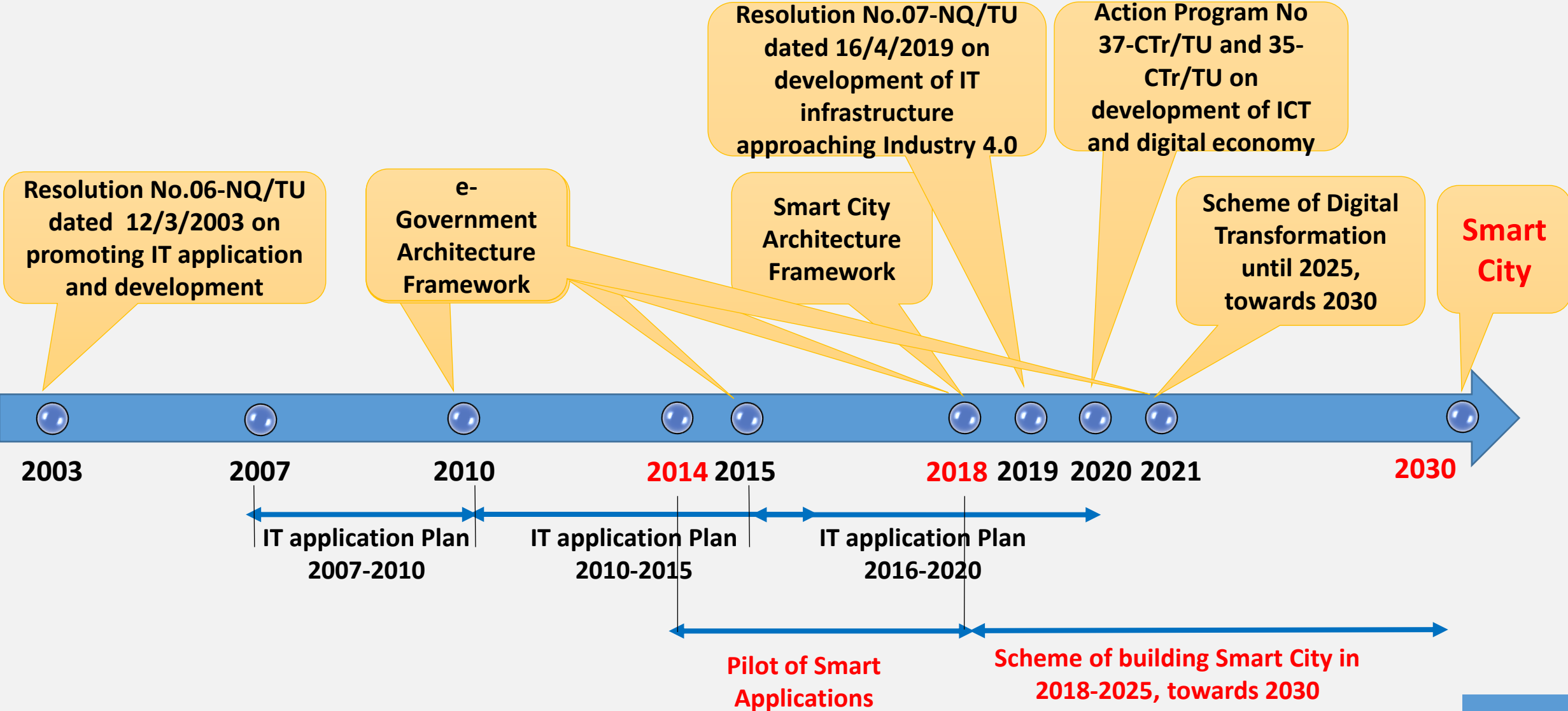


# ***OPEN SOURCE SOLUTIONS IN DIGITAL GOVERNMENT AND SMART CITY IN DA NANG CITY***

*PhD Thái Thanh Hải  
Head of Information Technology Division  
Da Nang Department of Information and Communications*



# MILESTONE OF IT APPLICATION AND DEVELOPMENT



# STRATEGY OF BUILDING SMART CITY AND DIGITAL TRANSFORMATION

## OBJECTIVE 2030

Completing the construction of smart city, synchronously connecting with smart urban networks in the country and ASEAN region

By 2020:  
Smart Infrastructure,  
Platform and Data

By 2025  
Smart Applications

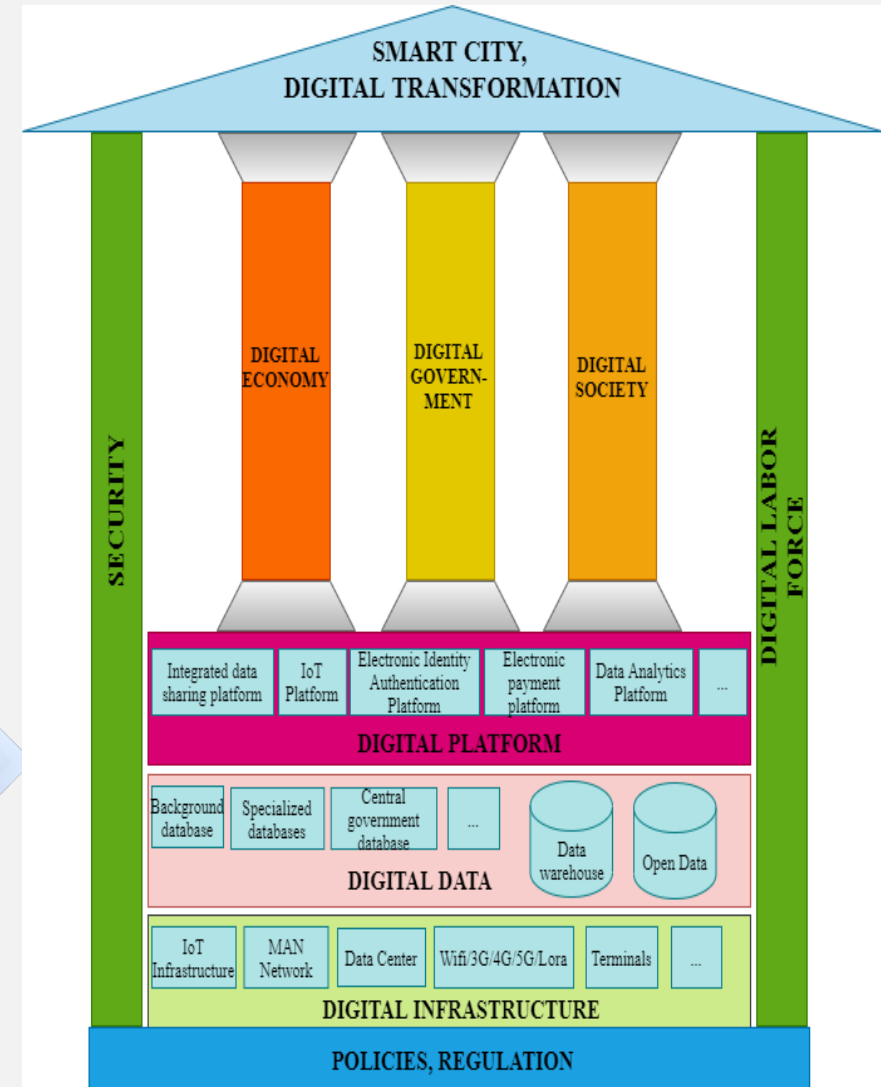
Digital economy accounts for  
20% GRDP; in which ICT  
Industry reaches 10% GRDP

