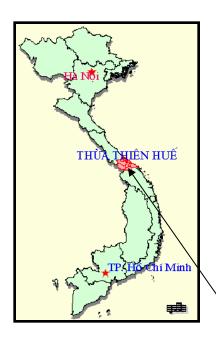
### No.3 "Co-create urban solutions through smart technologies"

	City/Organization	Title	Name
1	Hue	Director, Hue City	Mr. Nguyen Ich Huan
		International Cooperation	
		Center	
2	Makassar	Head of Regional	Mr. Muhammad Masri
		Environment Agency	Tiro
3	Melaka	Director, Department of	Mr. Ahmad Roslee
		Engineering	Hamzah
4	San Fernando	City Administrator	Ms. Annjanette E.
			Dimaculangan
5	Yokohama	Deputy Executive Director,	Mr. Kimihiro Kuromizu
		Climate Change Policy	
		Headquarters	
6	AvePoint Public Sector	Chief Technical Officer	Mr. Dux Raymond Sy
7	Fundación Metrópoli	President / Special Advisor	Dr. Alfonso Vegara
		for Y-PORT Center	
8	IBM Japan, Ltd.	Manager, Business	Mr. Yoshiya Kamo
		Development Executive,	
		Social Infra Business	
		Development, Smarter	
		Cities	
9	Nikkei Business Publications, Inc.	Director, Nikkei BP	Mr. Yosuke Mochizuki
		Cleantech Institute	
10	World Bank	Senior Policy Specialist	Mr. Arturo
			Muentekunigami
11	Yokohama National University	Dean, Professor, Institute of	Prof. Satoru Sadohara
		Urban Innovation	
12	Yokohama Urban Smart Solution	Member / President & CEO	Mr. Motoyuki Okada
	Alliance / FINETECH Co., Ltd.		
		1	

## **Location of Hue City**



- Hue City is located in the Central part of Viet Nam. Hue City has a population of nearly 350,000 people.
- Area: 70,9 km<sup>2</sup>
- It is one of the most important center of tourism, culture, education and high-tech medicine of Vietnam.

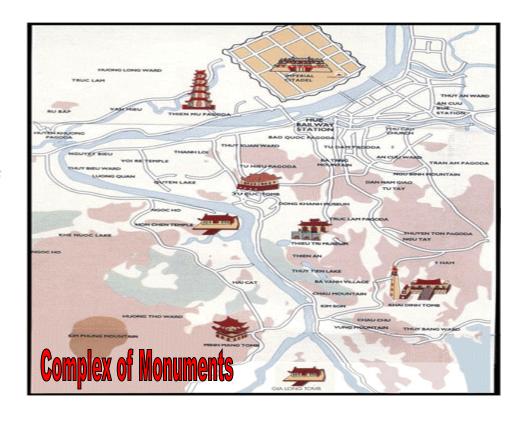
Hue city



# World's Culture Heritage

- Having two World's Culture Heritages:
- + Complex of Monuments (Citadel, tombs, pagodas around Hue city of Nguyen Dynasty)
  - + Royal Court Music
- -2,900,000 tourists (foreign: 1,000,000,

Domestic:1,900,000)









**Royal Court Music** 

## E-tax payment service

- The Taxation Department provides best support to enterprises using the e-tax payment service
- Taxpayers can register for e-tax payment service via the provincial portal and also via commercial banks at 1 door service office of the Taxation Department
- 100% of about 3000 companies in my city use e-tax payment service.
- This program helps taxpayers shattered all crest-fallen when trying to apply new technology, also the program has created sympathy for the taxpayer, contribute to raising the prestige of the Taxation Department to the local enterprises.
- The successful deployment of e-tax payment service will contribute significantly in improving the business environment.

## **E-Water Payment Service**

- From May 7/2014
- Hue Water Supply Company has linked with 8 banks
- Payment through ATM, payment through internet banking services, payment through 10 stores and supermarkets (Payoo payment services) ...
- The rate of water payment through the above mentioned methods of the company has reached nearly 98 % of its total customers

## **E- electricity Payment Service**

- From May 4/2015
- Hue Electricity Company has also linked with 11 banks in the city to help people choose the nearest bank to pay for the electricity bill
- Through ATM cards, bank accounts or through online payment service.
- In order to help the electricity payment more quick and accurate, Hue Electricity Company has started using electronic invoices in stead of the paper bill in payment process.

# Human Resources and Collaboration on E-tax Payment Service

- Establising the Steering Committee of E-tax payment service
- Propaganda plays an very important role in order to let enterprise actively participate and register e-tax payment service.
- The Department of Taxation:
  - Collaborated with other media agencies such as TV Broadcasting Station to conduct extensive propaganda programmes on e-tax payment service.
  - Collaborated with other local newspapers to spread and inform new policies on tax, tax declaration and payment via electronic means.
- Besides, the commercial banks play an important role in the process of implementing e-tax payment service. Therefore, the Department of Taxation has collaborated with many commercial banks at the local to hold many training courses for taxpayer.

In the period from end of May 2015 to early of 6 2015, the Department of Taxation has cooperated with many commercial banks to hold 24 training

workshops for over 3000 enterprises at the local.





The Department of Taxation in corporating with commercial bank organizing training workshop for enterprises on e-tax payment service

Taxation staff supporting enterprises to register for E-tax payment service

## OUTLOOK OF HUE CITY IN THE FUTURE -SMART CITY CONCEPT MODEL FOR HUE CITY Sustainable city - Smart urban management

### **Smart tourism city**

- Building basic infrastructure for Tourists
- Increasing tourism products
- Managing tourism resources
- Enhancing propagandizing

### **Smart Health/Education city**

- •Managing the basic healthcare and building the healthcare delivery system
- •Reinforcing the healthcare information system
- •Organizing Distance Learning programs and workshops for healthcare workers
- •Holding Distance Learning programs for human resources capacity building

### **Smart green city**

- •Building the water drainage and waste water
- •Building the urban resource-recycling structural systems
- Building the advanced technology of waste management
- •Reducing the waste-related resources causing air pollution

- Devising U-City Planning for sustainable development and improvement in the quality of life using Information and Communication Technology.
- Learning a wealth of experience from the meeting to assist Hue city in developing my U-City Master Plan.













Welcome to HUE City - Festival City - Heritage City



# DEVELOPMENT PROGRAMS OF MAKASSAR CITY

IBRAHIM SALEH
MAKASSAR CITY SECRETARY

4th Asia Smart City Conference Yokohama City, October 19-21, 2015

#### **GEOGRAPHIC CONDITION**

Geographycally Makassar lies between 119°24' 17.38" East and 5°8' 6.19" South

# CITY PROFILE

#### **AREA**

17,577 Ha or 175.77 Km<sup>2</sup>

#### **BORDERS**

North : Maros Regency

East : Maros and Gowa Regency
South : Gowa and Takalar Regency

West : Makassar Strait

#### **TOPOGRAPHY**

Most of the area is flat Located at an altitude of 0-25 m AMSL With slope level of 0-15%

POPULATION: 1,408,072 people (2014 census)

#### **CLIMATE**

- Dry Season (April October)
- Rainy Season (October April

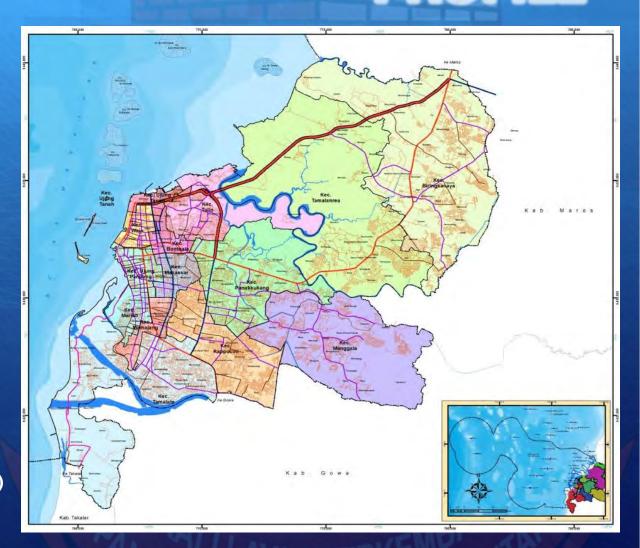
#### **ECONOMIC PROFILE**

**Economic Growth** : 9.88% (2013)

GRDP at current prices : Rp58.54 Trillion (2013)

Income per Capita : Rp42.64 Million (2013)

Regional budget 2014 : Rp2.39 Trillion Regional Budget 2015 : Rp3.32 Trillion



## MAKASSAR 2025 VISION (Long-term Development Plan)

"Globally oriented, sustainable, and most friendly city for maritime, trading, education, services, and culturalism"

MAKASSAR 2019 Vision (*Mid-term Development Plan*):

## "MAKASSAR LIVEABLE WORLD CITY FOR ALL""



#### **Mission:**

- 1. Reconstruct the living standard to achieve the world-standard prosperous society;
- 2. Restore the city spatial to achieve the world-class liveable city;
- 3. Reform the city governance to achieve the world-class and corruption-free public servants;

## **PROBLEMS & IMPACT**



## CITY PROGRAMS

#### A. INFRASTRUCTURE PROGRAM

- 1. SUSTAINABLE URBAN PUBLIC TRANSPORT
- 2. MAKASSAR TALLO RIVER AREA DEVELOPMENT
- 3. STRUCTURING OF BALANG TONJONG LAKE
- 4. WASTE WATER TREATMENT PLANT AND SOLID WASTE DISPOSAL SITE
- 5. AFFORDABLE CITY'S HOUSES FOR POOR PEOPLE
- 6. LIVE GREEN WITH CITY'S GARDEN

