A PROPOSAL FOR ARCHITECTURE FRAMEWORK OF THE NATIONAL CLIMATE CHANGE DATABASE IN VIETNAM

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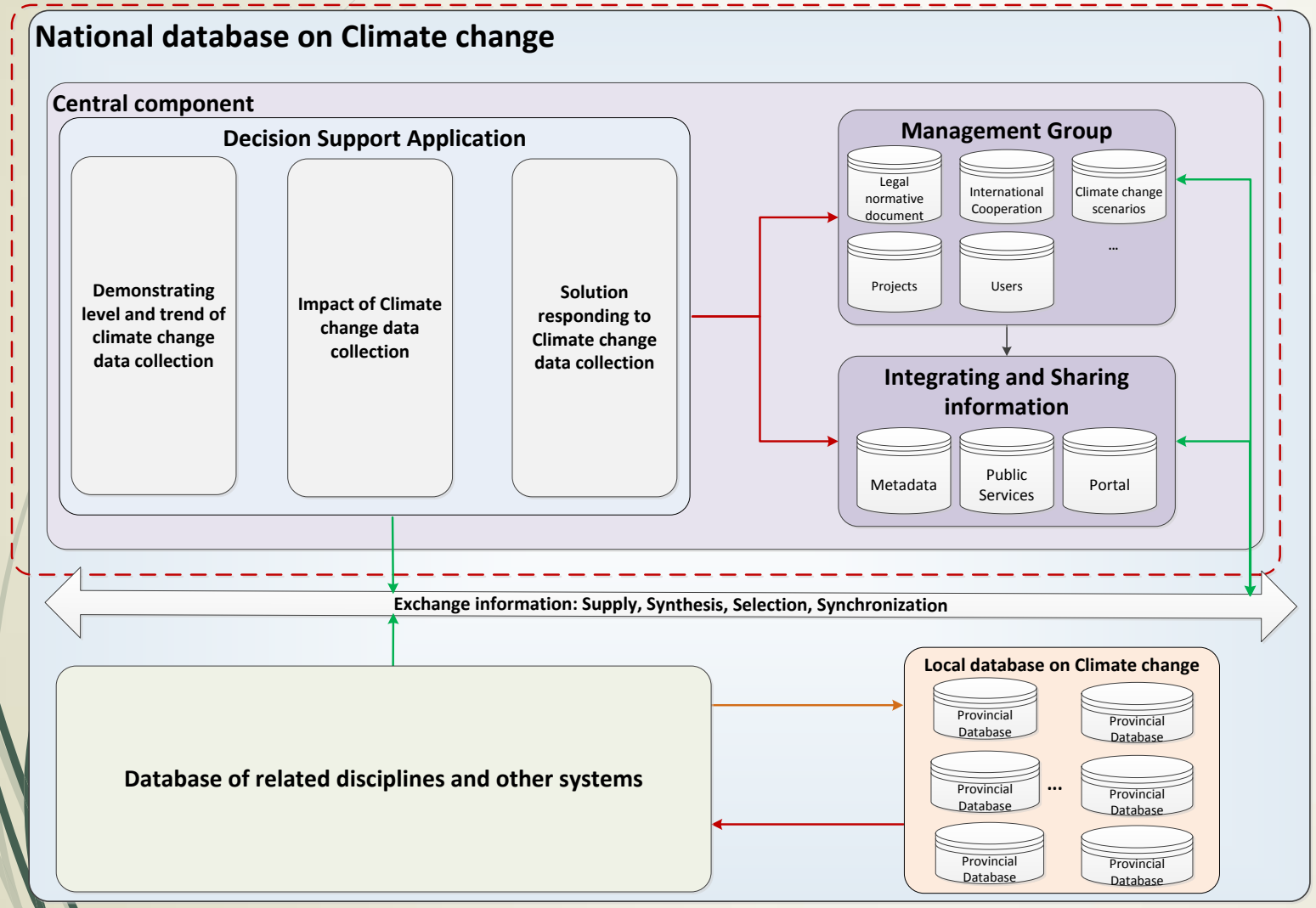
BACKGROUND

- Climate change represents one of the greatest challenges to international cooperation in the United Nations has ever faced
- Climate change affects all the countries in the world, especially coastal countries
- Vietnamese government has initiated various directives and actions, including commitment to the international community, legal actions, organizational structures, educations, research, public awareness, infrastructure investment
- As a part of a governmental research in establishing a legal and technical architecture framework for climate change information, this slide presents a portion of business, data, and application architecture for the National Database for Climate change.