## VISION 2045

To develop Da Nang into a major ecological and smart city, a center of entrepreneurship, innovation, and a coastal city worth living in Asia

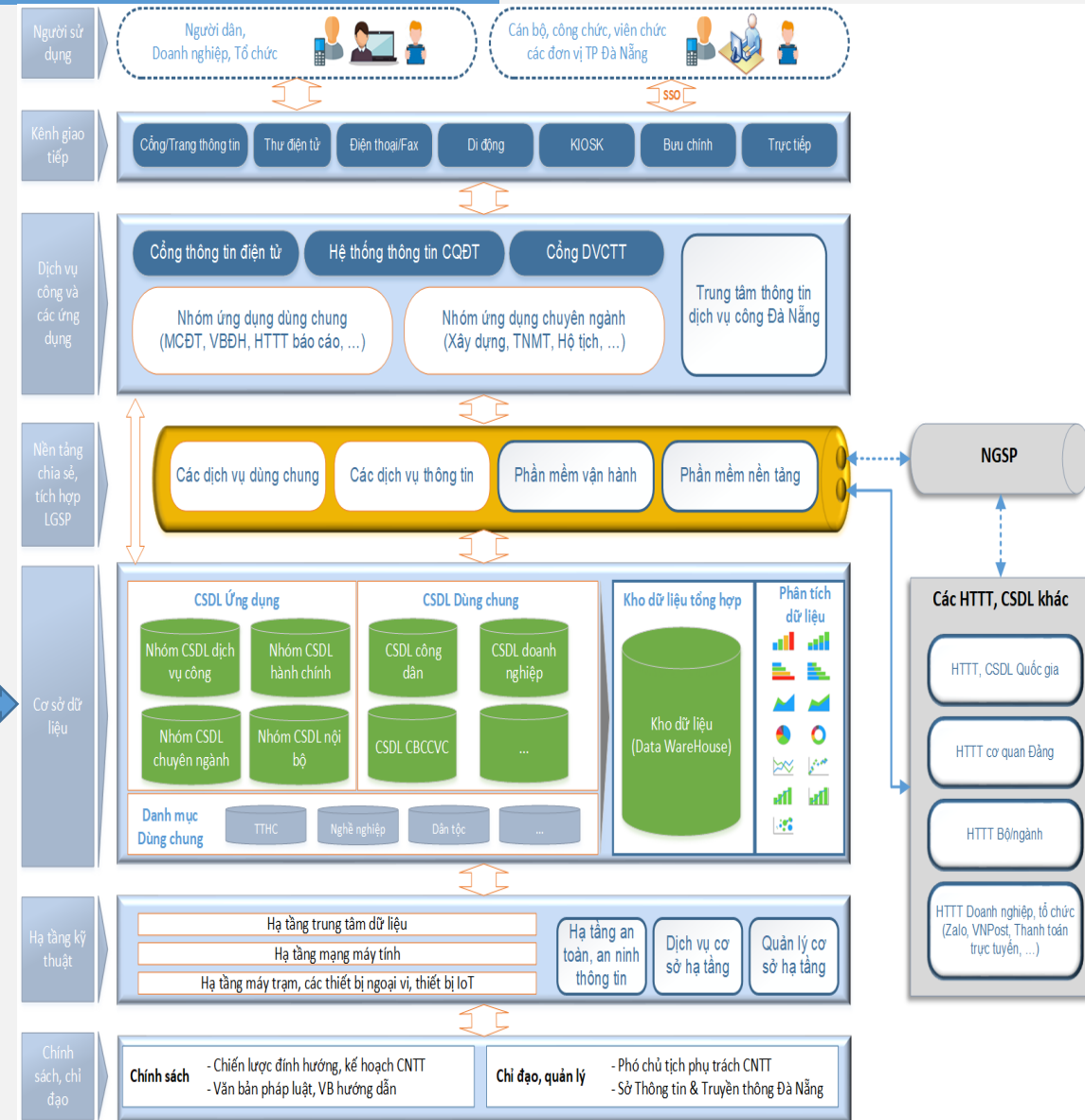
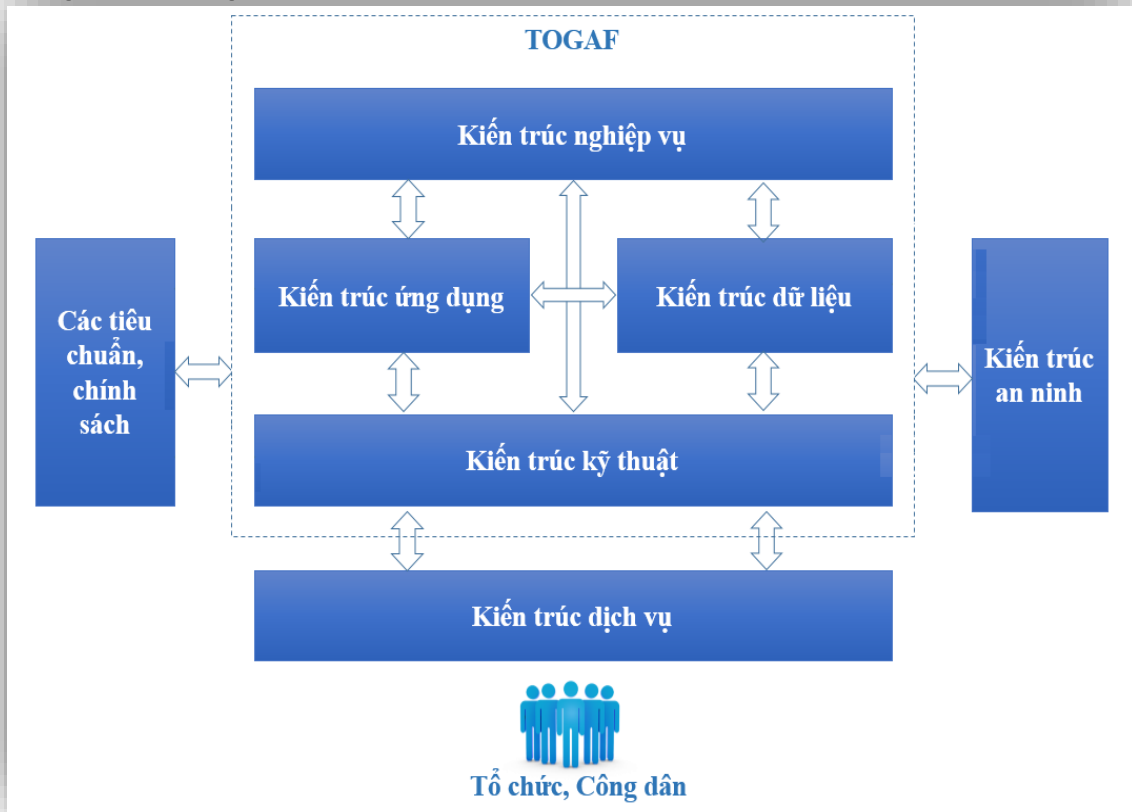
By 2030  
Smart Community  
Applications

Digital economy accounts for  
30% GRDP; in which ICT  
Industry reaches 15% GRDP