#### B. INFORMMATION TECHNOLOGY PROGRAM

- 1. TRAFFIC INFORMATION SYSTEM WITH CCTV AND FIBER OPTIC
- 2. SMARD CARD IS AN INTEGRATED CARD PROVIDED BY THE COOPERATION BETWEEN BRI AND MAKASSAR GOVERNMENT, IT'S FUNCTIONS AS BANKING TRANSACTION ATM CARD, HEALTH, SOCIAL INSURANCE AND TAX PAYMENT, ETC.
- 3. WEB PORTAL:
  - OFFICIAL WEBSITE OF MAKASSAR CITY GOVERNMENT (NFORMATION SYSTEM FOR MAKASSAR CITY NEWS AND COMPLETE INFORMATION OF LOCAL GOVERNMENTS' AGENCIES (SKPD)
  - WEBSITE OF MAKASSAR CITY DEVELOPMENT PLAN MEETING,
  - E- SIBUNTULU (INFORMATION SYSTEM FOR INSPIRATION AND ASPIRATION OF MAKASSAR)
  - E- PUSKESMAS (INFORMATION SYSTEM FOR MONITORING OF ONLINE AND INTEGRATED HEALTH SERVICE)
  - E-Galeri (INFORMATION SYSTEM FOR IMAGE-BASED CITIZEN REPORT)
  - E-Udoctor (INFORMATION SYSTEM FOR ONLINE HEALTH SERVICE)
  - PPDB ONLINE OF MAKASSAR (INFORMATION SYSTEM FOR NEW STUDENT REGISTRATION IN MAKASSAR)



# Thank You



CO-CREATE URBAN SOLUTIONS
THROUGH SMART TECHNOLOGIES

4<sup>th</sup> Smart City Conference

October 20, 2015 • Yokohama, Japan

Presented by:
MS. ANNJANETTE E. DIMACULANGAN
City Administrator



Northern Luzon's Center for Health and Wellness by 2020

## THE GLOBAL GOALS

For Sustainable Development































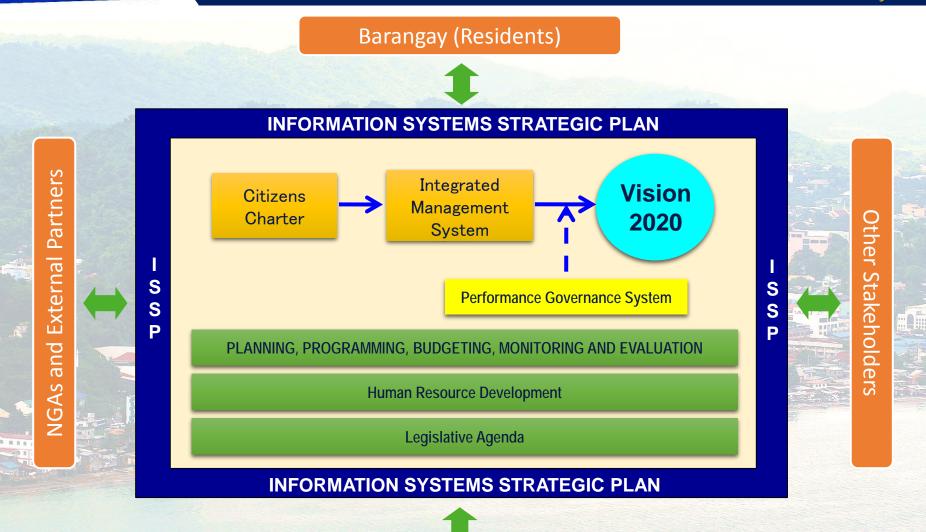








Northern Luzon's Center for Health and Wellness by 2020

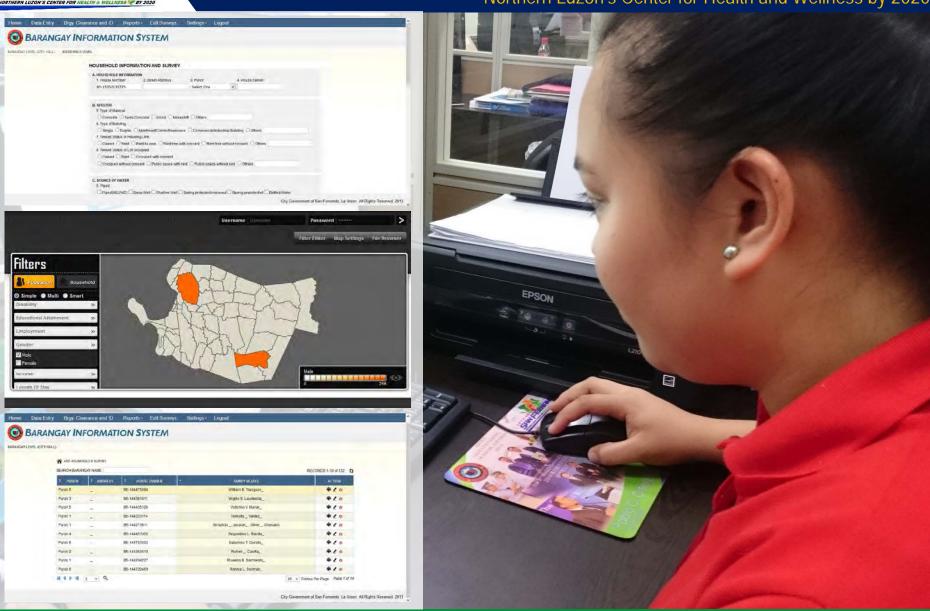


II G

**All Sectors** 

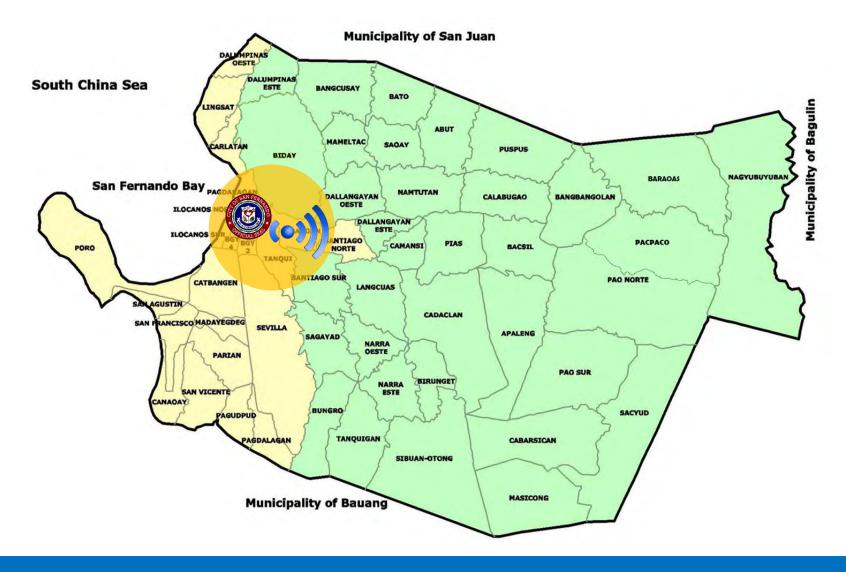


Northern Luzon's Center for Health and Wellness by 2020



**BARANGAY INFORMATION SYSTEM** 

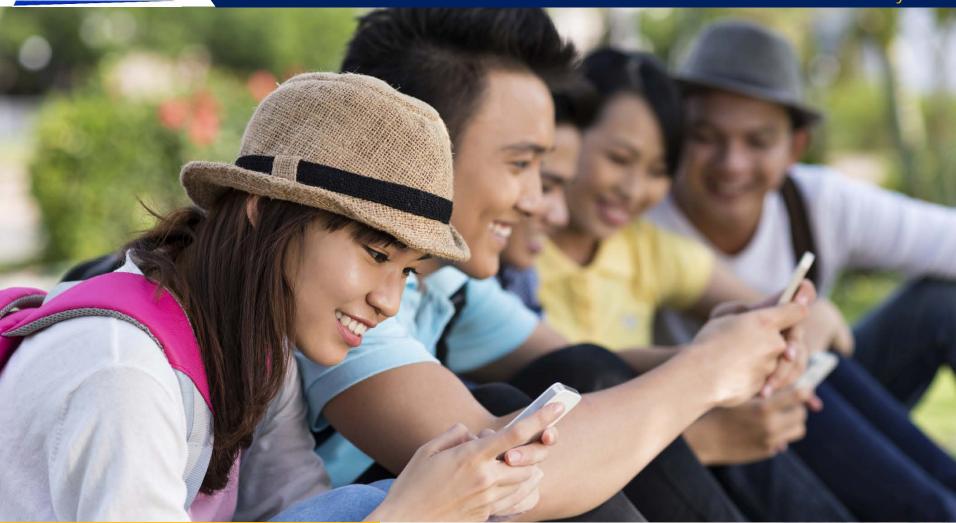




Revitalization of the CSF Central Business District: Expansion of the Community Free Wireless Project



Northern Luzon's Center for Health and Wellness by 2020



Mobile application for Civic Participationbased e-Government System (CPS) World e-Governments Organization of Cities and Local Governments



Feasibility Study on Open Government Management System: WeServe



# Thank you!



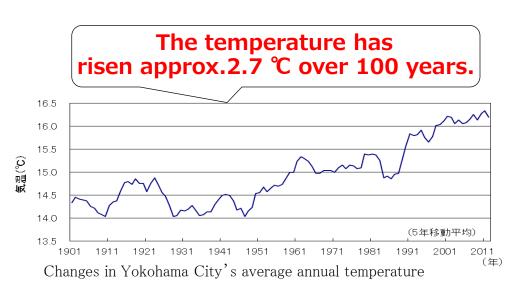


www.sanfernandocity.gov.ph

## **Yokohama Smart City Project**



City of Yokohama Climate Change Policy Headquarters













Copyright © 2015 Yokohama Smart City Project

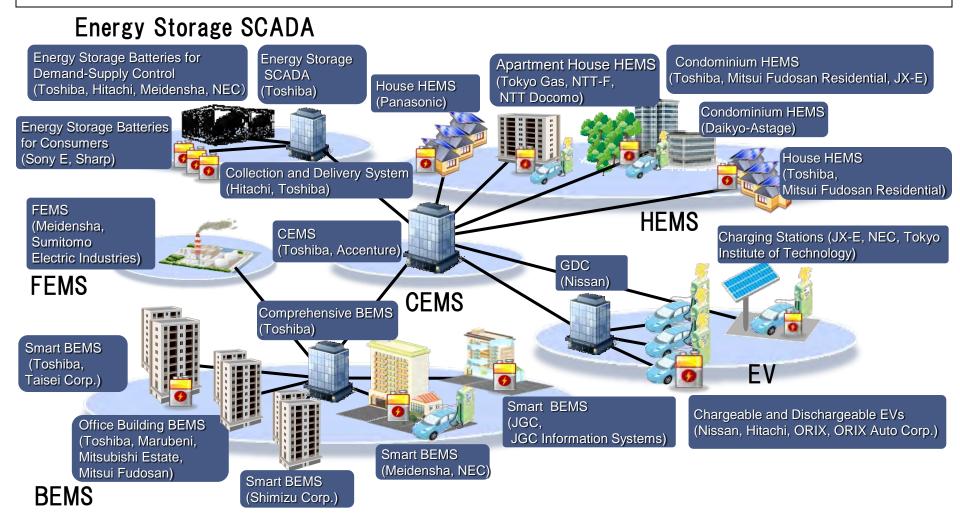
## Overview of Yokohama Smart City Project