CONCEPTUAL FRAMEWORK



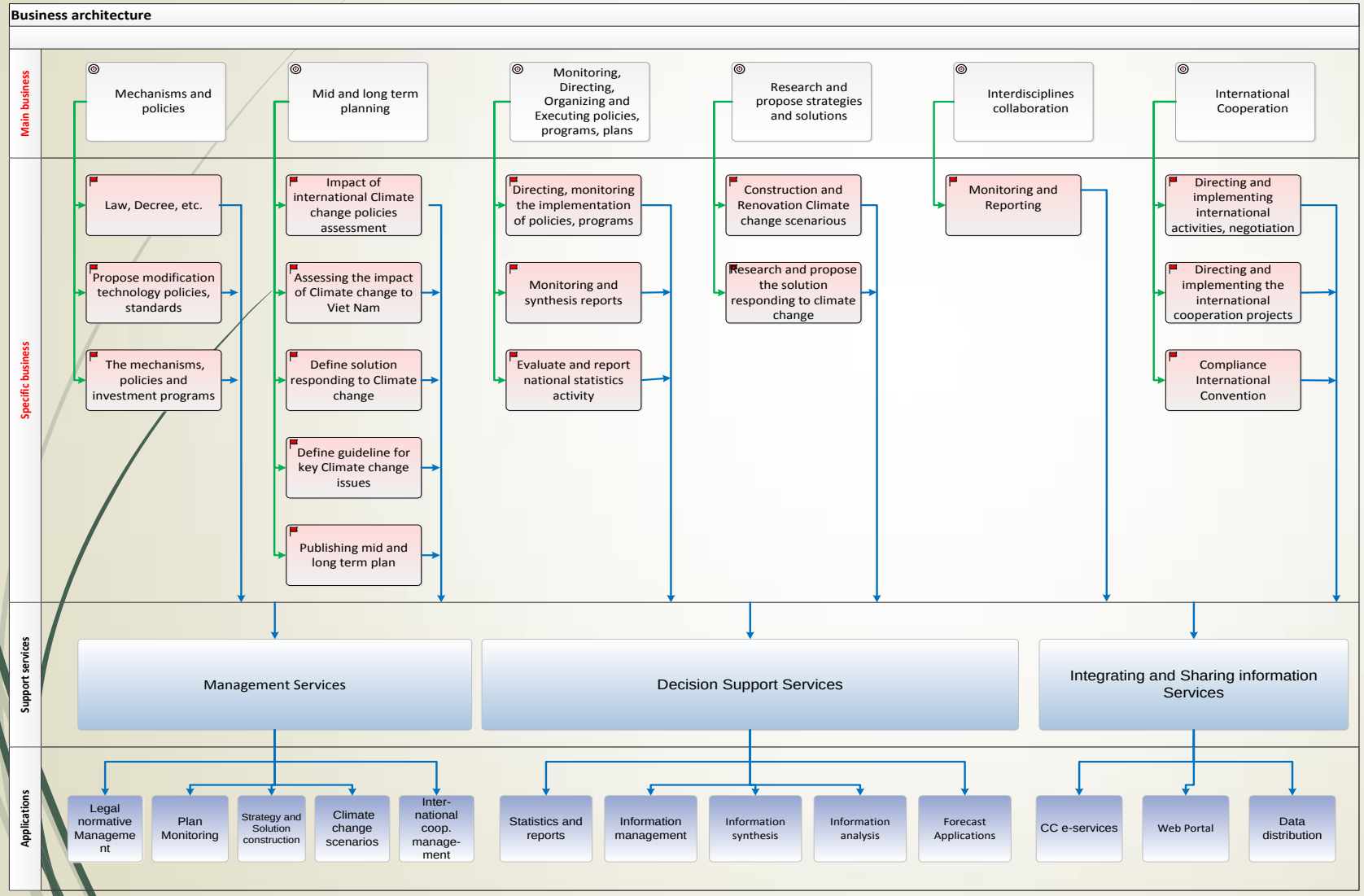
The NDCC consists of 03 major components, including:

- Central component: is a platform for data sharing, data integration, provides sufficient tools and mechanisms for data processing, in order to provides updated, integrated information supports for National level climate change decision makers, and other stakeholders (e.g. researchers, enable data sharing across agencies, etc.)

- Sectoral systems: are professional systems of related domains such as agriculture, industry, environment, water management, meteor-hydrology, geology, etc., these systems are considered as vital data sources for NDCC,

- Local climate change databases: are integrated climate change database for provincial level, these are also important data source for NDCC, providing essential detailed, local data.

BUSINESS ARCHITECTURE



The establishment of NDCC in the first phase will focus on the central component, including gradually legal framework improvement, data/services standardization, ICT infrastructure investment, etc. In term of business support, NDCC in this phase focuses on several national administrative processes:

- Policy and mechanism making,
- Mid and long term planning,
- Monitoring, coordinating, organizing and executing policies, programs and plans,
- Research and propose strategies and solutions,
- Inter-disciplines collaboration,
- International cooperation.

DATA ARCHITECTURE

The level and trend of Climate change

- Temperature
- Precipitation
- Sea-level
- Humidity
- Natural disasters

Solutions relating to Climate change

- Solution responding to Climate change
- Climate change scenarios
- Greenhouse gas

Institutions and policies on Climate change

- Legal normative documents on climate change.
- Technical standards applied on climate change
- International Conventions and Protocol on climate change

Impact of Climate change

- Agriculture, Food Security
- Fishery
- Industry
- Transportation
- Infrastructure construction for development of rural/ urban
- Forestry
- Population
- Land
- Environment
- Water Resources
- Biodiversity
- Medical and public health
- Business services, trade and tourism
- …….