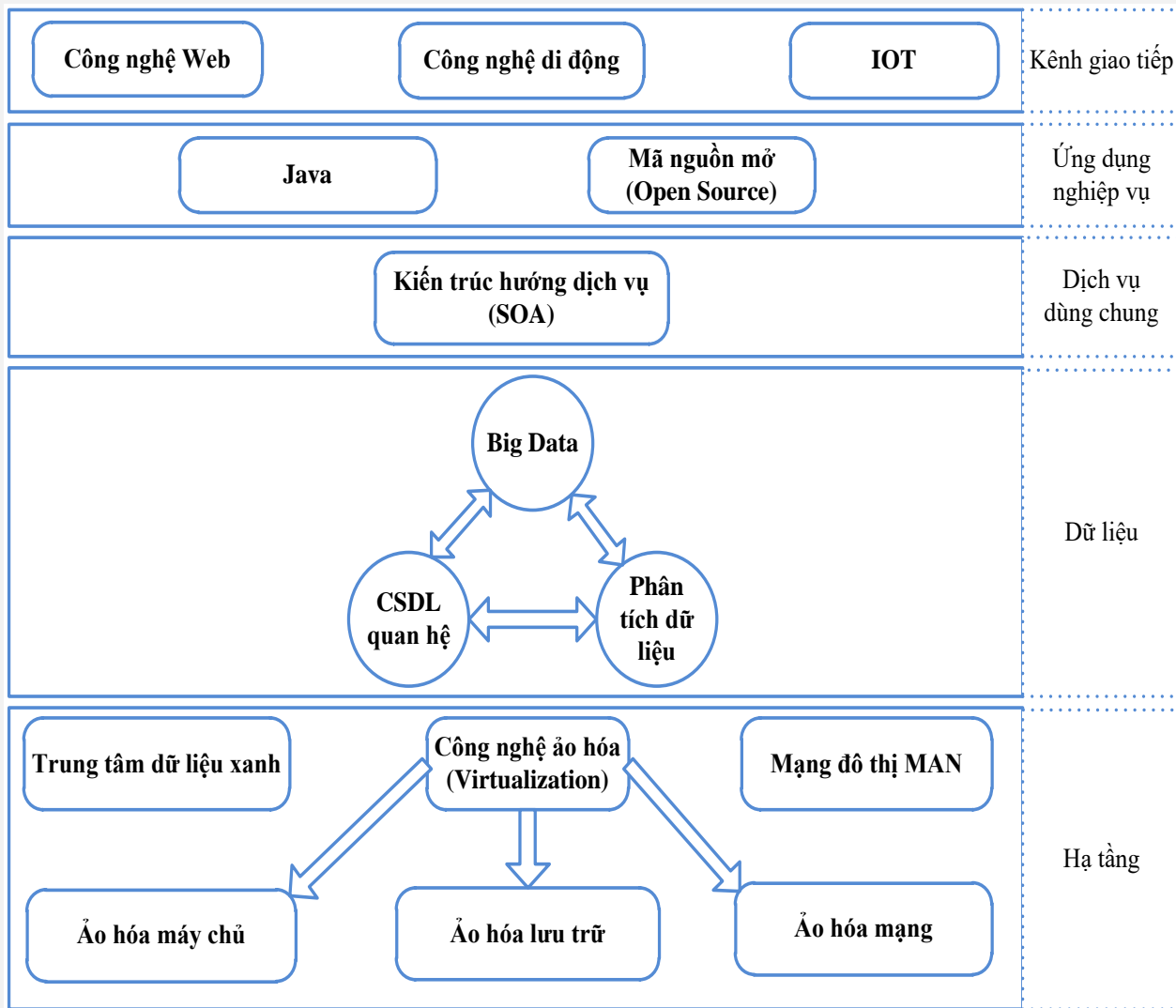
# E-GOVERNMENT ARCHITECTURE FRAMEWORK

- Da Nang E-Government Architecture Framework firstly issued in 2010 and continuously revised in 2015, 2018 and 2021
- **Centralized Approach**
- **Based on The Open Group Architecture Framework (TOGAF)**



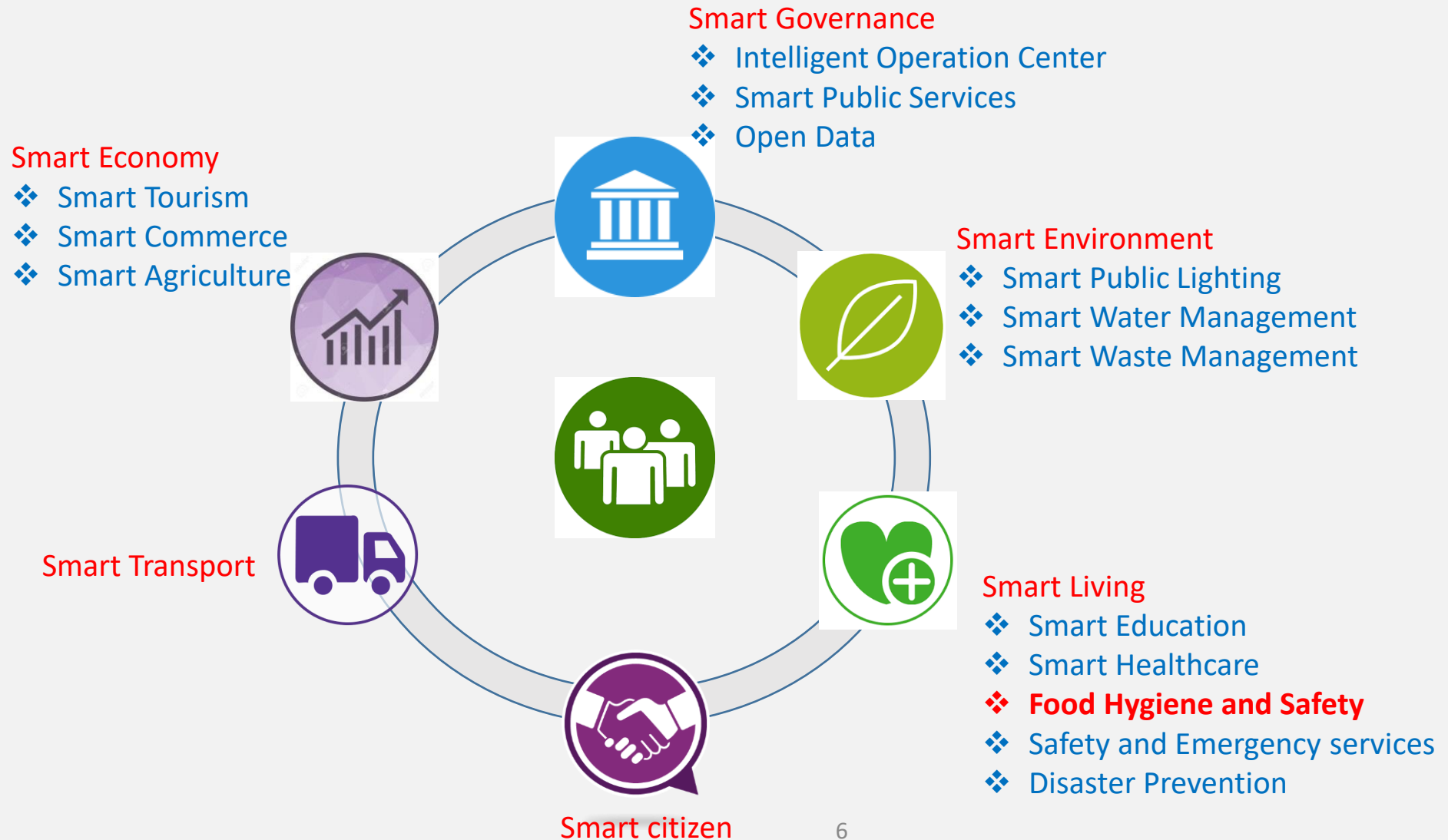
# TECHNOLOGY ARCHITECTURE

## Technology Architecture



- The cross-cutting point of technology selection in the Da Nang city's e-Government application system is **the promotion of open source-based solutions.**
- **Two basic principles in building e-Government systems:**
  - ✓ Ensure technological independence
  - ✓ Control technology diversity