(Coordination between Yokohama City, 34 businesses, and 15 projects)

■ results (To FY2013)

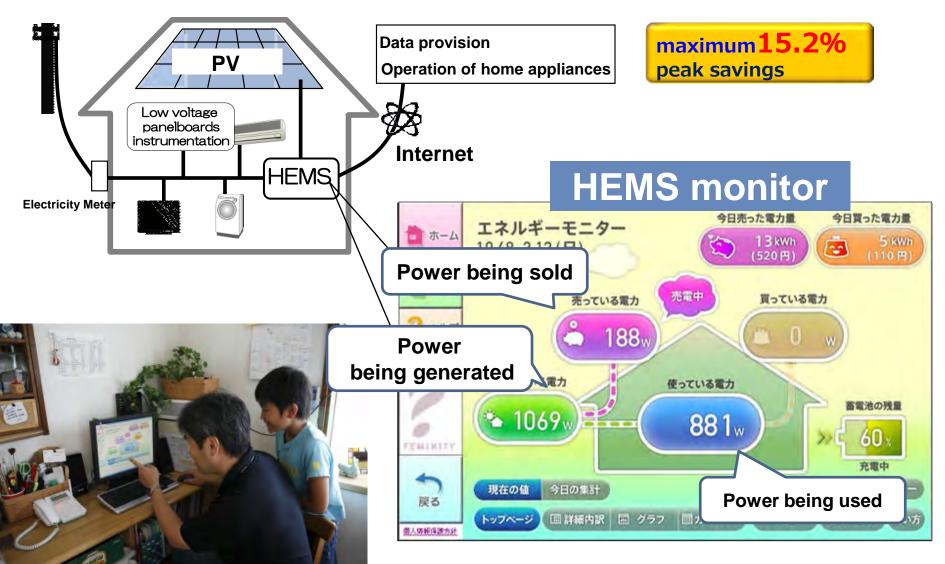
HEMS(Home energy management system)(4,200) PV(37MW) EV(2,300)



# The Workings of a HEMS (Home Energy Management System)



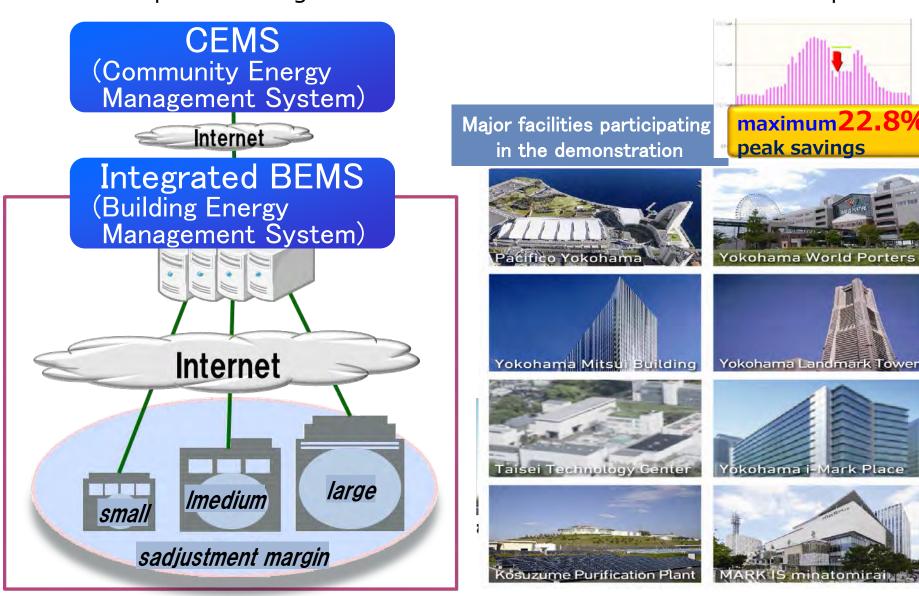
OMaximum peak shaving of 15.2% was confirmed with a demand response.



## The Workings of a BEMS - Integrated BEMS



OMaximum peak shaving of 22.8% was confirmed with a demand response.



## Implementation of YSCP - based on public-private partnership



"Yokohama Smart Business Association," a new organization resting on public-priv ate partnership (slated for April 2015), in order to bring energycirculating cities into reality by making use the results of YSCP.

**Demonstration of** 

**YSCP** 

**YSCP** 

**Promotion Council** 

- Power peak dispersion
- **Demand response**
- Reduction of the total level of power use etc.

## **YSBA**

<8 secretary members>



### Implementation of **YSCP**

## Yokohama Smart **Business Association**

-Partner companies-

Energy suppliers, construction companies, ma nufacturers of electrical machinery etc.

- Promotion of energy reduction and creation
- Higher resilience to disasters
- Economic stimulation
- Further heightening of citizen recognition

#### <7 general members>



























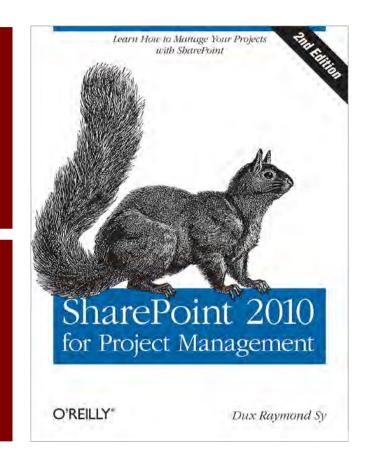


# Hi! I'm Dux



CTO, AvePoint Public Sector

Over 15 years in Executive IT



## The issues are complex

What opportunities and challenges are facing your city?



Denser populations can make service delivery more efficient.

# Economic Opportunity

Startups and global investments can boost employment and the tax base.

## Smarter Technologies

Open standards, plus cloud, mobility, social and Big Data offer new insights.

## Economies of Scale

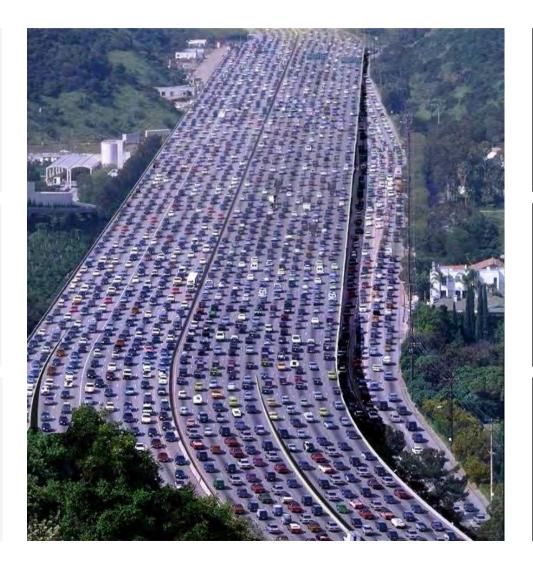
Capital investments and operating expenses are more widely amortized.

## Increased Safety

Crimes are down as much as 70% since 1981 in G7 countries.

#### Millennials

will make up 75% of the American workforce by 2025.





# Employing the young

Young people are 3x more likely to be unemployed.

# Housing shortages

828 million people live in slums today.

## Growing populations

More than half of us live in cities.

## Crumbling infrastructure

Effects fresh-water supplies, sewage, and public health.

# Controlling sprawl/traffic

The world's worst traffic jam stretched more than 62 mi.

# Aging demographics

60+ population will grow 3.5x faster.

# Technology Trends: Harness their power

An era for cities to innovate and prosper









70% of organizations are either using or investigating cloud computing solutions (AMD)

2016 Digital content will grow to 8ZB. Up more than 300% from 2011. Government agencies can realize gains of up to 60% from investments (IDC)

2016 Smartphones and tablets will put power in the pockets of 1.4 billion global citizens (innovapptive)

73% of online adults use social networking sites, as of September 2013 (Pew Research)

# Modernize Government

# International Organization for Migration

Connect with your citizens at the speed of now

International Organization for Migration enables crowdfunding to help victims of human trafficking





## Challenge

- Lack of awareness around global human trafficking
- Human trafficking victims needs support once they are rescued
- Human traffickers are leveraging technology to access more people

## Solution / Strategy

- Provide global visibility and awareness on human trafficking
- Allow global engagement and participation to support victims
- Enable local government and law enforcements to leverage technology

## Outcome

- Enabled global engagement and awareness
- Provided a crowdfunding platform to support victims
- Expanded resources and tools local government and law enforcement to fight human trafficking



#### Mira Anggraeni

Exploited in sex industry

Age 16

Waiting to go home for 3 months

Raised: 1620.00 To go: \$980.00

"Mira Anggraeni was lured to work in Singapore at a restaurant. She was promised a salary of IDR 10.000.000 (+/- USD 756), however she soon realized that she had ..."

Read More



#### Tin Kyaw Aung

Exploited in the fishing industry

Age 28

Waiting to go home for 1 month

Raised: 108.00

To go: \$3092.00

"28year old Tin Kyaw Aung was lured into working on a fishing boat. Following the advice of a friend, Ting Kyaw Aung followed the prospect of a high salary and good ..."

