사용자가 직접 공간정보와 관련된 응용 프로그램과 서비스를 개발</p> <p><b>다보기</b></p>	<h3>민원서비스</h3> <p>국민과 소통을 하기 위한 민원예매, 지도구현, FAQ 등을 제공</p> <p><b>다보기</b></p>
<h3>보유합용용</h3> <p>공간정보 활용 공간정보 시스템</p> <p><b>다보기</b></p>	<h3>건국공간정보</h3> <p>재래·재난 발생시 신속하게 활용 할 수 있는 건국공간정보 서비스</p> <p><b>다보기</b></p>



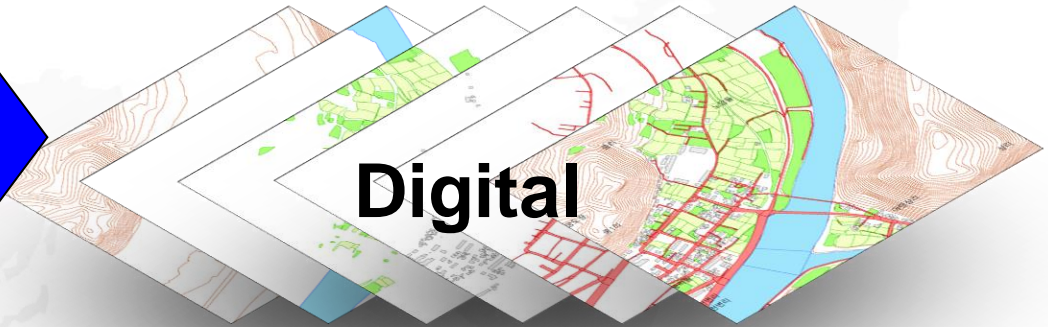
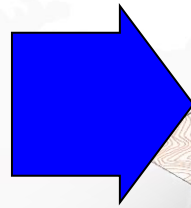
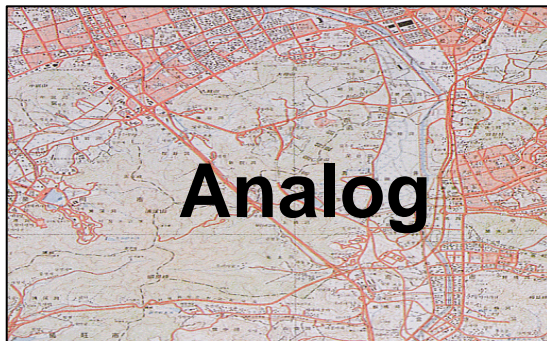


A faint, light gray world map is visible in the background of the slide, centered behind the title text.