# SMART CITY PILLARS WITH CITIZEN-CENTRIC APPROACH



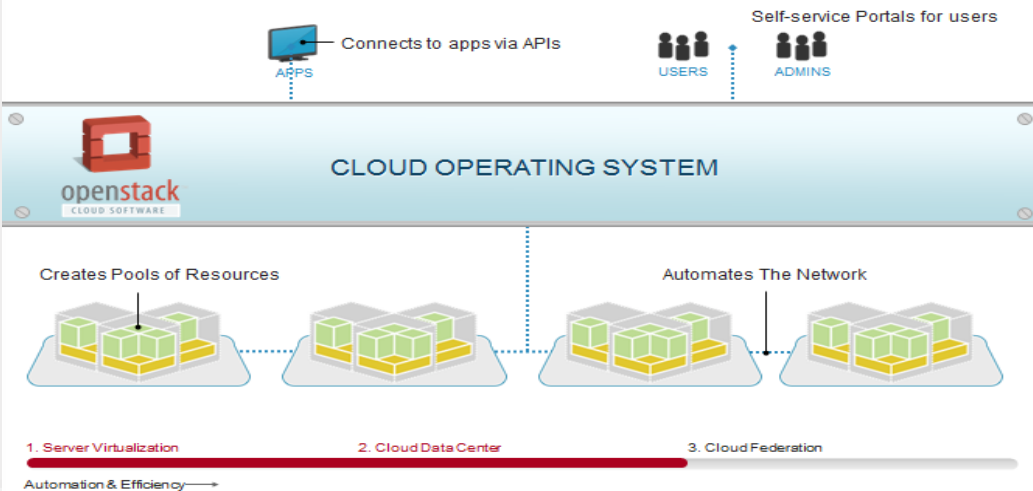
# IT INFRASTRUCTURE

## Data Center (TIER III, 200TB)



### Solution: OpenStack, The Cloud Operating System

A NEW MANAGEMENT LAYER THAT ADDS AUTOMATION AND CONTROL



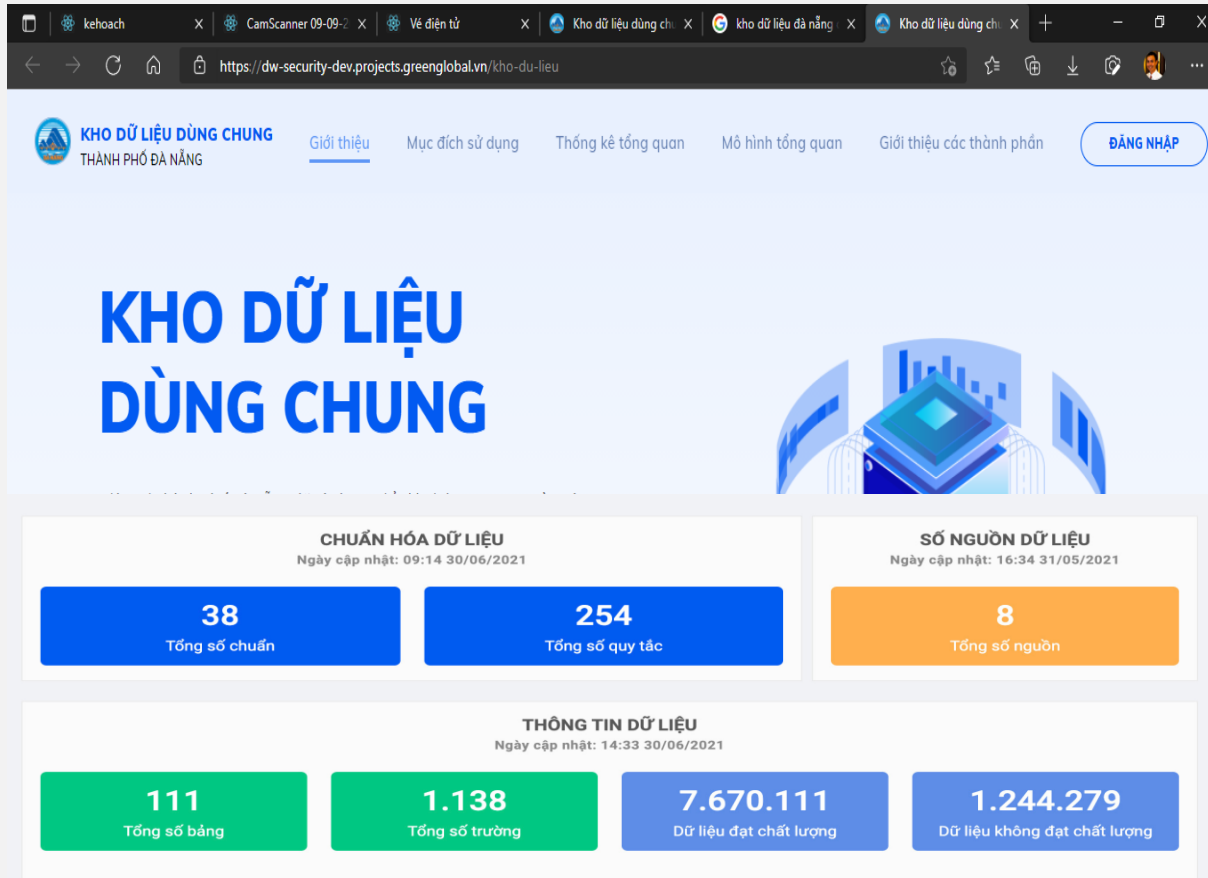
## Triển khai

- Nâng cấp băng thông kết nối internet lên 20Gbps.
- Ứng dụng công nghệ Software Defined Network.
- Ứng dụng công nghệ Spine – leaf.
- Triển khai IPv6 cho toàn bộ hệ thống.
- Lưu trữ Software Defined Storage (CEPH).
- Giải pháp cloud computing.

