Integrated Planning: A Green, Healthy & Smart Urbanization Initiative

Guided by Integration of Best Global Practices of Sustainable & Intelligent Urban Development

Creating GREEN, SMART & HEALTHY COMMUNITIES IN CHINA

- China Development Bank: The largest sovereign and full service bank in China
  - the largest infrastructure development bank
  - the largest foreign currency lender
  - the largest bond-issuing bank
  - the largest network of corporate clients among all major Chinese banks
  - the highest credit rating among Chinese banks
- CDB is the major financial engine for the Chinese urbanization

(CDB ASSETS = THAT OF WORLD BANK AND ASIA DEVELOPMENT BANK COMBINED)

<table>
<thead>
<tr>
<th>P. R. China</th>
<th>CDB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moody's</td>
<td>Aa3 Rating outlook: Stable</td>
</tr>
<tr>
<td>Standard &amp; Poor's</td>
<td>AA- Rating outlook: Stable</td>
</tr>
<tr>
<td>Fitch</td>
<td>A+ Rating outlook: Stable</td>
</tr>
<tr>
<td>R&amp;I</td>
<td>Rating A+ outlook: Stable</td>
</tr>
</tbody>
</table>
12 Green Urban Development Guidelines
6 Smart Urban Development Guidelines

1. Smart Telecommunications
2. Smart Mobility
3. Smart Energy Management
4. Smart Governance
5. Smart Public Services
6. Smart Safety
Relationship between Green and Smart Urban Development Guidelines

SMART TECHNOLOGIES ARE ENABLERS TO REACH SUSTAINABILITY
Intelligent Integration of Global Best Practices

- **Integrated Planning:** Water, waste, transportation, energy, healthcare, education, food safety, innovation hub, etc.

- **Integrated Development Management:** Infrastructure and buildings

- **Integrated & Big Data Driven Green, Smart City Operation Management:** Share data and vertical expertise integrated

**ICT / Technology IS Service = PPP Business Model**
Nanjing Twinbridge: Best Practice Global Living Lab
Urban Regeneration

定位 POSITIONING

绿色智慧
GREEN & SMART

通达便捷
ACCESSIBLE & CONVENIENT

自然健康
NATURAL & HEALTHY

繁荣机遇
PROSPEROUS & OPPORTUNITY

活力多元
VIBRANT & DIVERSE

产融创新
INDUSTRIAL, INTEGRATED & INNOVATIVE

雨花谷
YUHUA VALLEY
全球最佳实践实验室
THE BEST GLOBAL LIVING LAB
Showcase Development Planning: 21 sq. KM

- 1-hr High Speed Train from Shanghai
- 300,000 current residents
- Adjacent to China’s largest software park with US$22B annual revenue
我们提供一站式的、多领域跨界整合协同的、产城融合的、从规划、开发、管理到运营的全程式的服务。

是财富500强和标准普尔500强企业，拥有全球最完善的智能资产、最优质全面的综合业务平台和最深入的本地市场知识。

SOM在建筑技术与设计品质方面的贡献是20世纪世界建筑领域中最重要成就之一。

由美国哈佛大学设计学博士、北京大学景观设计学研究院院长俞孔坚教授于1997年领衔创立，为北京市高新技术企业，具有国家规划设计甲级资质。

中国国家权威编制可持续交通导则单位，中国交通运输部指定研究院和研究中心，为公交都市创建监督机制编制单位。

全球前五大智慧绿色建筑，中国获奖最多的绿色建筑铂金认证和唯一铂金动态认证综合体

Spearheading the CDBC’s Green & Smart Urbanization Guidelines

Global Leader in Real Estate

American Planner of most landmarks in China

14 years of American Landscape Asso. Awards

The renown green transportation planner & regulation drafter in China

One of the 5 most advanced green and smart mixed use & winner of most green building awards
Small Government, Big Service
9 Smart City Service Verticals

- Smart Environment Monitoring and Information Publishing System
- Smart Energy System
- Smart Video Surveillance
- Smart Lighting
- Smart Transportation
- Smart Buildings
- Smart Working and Learning
- Smart Health Care
- Smart Commerce

Small Government, Big Service
9 Smart City Service Verticals
## Overview

Using IoT technology to conduct water quality monitoring, air quality online monitoring, and noise monitoring, and to provide real-time feedback for timely intervention.

## Function and Effect

Water quality monitor, air quality monitor, noise monitor; statistical analysis of the data; based on statistical analysis to improve the environment; hazard warning.

### Subsystem

<table>
<thead>
<tr>
<th>Subsystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality Monitoring System</td>
</tr>
<tr>
<td>Water Monitoring System</td>
</tr>
<tr>
<td>Noise Monitoring System</td>
</tr>
</tbody>
</table>

### Sketch for smart environment monitoring and information publishing system

- Virtual Reality
- Situation Analysis
- Expert System
- Cloud Computing
- Data Center
- Data Mining
- RFID Tech
- Biosensor
- Acoustic Sensor
- Optical Sensor
- Infrared Sensor
- Satellite Remote Sensing
- Infrared Sensor
City-wide infrastructure for Ubiquitous Connectivity

Smart Transportation – Integrated Connections

- Transform urban mobility & transportation patterns
- Enhance citizen engagements

Area-wide, Time-based Flexible Road Pricing

Modal Shift Encouragement to Public Transport

Smart Work Center
- Mobile Working Enhancement
- Smart Development: Integration of Transport and Land Use

Connected Bus
- Passenger Service Experience Improvement
- Rich Ubiquitous Connectivity

Connected Work Center
- Connected Transit Complex
- Connected Bicycle

IP Bus

Connected Bus Stop

Connected Station

Personal Travel Assistant
- Personal Activity Coordinator
- Smart Parking Management
- Connected Bicycle
- Connected Transit Complex
- Connected Work Center

Informed Decision Making on day to day ‘Travel Moments’ focused on improving choice and experience
Intelligent Dynamic Road/Street Lighting

The system consists of dimmable street and a wireless sensor module which enables presence based light control.