Read More



# Mobilize Operations

## Ministry of Social and Family Development, Singapore

Connect with your citizens at the speed of now

Ministry of Social and Family Development mobilizes case management





#### Challenge

- Paper based processes causing delay in helping citizens
- Field officers not having access to real-time information on the go
- Lack of visibility and transparency on the status of a case

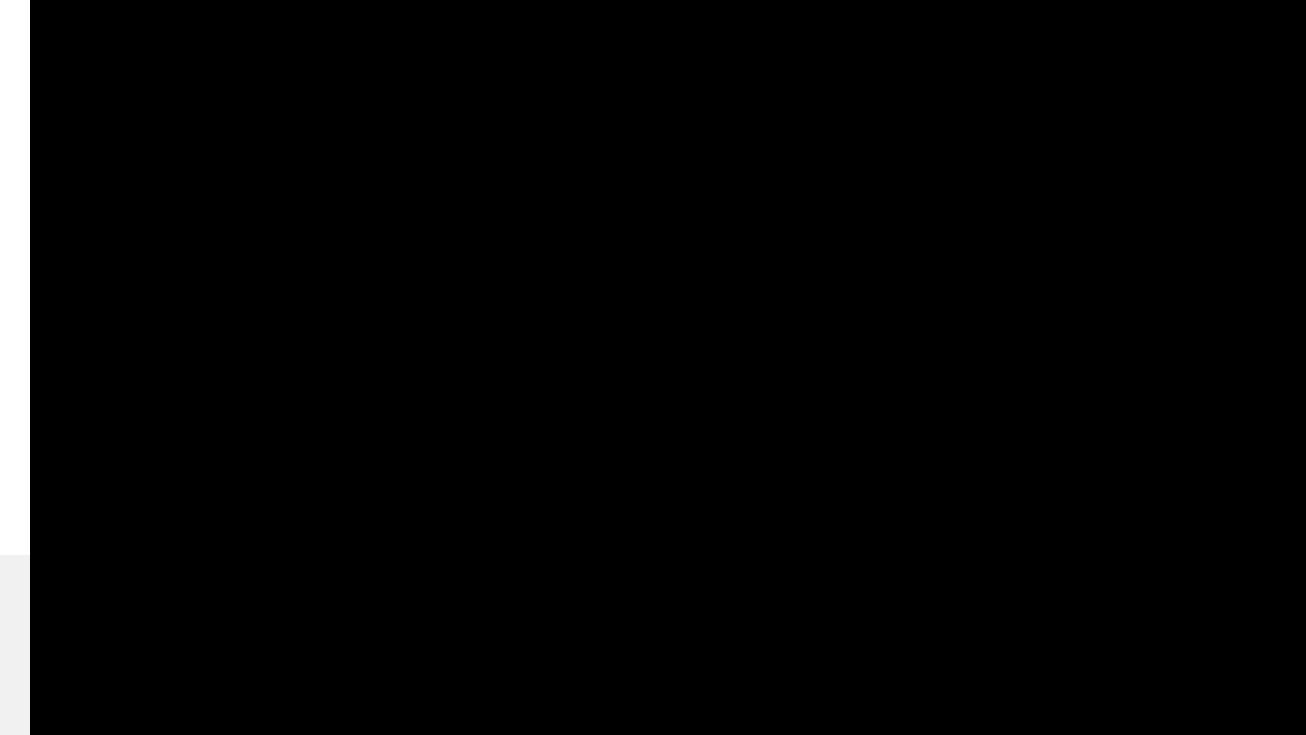
### Solution / Strategy

- Modernize Services
- Automate Management by eliminating manual case management
- Improve Communication between your citizens & agency staff
- Gain Insight & increase accountability

#### Outcome

- Quickly & accurately responds to service requests of citizens in real-time even on the go.
- Improved reporting, findability, & data quality by classifying requests
- Better tracking of key metrics & data trends over time
- Improved field officer productivity by providing mobility solutions to access & update information out in the field





# Encourage Engagement

## City of Newton, Massachusetts

Connect with your citizens at the speed of now

City of Newton increases citizen engagement





#### Challenge

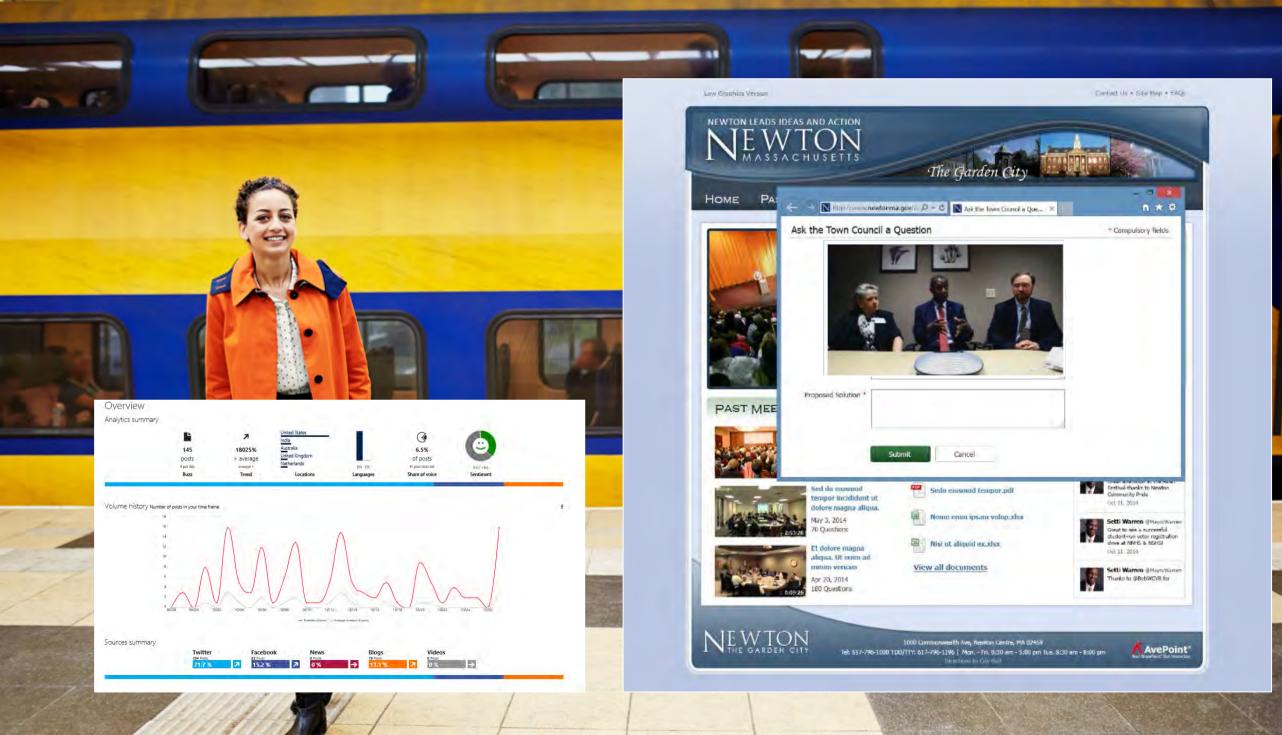
- Low engagement. Limited interaction with citizens due to time & location barriers
- Town Halls not being recorded
   & not available to the public
- Not reaching out to all agegroups in the city
- Missing or few monitoring

#### Solution / Strategy

- Keep citizens informed by making recorded meetings & other public information available online
- Deepen engagement & give citizens a voice with real-time polls & surveys
- Gain insight into constituent sentiment by monitoring social media

#### Outcome

- Increased citizen engagement including real-time feedback
- Measured effectiveness of campaigns from city & government
- Provided transparency & accountability to citizens
- Reviewed sentiment trends to better react & understand citizens



## Increase Transparency

## Kingdom of Saudi Arabia Ministry of Labor

Connect with your citizens at the speed of now

KSA Ministry of Labor provides accountability and transparency





#### Challenge

- Lack of visibility. Various programs and projects across the organization are not being tracked efficiently
- Key decision makers need realtime information
- Ineffective project collaboration across teams

### Solution / Strategy

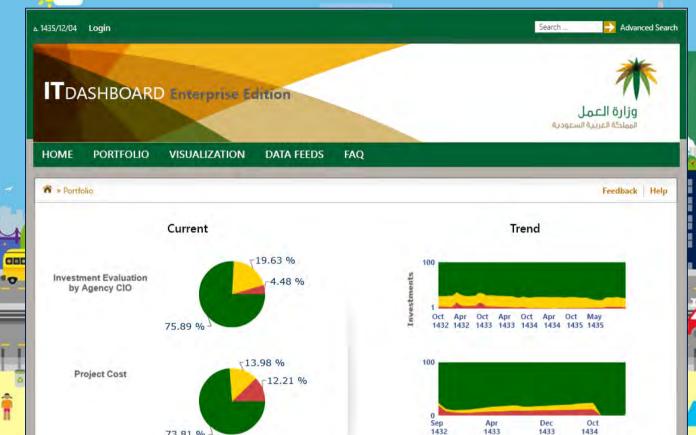
- Provide a centralized view of all programs and projects
- Key stakeholders have access to relevant dashboards
- Enable teams to utilize existing project management tools to effectively collaborate

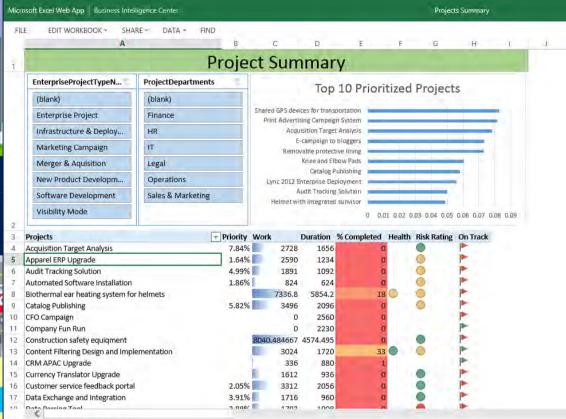
#### Outcome

- Increased internal and external project team collaboration
- Provided transparency & accountability
- Enabled real-time decision making based on relevant information



73.81 %







Sheet1

1434



	1		

Gracias	ευχαριστώ	Danke	Grazie	Hvala	Obrigado	Kiitos	شكراً	谢谢	
Ahsante	Teşekkürler	متشكرم	Salamat Po	Cám ơn	شکریہ	Terima Kasih	Dank u Wel	Tack	
நன்றி	Köszönöm	ありがとう ございます	ขอบคุณครับ	Mulţumesc	thank you				
תודה	多謝晒	дякую	Ďakujem	спасибо					
благодаря	Tak	감사합니다	Děkuji	Dziękuję					