# DATA

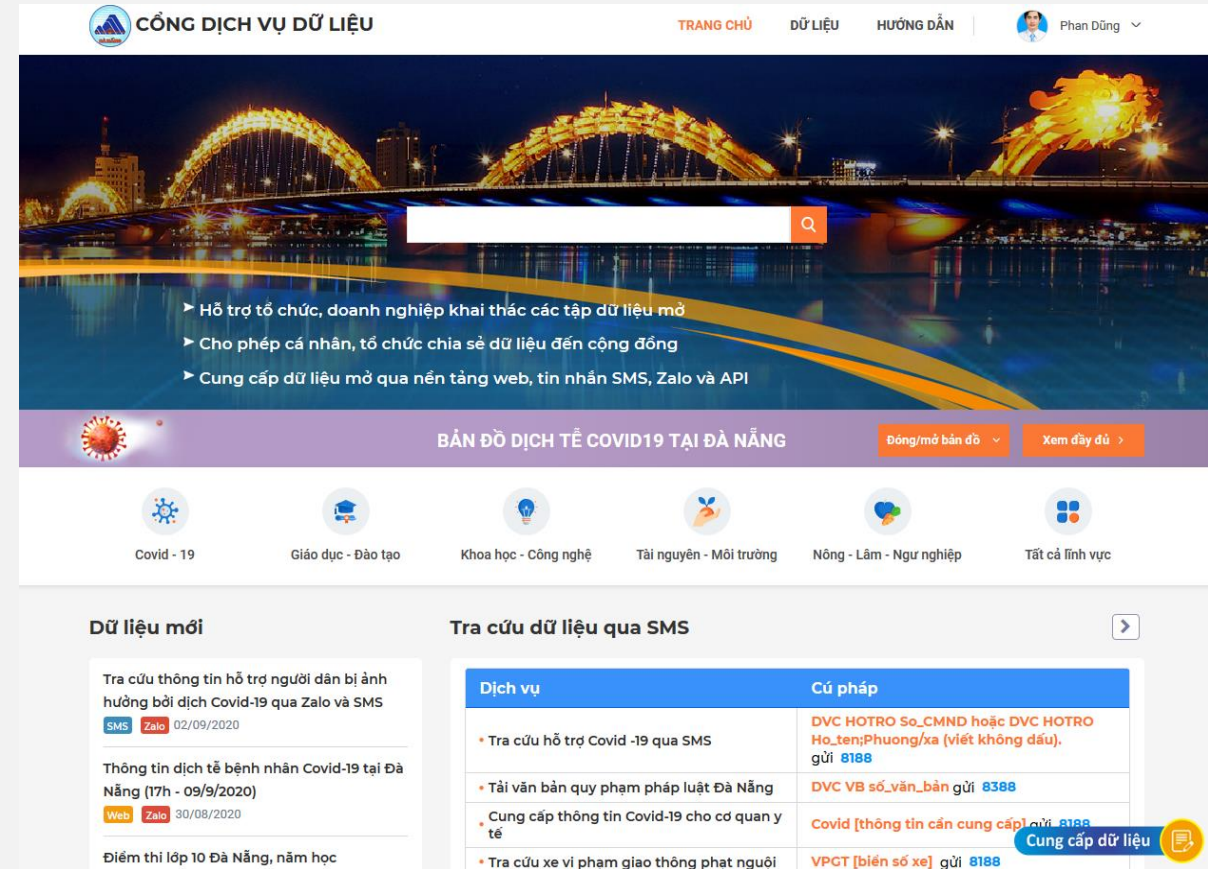
## **Data Warehouse** **([khodulieu.danang.gov.vn](http://khodulieu.danang.gov.vn))**

Collect, clean, normalize, process data (structured, semi-structured); is expanding processing of unstructured data



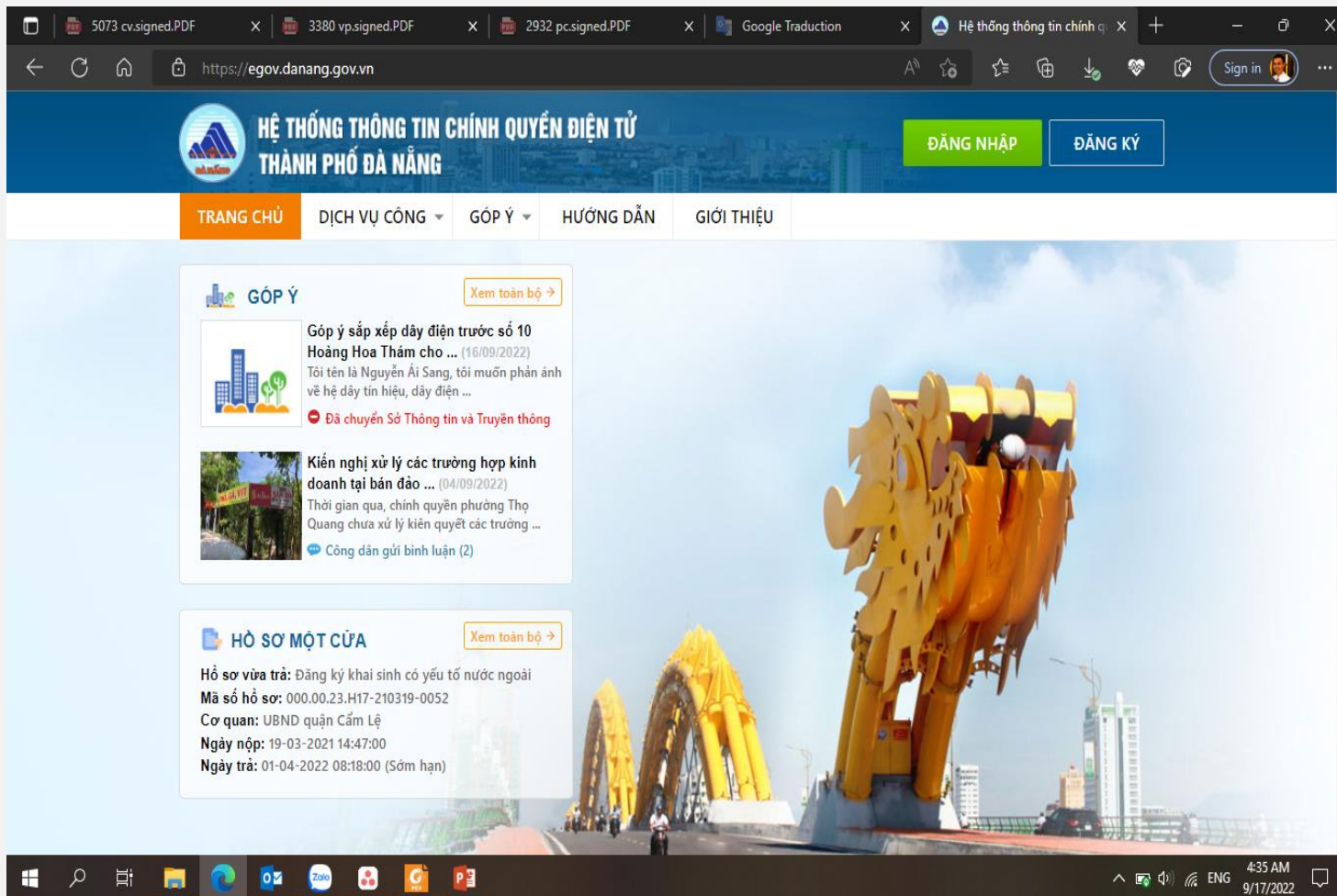
## **Open Data Portal** **([opendata.danang.gov.vn](http://opendata.danang.gov.vn) or [dichvucong.vn](http://dichvucong.vn))**

Provides nearly 600 open datasets (via web, SMS, API, Zalo)





# SMART GOVERNANCE



## *E-Government Information System*

- Technology transfer from Korea and put into operation from 7/2014
- **Based on open source solutions Liferay Framework**
- **Platform to deploy common-use and specialized applications** (one-stop shop, e-Office, human resources management,...)