# **Recommendations for Establishing of GIDS**

# Recommendations(1)

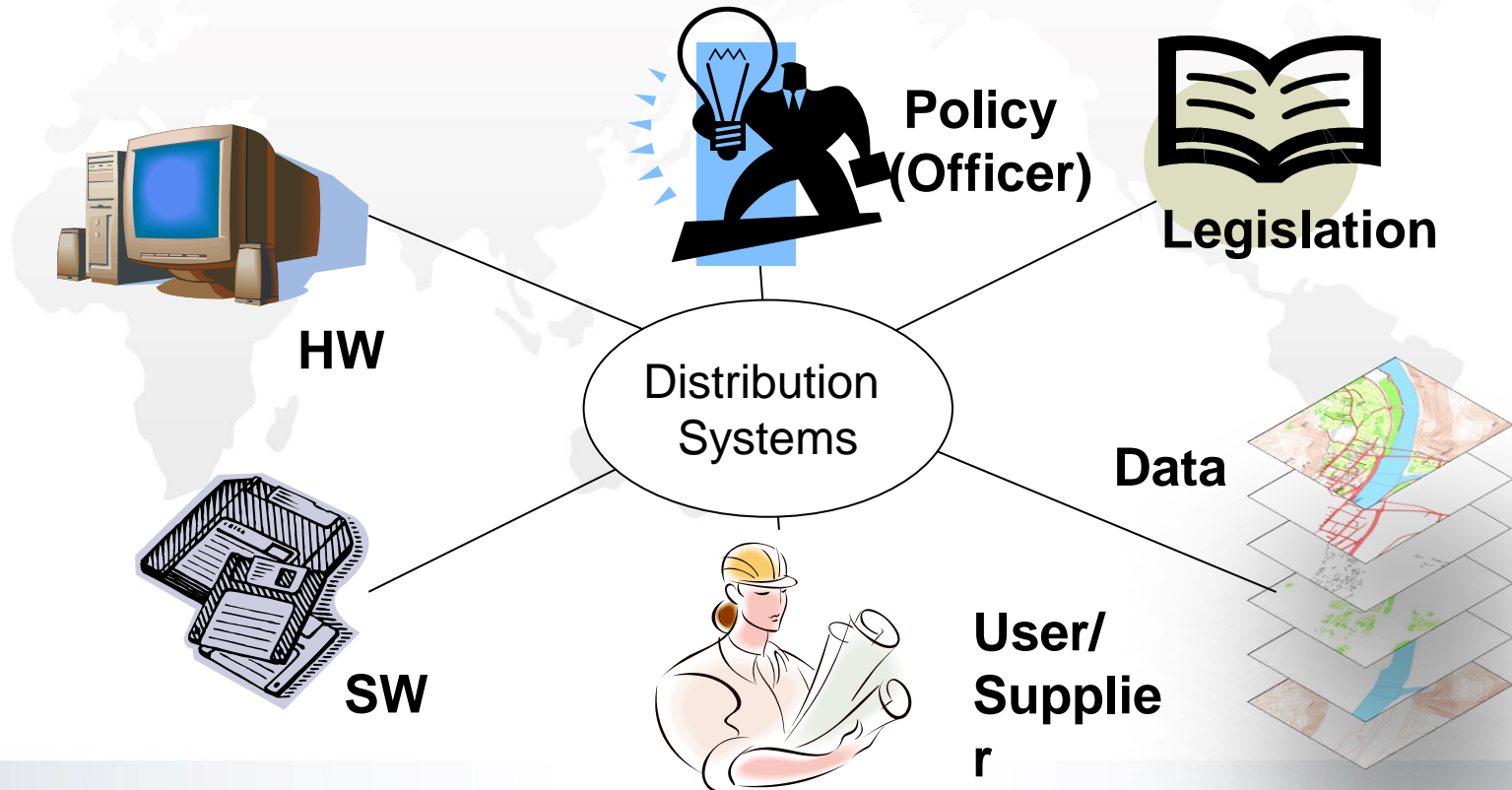
- **Need to innovate analog paradigm into digital for geospatial information distribution system**



- Existing policy and organization for analog data distribution(institutional framework)  
→ Only suitable for the current paradigm
- Changes in the current paradigm facilitated by dramatic technological development
- Need for spatial data distribution system implementation to cope with such change
- Change existing institutional framework to successfully implement GIDS
- If not, more conflict occurs between GIDS and the institutional framework, which create more inefficiency.

# Recommendations(2)

- Consider GIDS as integrated system of HW, SW, spatial data, user/supplier, legislation, and policy, not as information system
- Especially, successful spatial data distribution depends on the policy
  - Need for concrete distribution policy





# Recommendations(3)

## ■ Select a type of distribution system suitable for social circumstance

### ◆ Clearinghouse

- Search Metadata to locate and get details of geospatial information (i.e. Library Catalogue)

### ◆ Portal (Geospatial One Stop, or GOS)

- Direct provision of data and service

### ◆ Geospatial Platform

- Comprehensive service and data provision + User participation

### ◆ Various Geospatial Platforms -> Platform of Platforms

- Build a Geospatial Platforms for each institution



# Summary

- Introduce the definition of geospatial information distribution system based on the mechanism that producers deliver the data to consumers
- Discuss the subject of distribution, distribution activity, and logical and physical basis of building desirable spatial data distribution system as a part of NSDI
- Introduce examples of spatial data distribution system in South Korean as one of the NGIS projects and following issues
- Describe the considerations on implementing geospatial data distribution system for your countries

**고맙습니다.**  
**Thank You!**