## Let's Connect



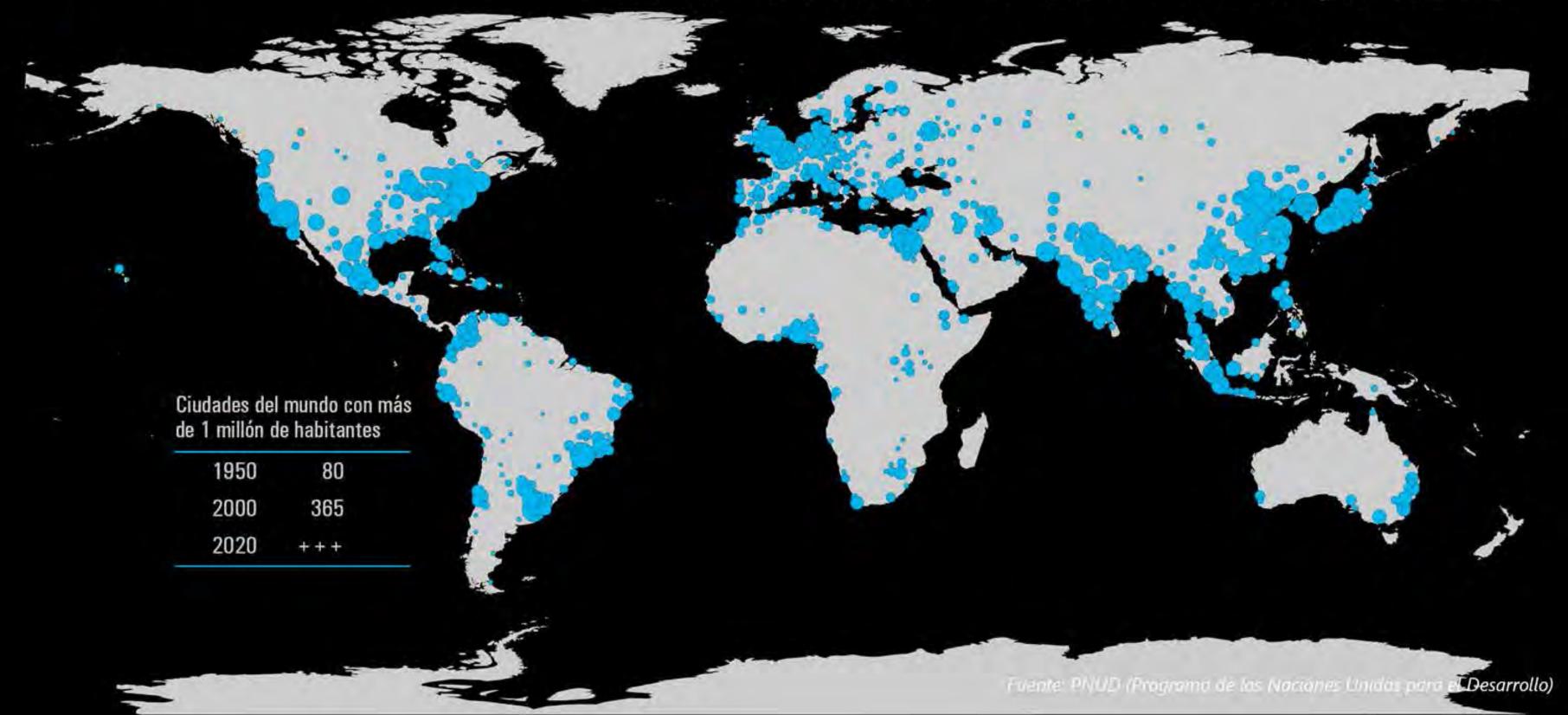
dux.sy@avepoint.com @meetdux http://meetdux.com



>> Building a Sustainable Future



Las ciudades. Espacios clave para el desarrollo y la equidad

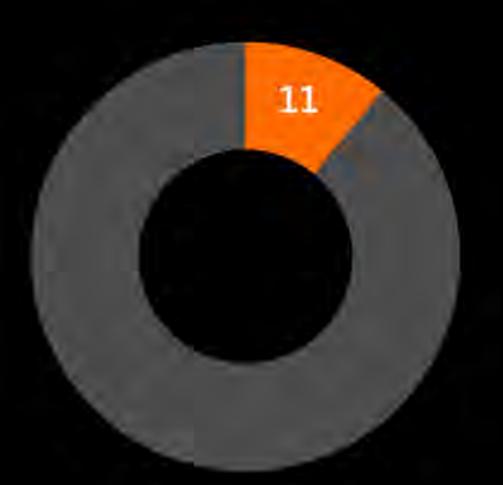




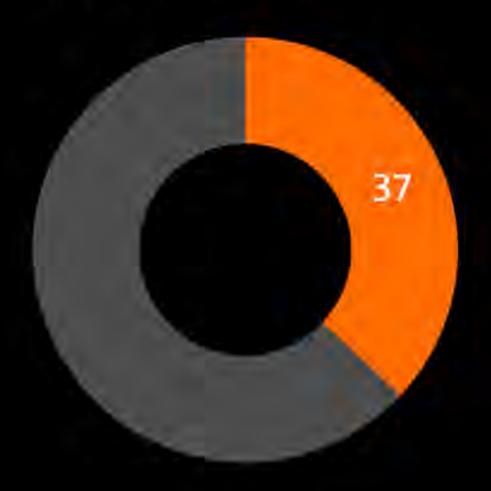
Ciudades. Espacios clave para el desarrollo y la equidad

Contribución al desarrollo económico (en % del PIB mundial) y previsión según el tipo de ciudad

Ciudades medias en países emergentes PIB en 2007



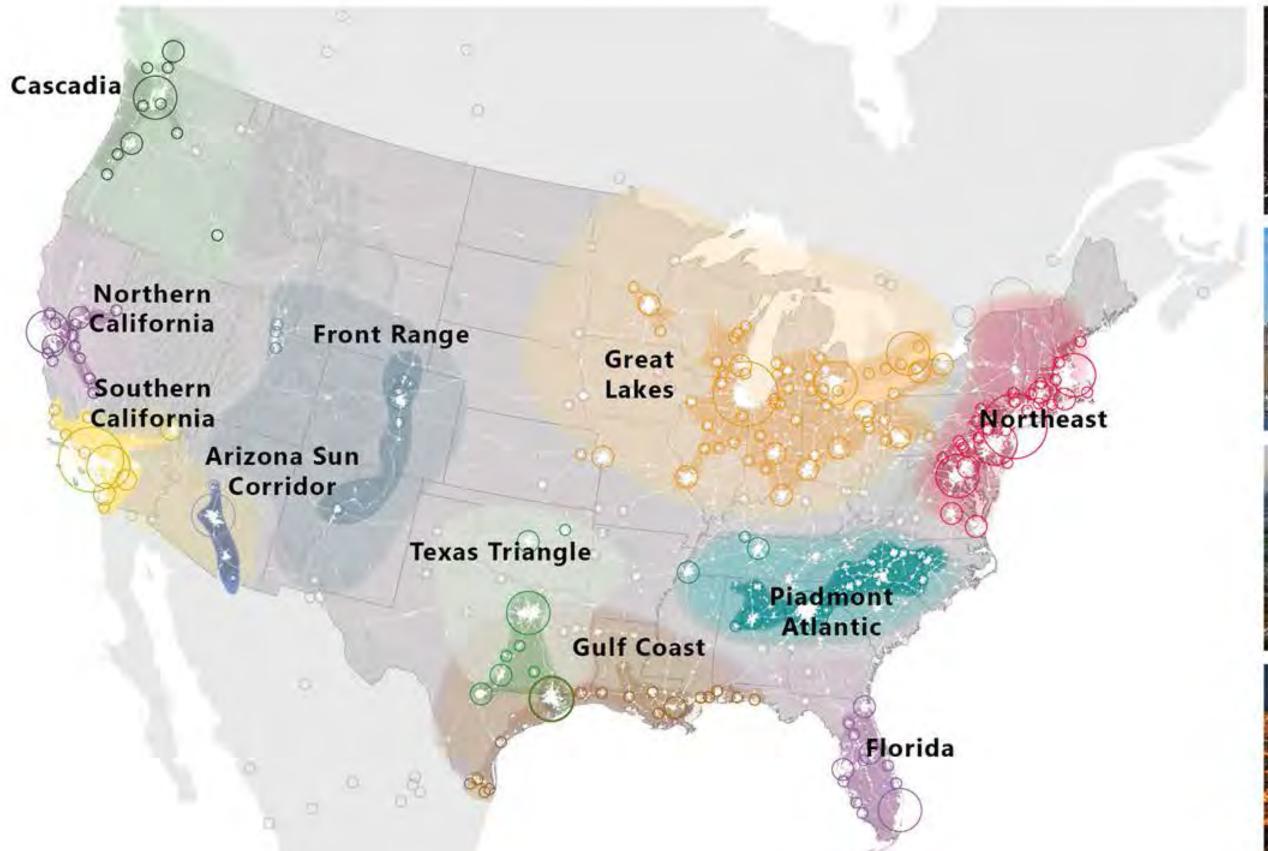
PIB previsión 2025 100%=\$54.9 trillones



Ciudad Media: población entre 150.000 y 5.000.000 habs.