# SMART GOVERNANCE

## Local Governance Service Platform

- **44** API services
- **>22** million transactions via LGSP

The screenshot shows the LGSP website for Da Nang City. The header includes the logo and text "NỀN TẢNG TÍCH HỢP, CHIA SẺ DỮ LIỆU (LGSP) THÀNH PHỐ ĐÀ NẴNG". Navigation links include "TRANG CHỦ", "TÀI LIỆU", "MÔ HÌNH KẾT NỐI", and "ĐĂNG KÝ SỬ DỤNG". The main content area features two bullet points: "4. Các dịch vụ nền tảng dùng chung quốc gia." and "5. Các dịch vụ kết nối liên thông khác phục vụ mục tiêu xây dựng chính phủ điện tử." Below this is a "Thông số tổng quan" (General Statistics) section with four colored boxes:

Category	Value	Last Updated
Nhóm API toàn hệ thống	41	11-10-2021 14:52:37
Ứng dụng toàn hệ thống	24	12-10-2021 10:37:51
Tổng lượt đăng ký API	95	12-10-2021 10:37:53
Tổng lượt truy cập	20120302	18/10/2021 04:10:27

## Online Public Service Portal

- 100% of eligible online public services have implemented level 4
- Piloting the use of digital data to replace dossier components (Red book, household registration book, business registration certificate)

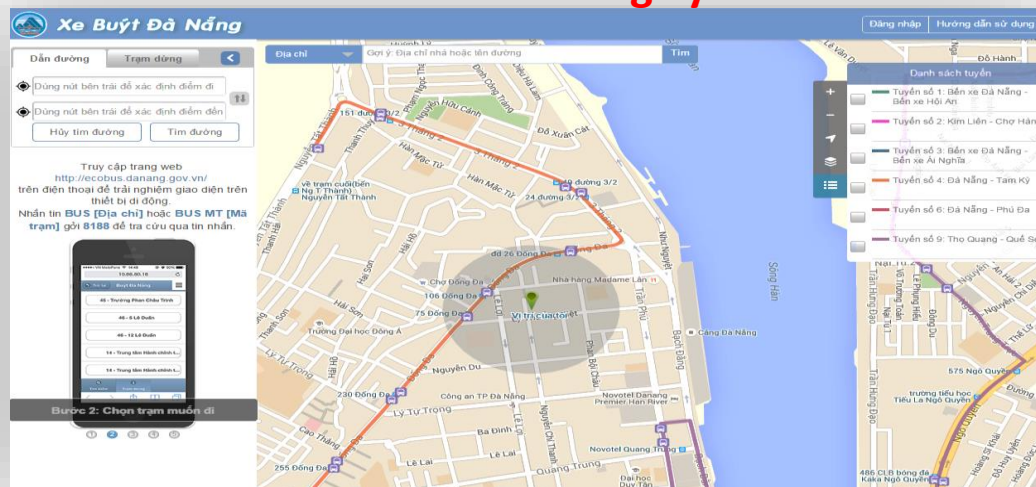
The screenshot shows the Online Public Service Portal website for Da Nang City. The header includes the logo and text "CÔNG DỊCH VỤ CÔNG TRỰC TUYẾN THÀNH PHỐ ĐÀ NẴNG". Navigation links include "DỊCH VỤ CÔNG", "THỦ TỤC HÀNH CHÍNH", "TRA CỨU HỒ SƠ", and "HƯỚNG DẪN SỬ DỤNG". The main content area features a search bar and four service categories represented by envelope icons: "SỞ, BAN, NGÀNH", "QUẬN, HUYỆN", "PHƯỜNG, XÃ", and "CƠ QUAN TW TẠI ĐÀ NẴNG".

# SMART TRANSPORTATION

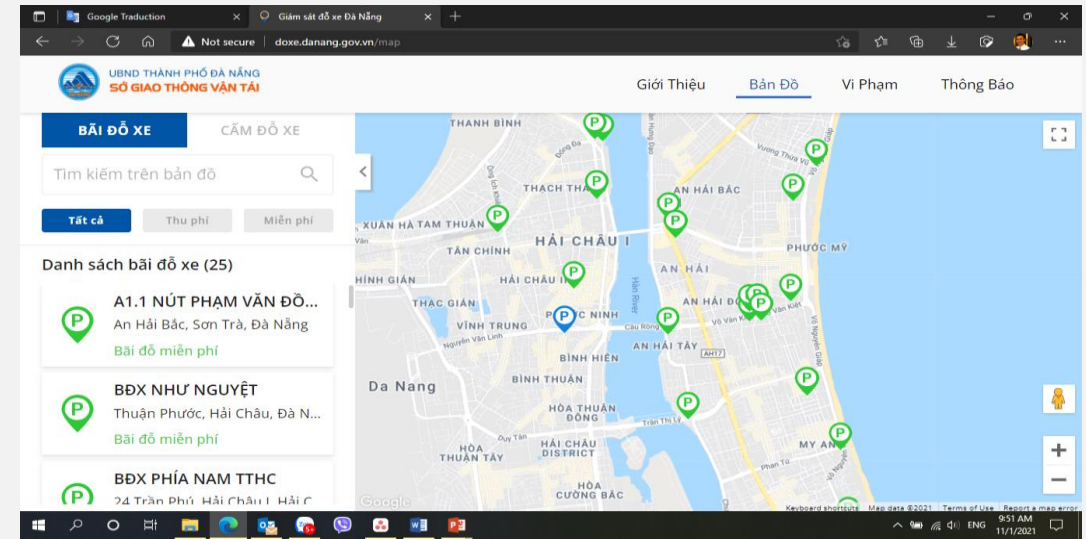
**Center of traffic monitoring and control (270 monitoring cameras; license plate recognition, traffic violation detection, vehicle tracing;...)**