Plans and projects on Climate change

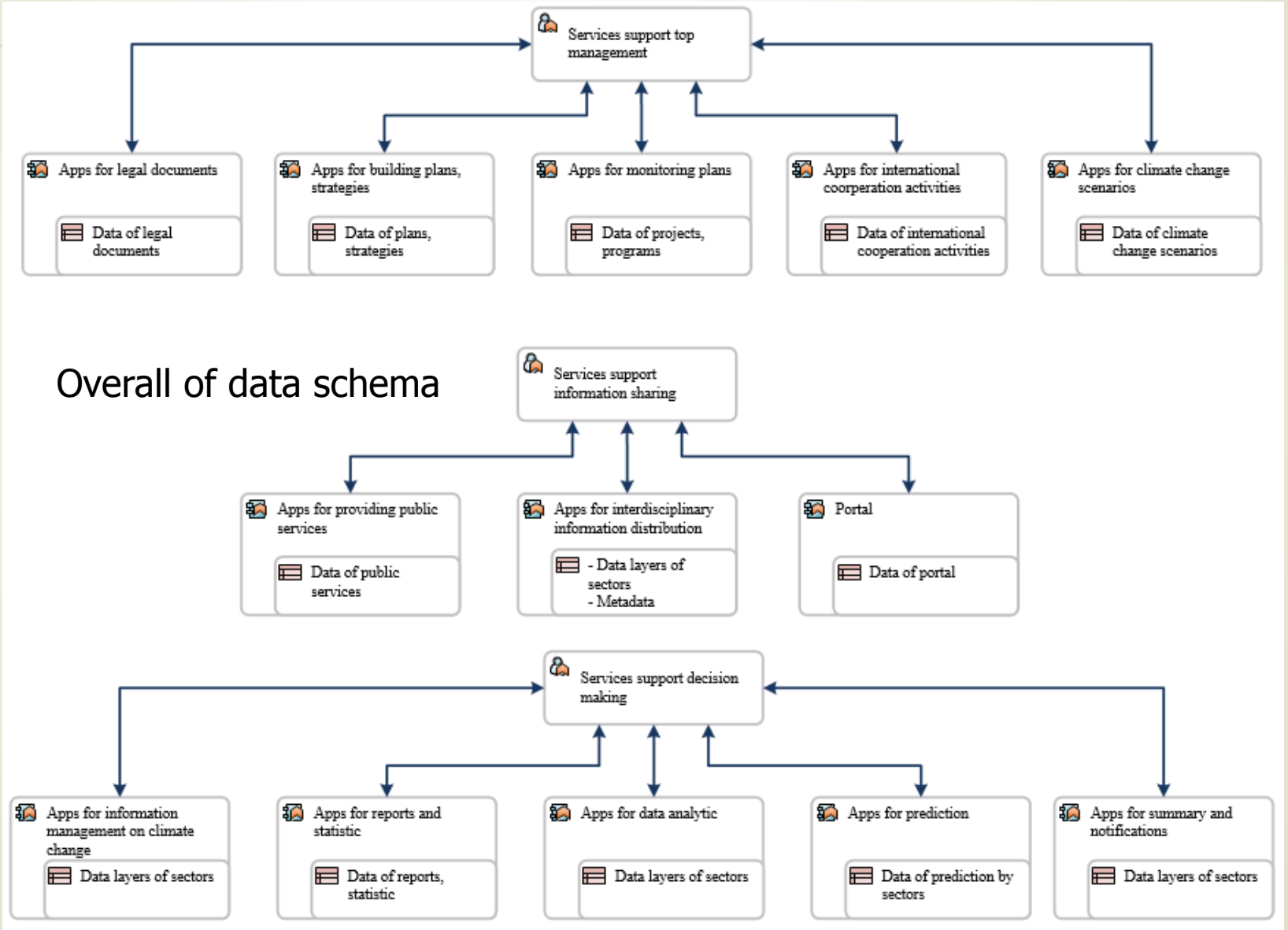
- Action plan responding to Climate change
- Activity report on climate change
- Planning and implementation of programs, projects on Climate change
- Science Technology activities on Climate change

- Climate change related data are collected by ministries and local governments in accordance with common, unified standards. These data will be submitted, collected to central component via several channels: services, reports, extracted/combined, etc.