En dólares constantes de 2007

Megacities América 2050











### **EUROPEAN DIAGONAL**

Super City Hubs and Satellites



La Diagonal Europea





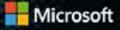








**Next Cities Lab:** 

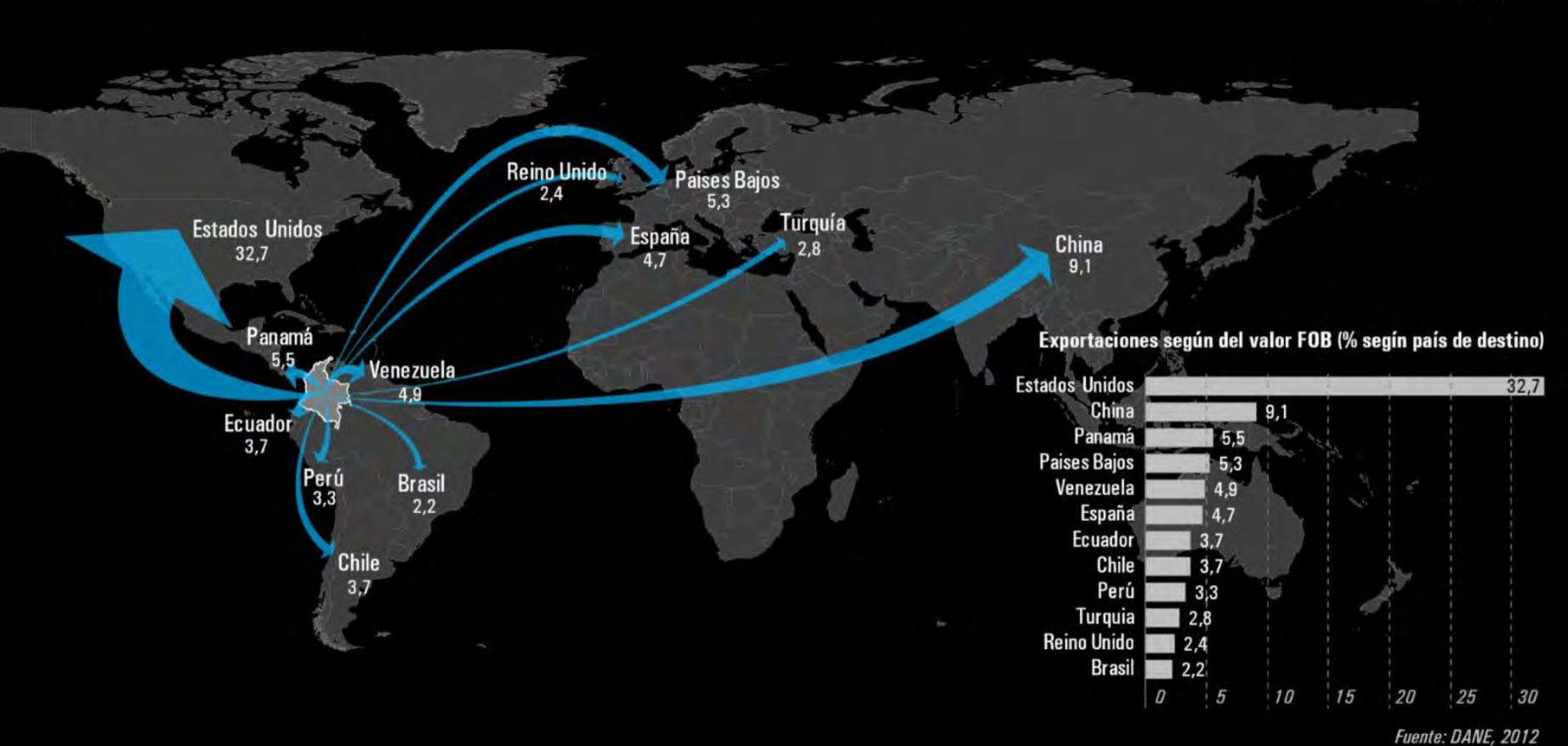


TITI FUNDACIONMETROPOLI



El Modelo Territorial del Diamante

#### Economía



# Gobierno Nacional

















# Sociedad Civil





















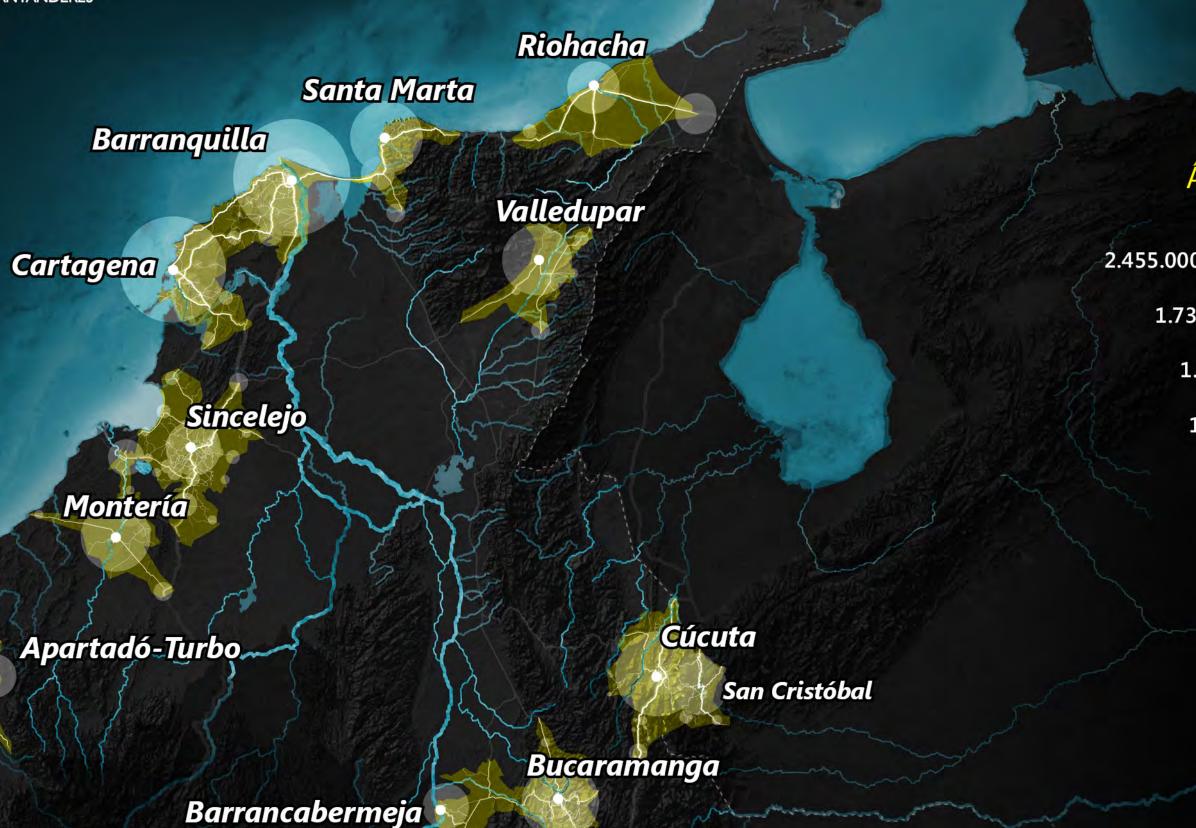


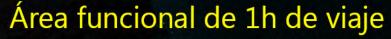






Isocronas 1h





Población Ciudad

1.245.000 **††††††** Bucaramanga

638.000 Yiri Valledupar

638.000 **††††** Sta Marta

452.000 Riohacha

450.000 ii Apartadó-Turbo

257.000 Barrancabermeja



Isocronas 2h

Riohacha Santa Marta

Barranquilla

Valledupar

Población Ciudad

Área funcional de 2h de viaje

3.995.000 **†††††††††††††††††††** Cartagena

2.345.000 **\*\*\*\*\*\*** Sincelejo

1.992.000 **\*\*\*\*\*\*\*\*\*\*** Monteria