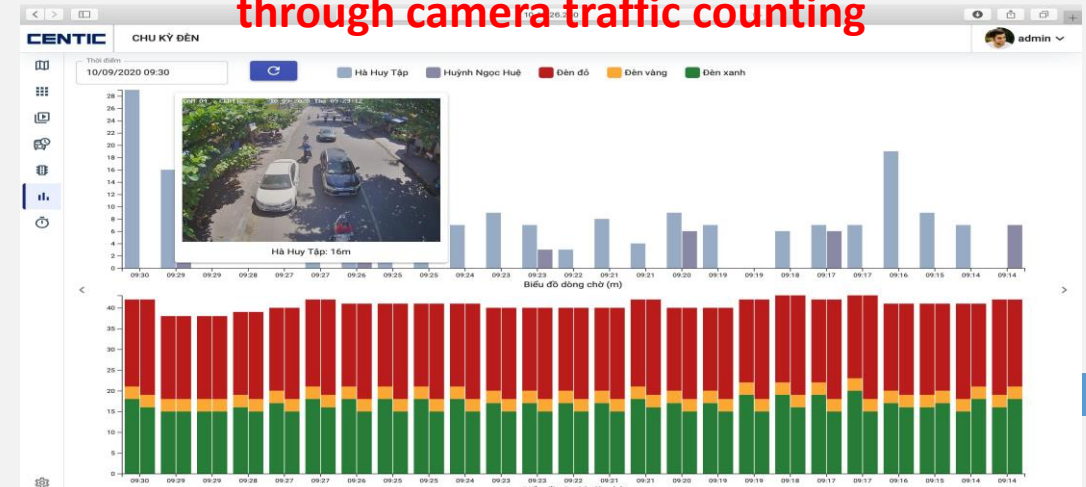
**Bus Cruise Monitoring System**



**Parking Monitoring System (25 parking lots throughout the city; 73 no-parking routes)**



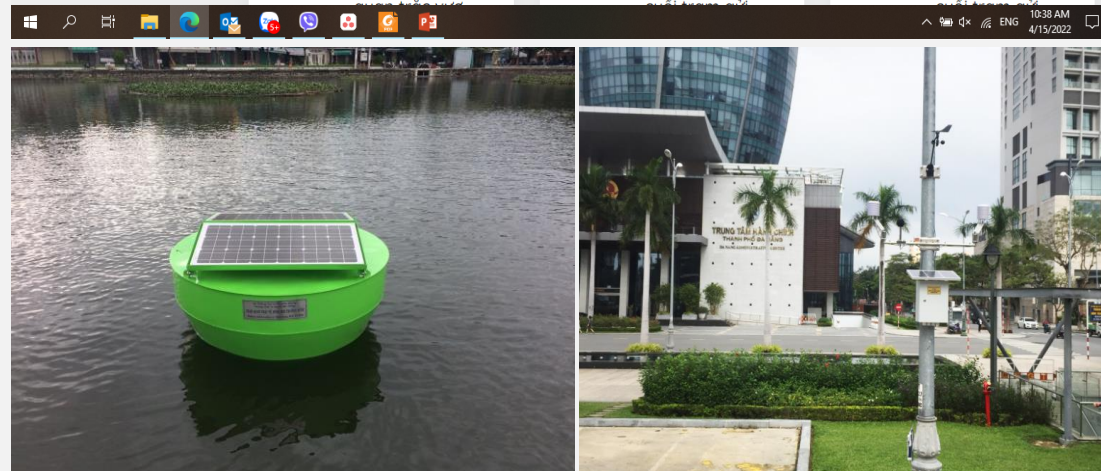
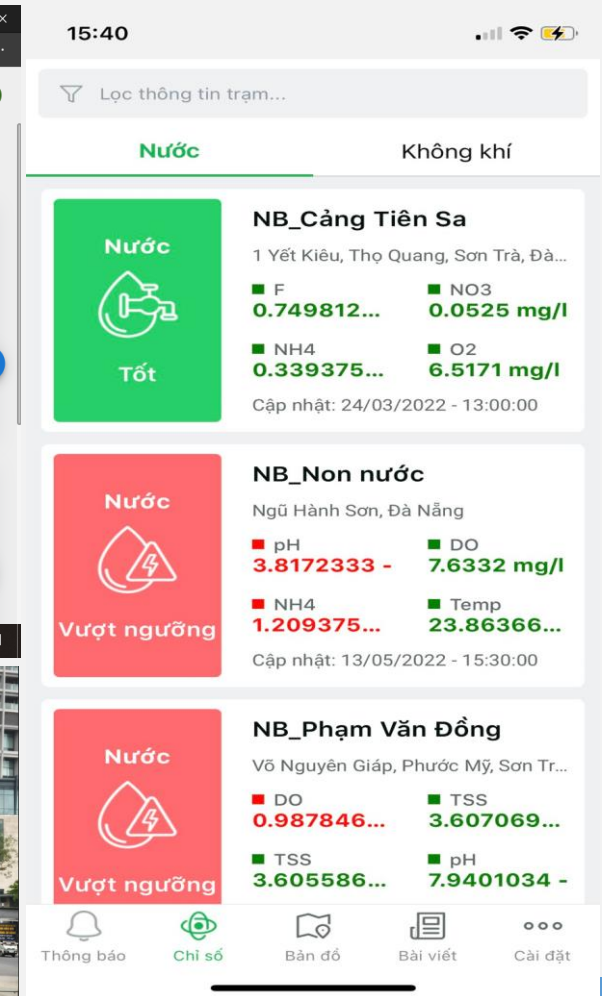
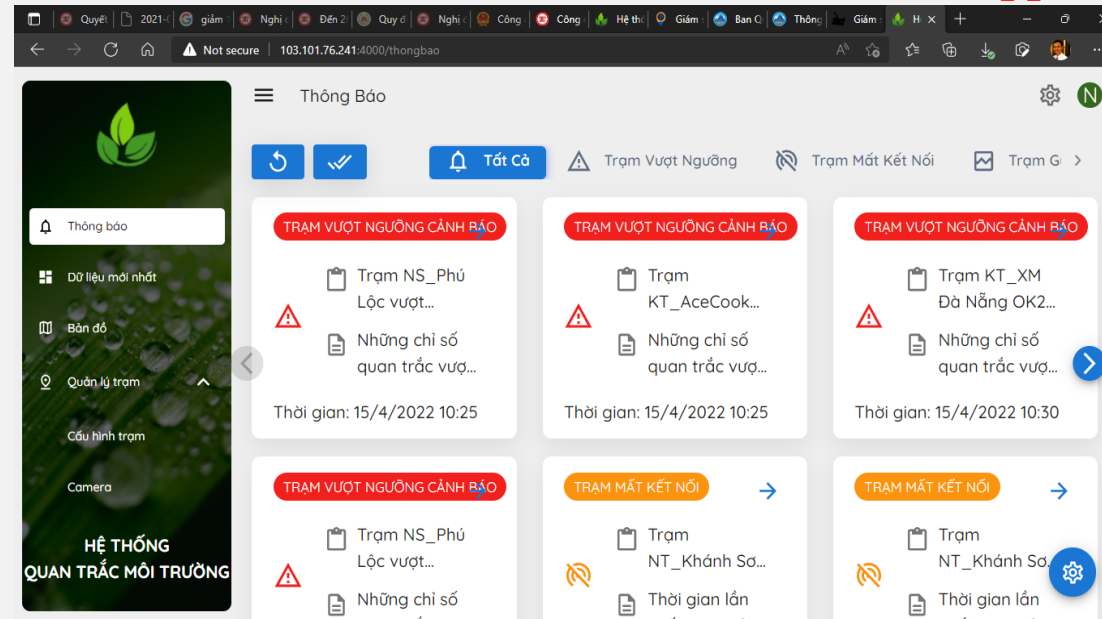
**Automatic control of traffic light signals through camera traffic counting**



# SMART ENVIRONMENT

## Integrated Environment Monitoring Platform (web and mobile app)

- **Integrated Environment Monitoring Platform:**
  - **Environment monitoring stations**
- + Lake water: 5 stations
- + Supply water: 1 stations
- + Wastewater: 28 stations
- + Air: 2 stations