During off-peak hours lights dim to a pre-defined level. Upon detection of a pedestrian, bicycle, or car, all lights in the vicinity increase to full brightness.

In this way the solution combines safety with savings.
### Overview

The smart energy system is based on intelligent internet platform of IP to achieve the management of electricity, hot water, and gas.

Smart Energy Systems in converged IP architecture to provide energy efficiency management services.

### Functions & Effects

- Provide more usable energy to more people
- Reduce energy costs
- Improve the operations and energy use efficiency
- Reduce carbon emission
Overview: Professional technical teams, using automation, IoT, cloud computing technology, to provide all types of energy-saving operation system hosting; after signing the energy efficiency contract, the service provider will host the management of the entire building energy system.

Contents:
1) Power Distribution
2) Lighting
3) HVAC
4) Elevators, Plumbing Power
5) Hot water
Overview
To improve building energy efficiency, reduce maintenance cost, and improve workplace networking in buildings through smart consulting service, smart system implementation services, and low current systems hosting, together with the network technology.

Functions & Effects
- Make city-level public workplace more efficient and productive
- Reduce operation cost
- Centralized control improves management efficiency
- More sustainable environment
There is a button on the phone, press it, the camera in your area will take pictures and transmit the photos to your phone.

The camera on the City Inspector’s helmet will send real-time video data to the municipal administrative center.

The "Black Stuff" on alarm lamp is a camera, which will transmit the video to the administration center.

---

**Comparison of functions**

<table>
<thead>
<tr>
<th></th>
<th>Analogue Video Monitor</th>
<th>PC Multimedia Monitor</th>
<th>Internet Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring scope</td>
<td>Small</td>
<td>Large</td>
<td>Based on the Internet or VPN</td>
</tr>
<tr>
<td>Networking(degree of difficulty)</td>
<td>Complicated</td>
<td>Complicated</td>
<td>Simple</td>
</tr>
<tr>
<td>Expansibility</td>
<td>Limited</td>
<td>Limited</td>
<td>Multilevel extension</td>
</tr>
<tr>
<td>Viewing</td>
<td>Traditional Monitoring Center</td>
<td>Certain PC</td>
<td>Through Internet, anywhere and anytime</td>
</tr>
<tr>
<td>Remote Management</td>
<td>N/A</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>System Management</td>
<td>Labor Management; Complicated</td>
<td>Labor Management; Complicated</td>
<td>Remote Management; Simple</td>
</tr>
<tr>
<td>Data Saving</td>
<td>Tape</td>
<td>DVR</td>
<td>Hierarchical Storage</td>
</tr>
<tr>
<td>Security</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
</tr>
</tbody>
</table>
Overview: Through sharing the network infrastructure of smart work station to satisfy the diverse educational resources demands.

Function: discussion room and study room sharing; online educational resource sharing; distance education; extracurricular activities.

MOOC (Massive Open Online Course)
• Coursera, Udacity, edX are three most famous course provider
• Provide top universities’ free online courses for higher education
• Independent learning and management system
1. Smart health monitoring at home
2. Health management guidance
3. Functional medicine
4. Telehealth video consultation
5. Green channel to see a doctor
6. Oversea high-end medical services

Health-Star IoT Platform

- Provide personalized and customized integrated services
- Achieve real-time information sharing between different services
- Achieve real-time interactive between patient and doctors

Continuously integrating domestic and international healthcare resources
Smart Healthcare: One-stop O2O

Health Products and Services

- Detection
- Monitoring
- Intervention
- Consultation

Business Model
- Health agency pays for platform usage fee
- Patients pay for products and services

Big Data Driven Smart Health Service Platform

Goals
- Integrate existing resources
- Expand healthcare solutions

Health-care Organization

- Hospitals
  - Patient/Client
- Health exam centers
  - Patient/Client
- Communities
  - Client
- High-end Clubs
  - Client
- Insurance Companies
  - Client

Health Products and Services

Health-care Organization

- Business Model
- Goals
Smart Living App

Software Provider Sample: Remote healthcare

Remote work
Building Security
Green Transportation
Regional Commerce

Digital Pocket
Goals:
Using the sensors which are based on IoT application that covers the whole area to gather key information for public services (such as traffic management, crime prevention, first-aid, disaster prevention and resilience, etc.). It achieves information interconnection, intelligent processing on Real-time Cloud Infrastructure, and provides operational decision making support in a real-time and integrated manner.
CREATED GREEN, HEALTHY & SMART COMMUNITIES IN CHINA
Guided by Integration of Best Global Practices