1.657.000 **\* † † † † † † † † † † † † †** Bucaramanga

1.387.000 Printing Barrancabermeja

978.000 Titte Valledupar

727.000 **††††** Riohacha

535.000 ††† Apartadó-Turbo

Sincelejo

**Barrancabermeja** 

Montería

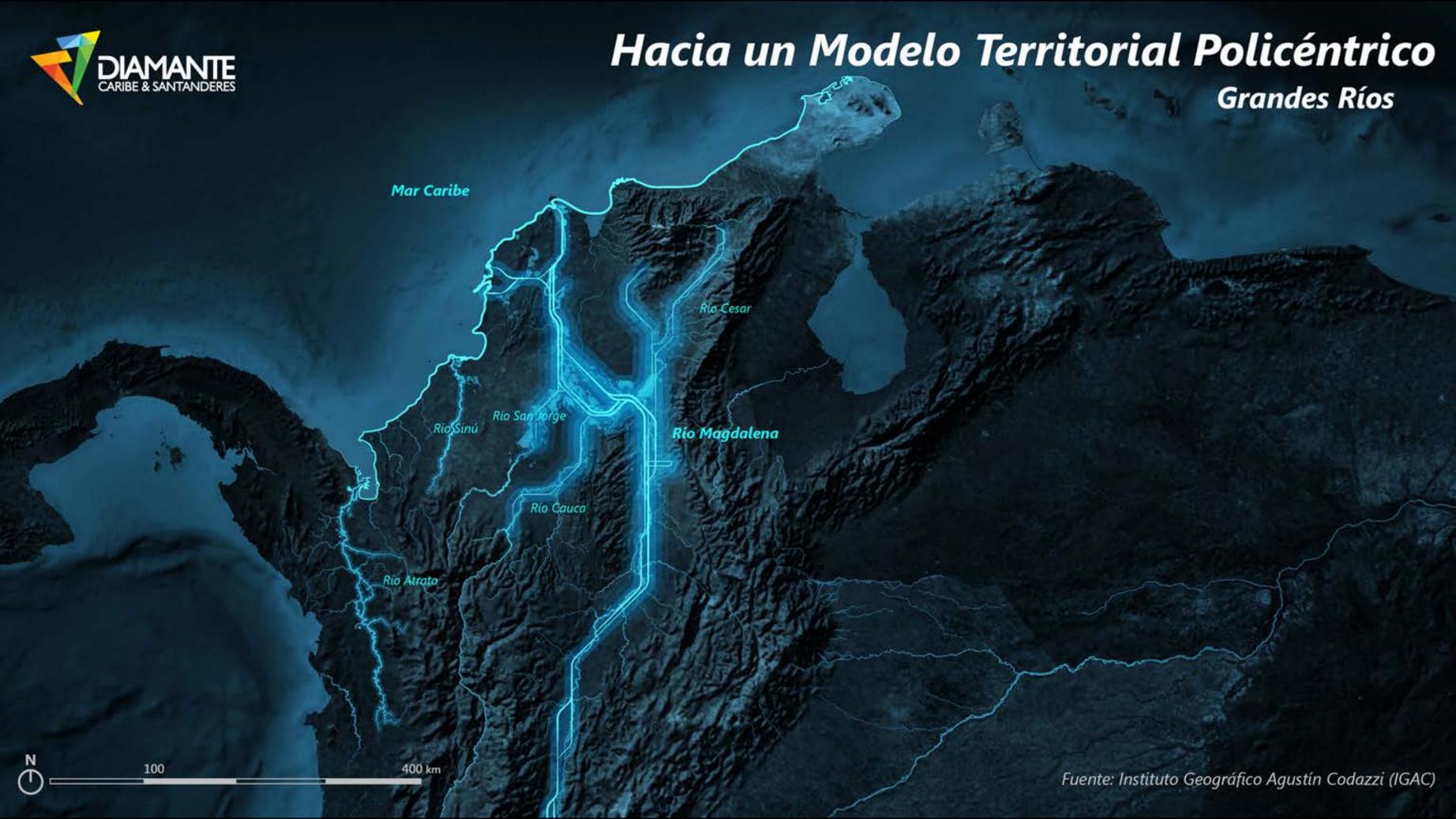
Cartagena

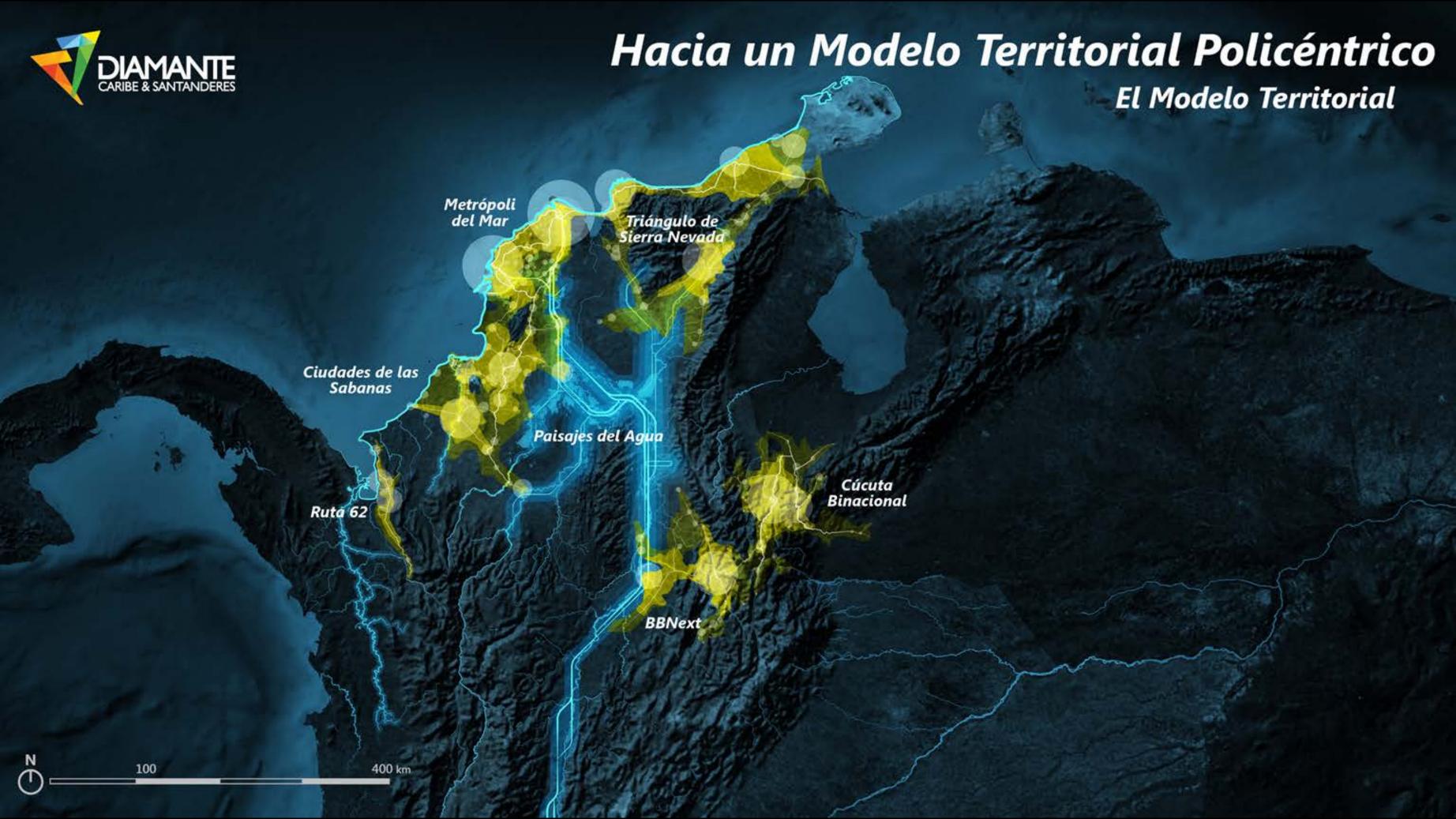
Apartadó-Turbo

Cúcuta

San Cristóbal

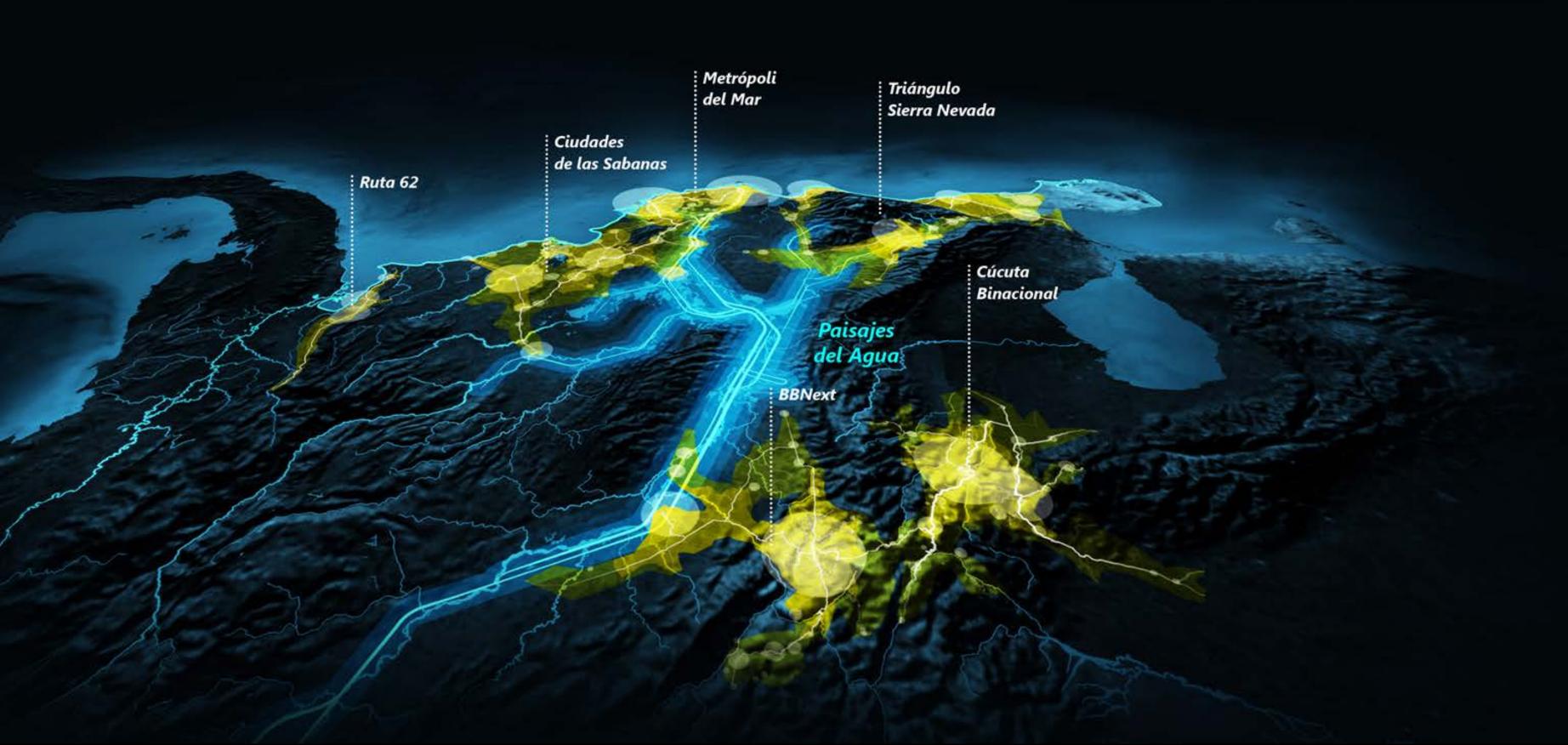
Bucaramanga







Sistemas Urbanos Intermedios

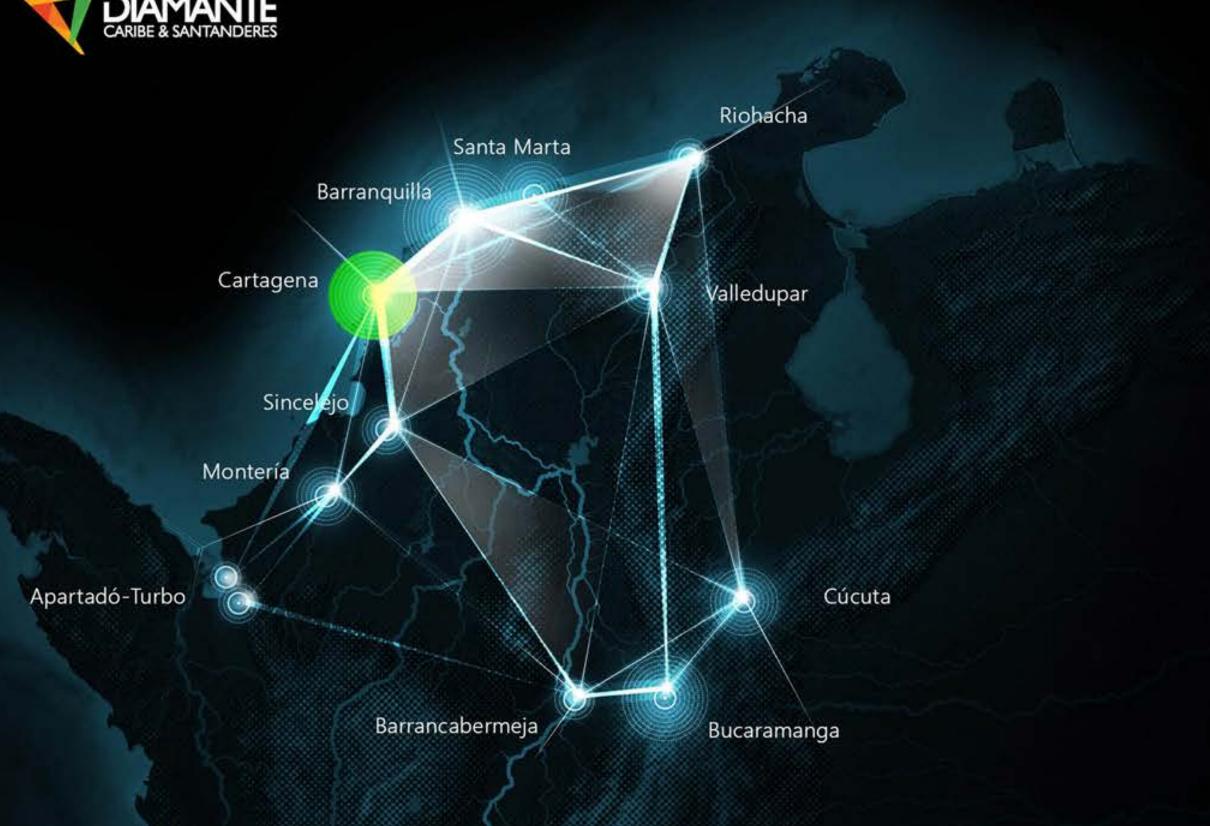




**Diamante Digital**Diamante Cloud







#### PROYECTO CIUDAD-TERRITORIO

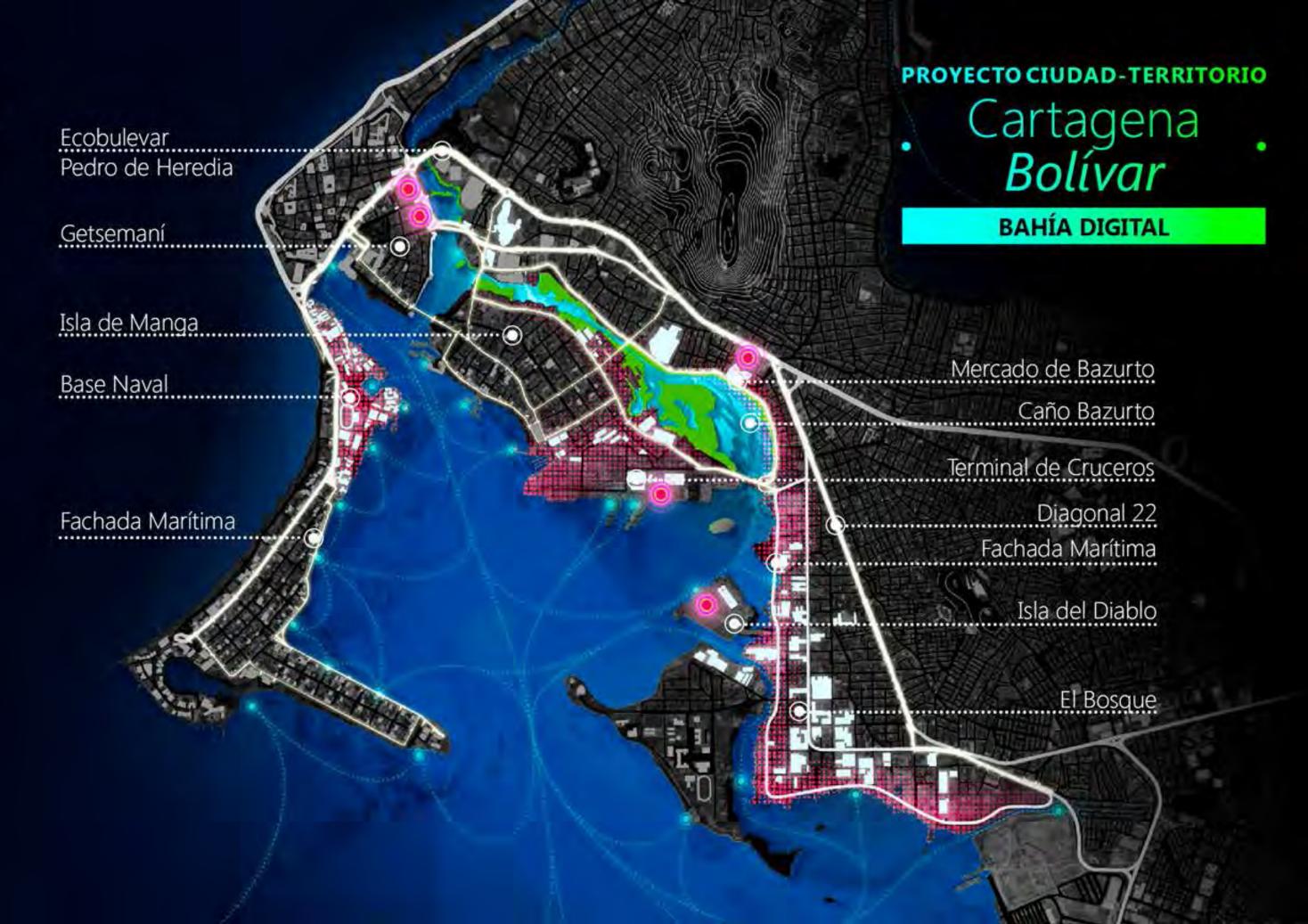
# Cartagena *Bolívar*

TERRITORIO DEL DIAMANTE











# Ecosistemas de Innovación Bahía Digital

Red de Innovación





# Ecosistemas de Innovación Bahía Digital

Diseño Conceptual

Paseos marítimos

Marinas

Puerto Urbano. Cruceros y grandes yates (Manga)

Sistema ambiental de caños, islas y manglares