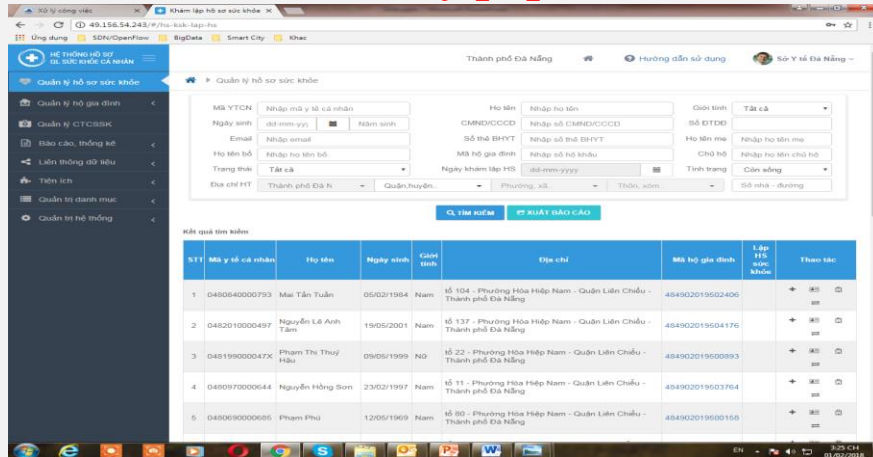


# SMART LIVING

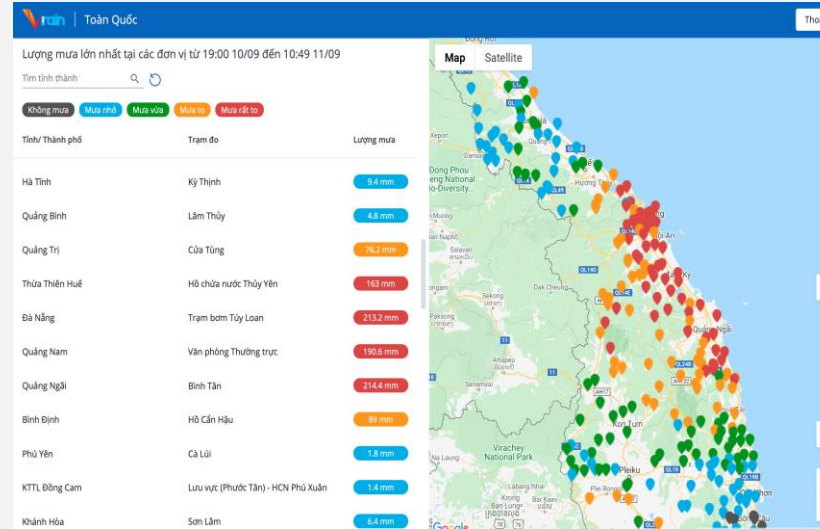
## Command Center of Public Authority Agency (1800 monitoring cameras)



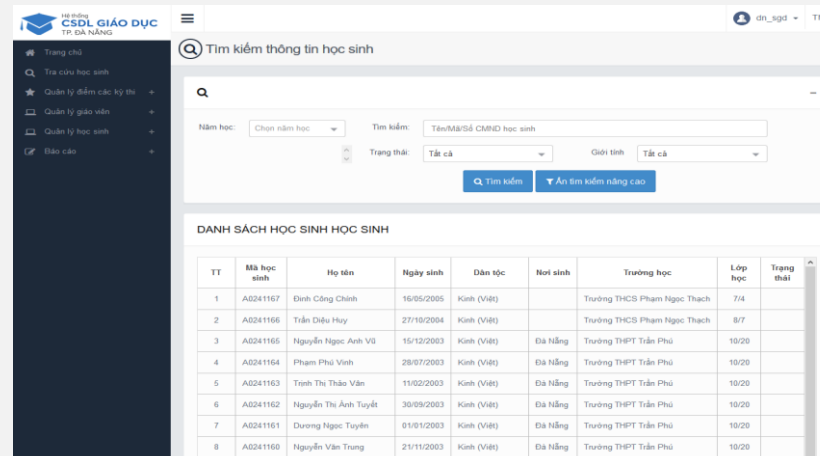
## Electronic Medical Record (~100% city population)



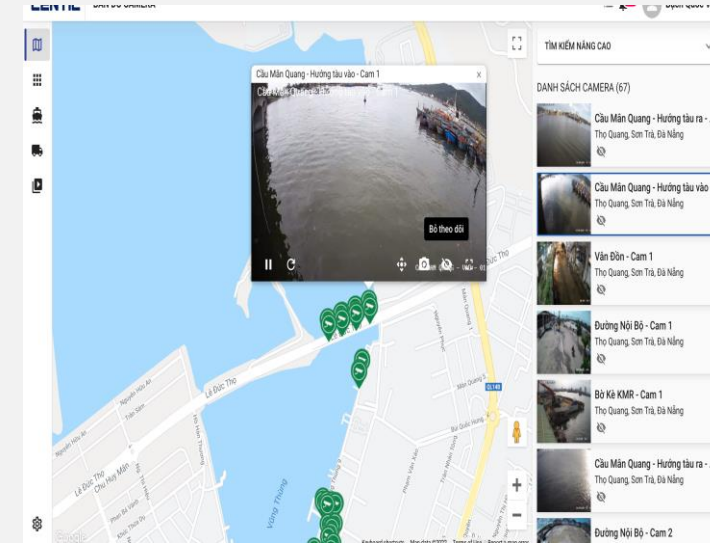
## Automatic Rain Measuring Stations



## Electronic Educational Record (100% schools, teachers, students)



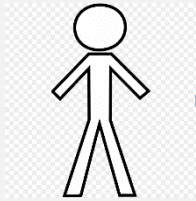
## Ship Monitoring System



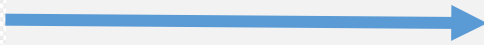
## Food traceability (>2000 businesses)



# SMART CITIZEN



Employ services



*Each citizen has 01 digital profile, attached a unique QR code (only for long-term use)*

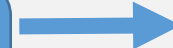
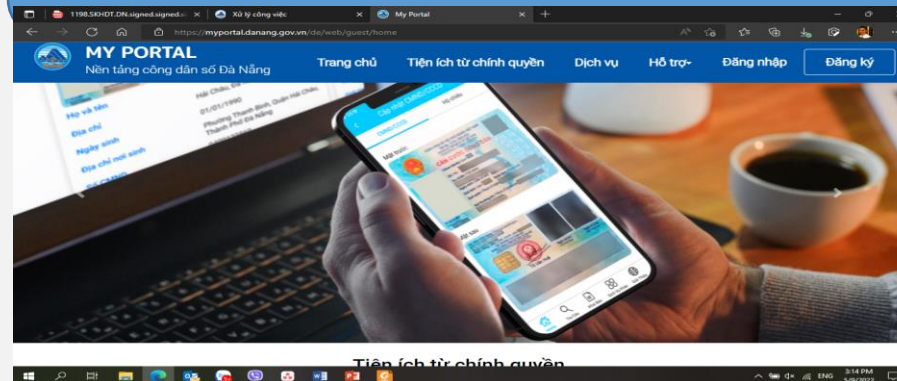


- Provide timely information and guidance to citizens
- Provide digital services readily available and convenient to the people
- Online payment for services: Electricity, water, environment, health care, education, ..
- People can easily comment, reflect, and make suggestions to the Government and can handle and respond to their results

*Citizen/Youth Union/Community Digital Technology Team register, create digital accounts, digital businesses*



**DIGITAL CITIZEN PLATFORM (My Portal)**



- E-Government System and Smart Applications
- Specialized Applications
- Digital service delivery platforms

**THANK YOU**

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