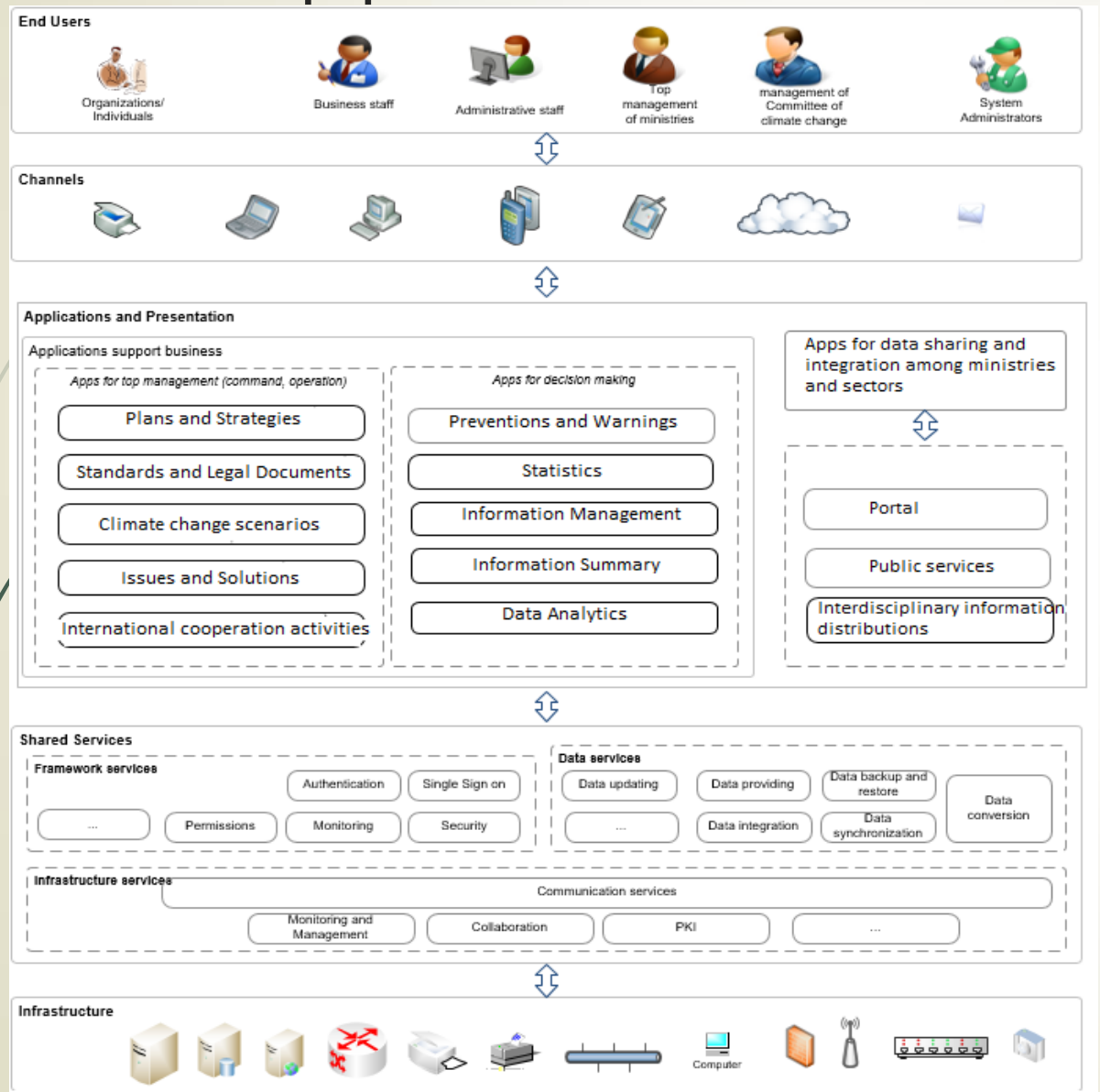
- Datasets in NDCC are structured into five themes as the figure

DATA ARCHITECTURE

Overall of data schema



Application Architecture



End users: who use systems, apps on climate change

Channels: express the methods end users collaborate with systems, apps: smart devices, desktops, cloud,…

Apps layer: Divide apps into groups which support business in climate change area

Data sharing services: provide common services for apps and systems

Infrastructure: provide hardware resources, network to run systems and apps

CONCLUSION AND RECOMMENDATIONS

- Climate change is a complex problem, not only in term of professional procedures but also in term of geographic effects. Establishing a modern, effective mechanism for climate change information management in National level will provide a concrete basis for coordinating, steering and collaboration efforts from many parties in both public and private sector.
- Besides, responding and reducing climate change effects are global efforts; Vietnam aims to contribute actively to international community, as a committed member. It requires not only fully compliance to international conventions, but also urges for the need of an open, standardized information system, accessible to international community.
- Our research has merely proposed a concept model of NDCC that enable a centralized, standardized information management in National macro administration. In order to fully operate and maximize NDCC capability requires huge efforts from the government in many aspects: institutional, technical, organizational, etc.
- Besides, climate change data are being used in many domains and usually are secondary data (extracted and/or combined from various datasets of several stakeholders); therefore there should be a certain level of dependency within related systems. The establishment and operation of NDCC should be considered as a platform for collaboration rather than interfere with existing sectoral systems.