Playas urbanas

Transporte azul / Nodos intermodales

Movilidad sostenible

Equipamientos para la Creatividad y el

Emprendimiento (isla de Manga)

Nodo Turístico (Bocagrande)

Centro Histórico

Renovación urbana (Base Naval, El Bosque)

Parque Tecnológico (Manzanillo)

Distrito de la Creatividad (Manga)

Nueva fachada Marítima (Bazurto-El Bosque)



# El Diamante Digital Conexión Internacional





# Connecting Physical and Digital Spaces





# TECHNOLOGY + TERRITORY exploring new synergies

A WORLD OF CITIES
TECHNOLOGY+TERRITORY
THE NEW SCALE OF PLANNING
LANDSCAPE INTELLIGENCE
FUTURE CITIES LAB
05



# El Diamante Digital Diamante Cloud



# 350 TRILLON\$

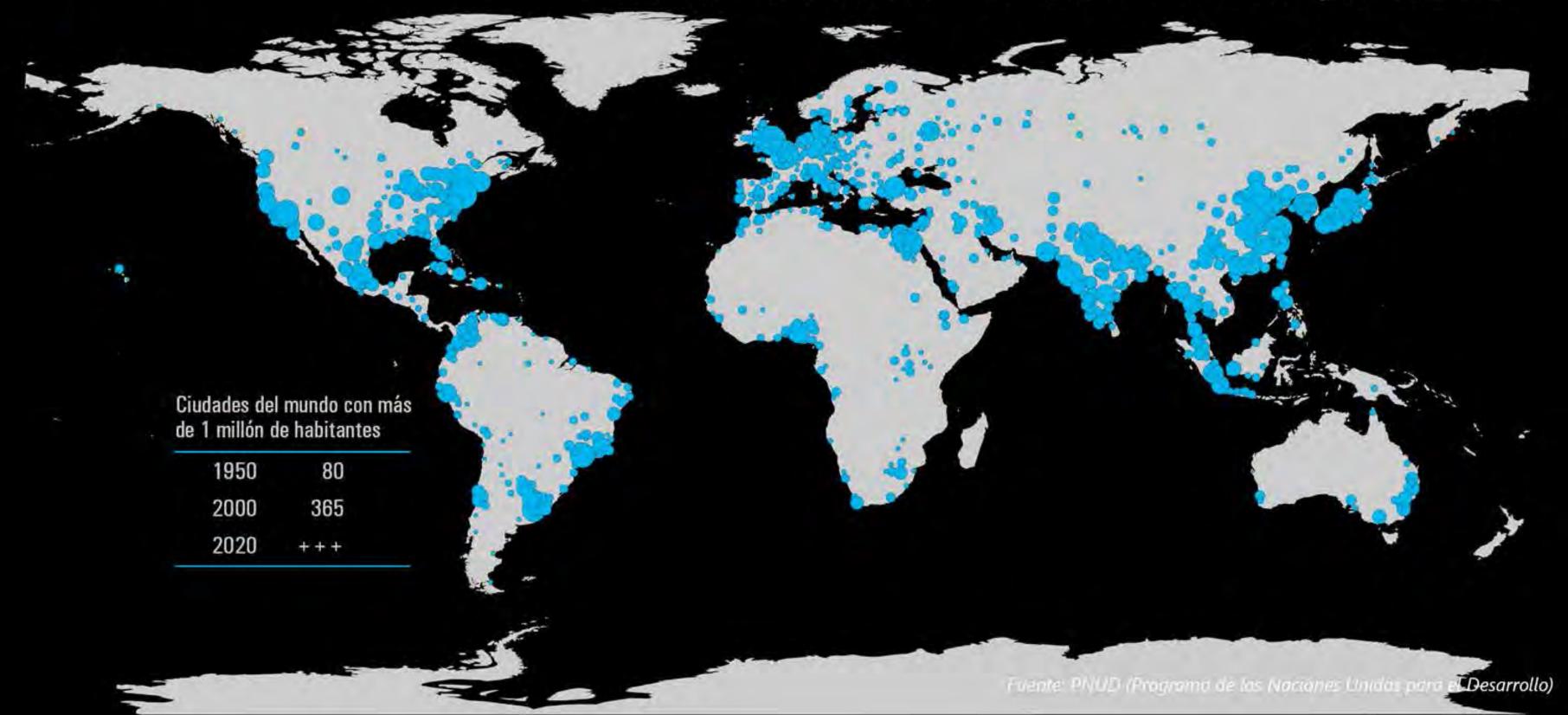


In the next 30 years, the cities of our planet will receive investments estimated at \$ 350 trillion (7 times the world's GDP of 2010) for the Construction, Management, and Maintenance of Urban infrastructures.



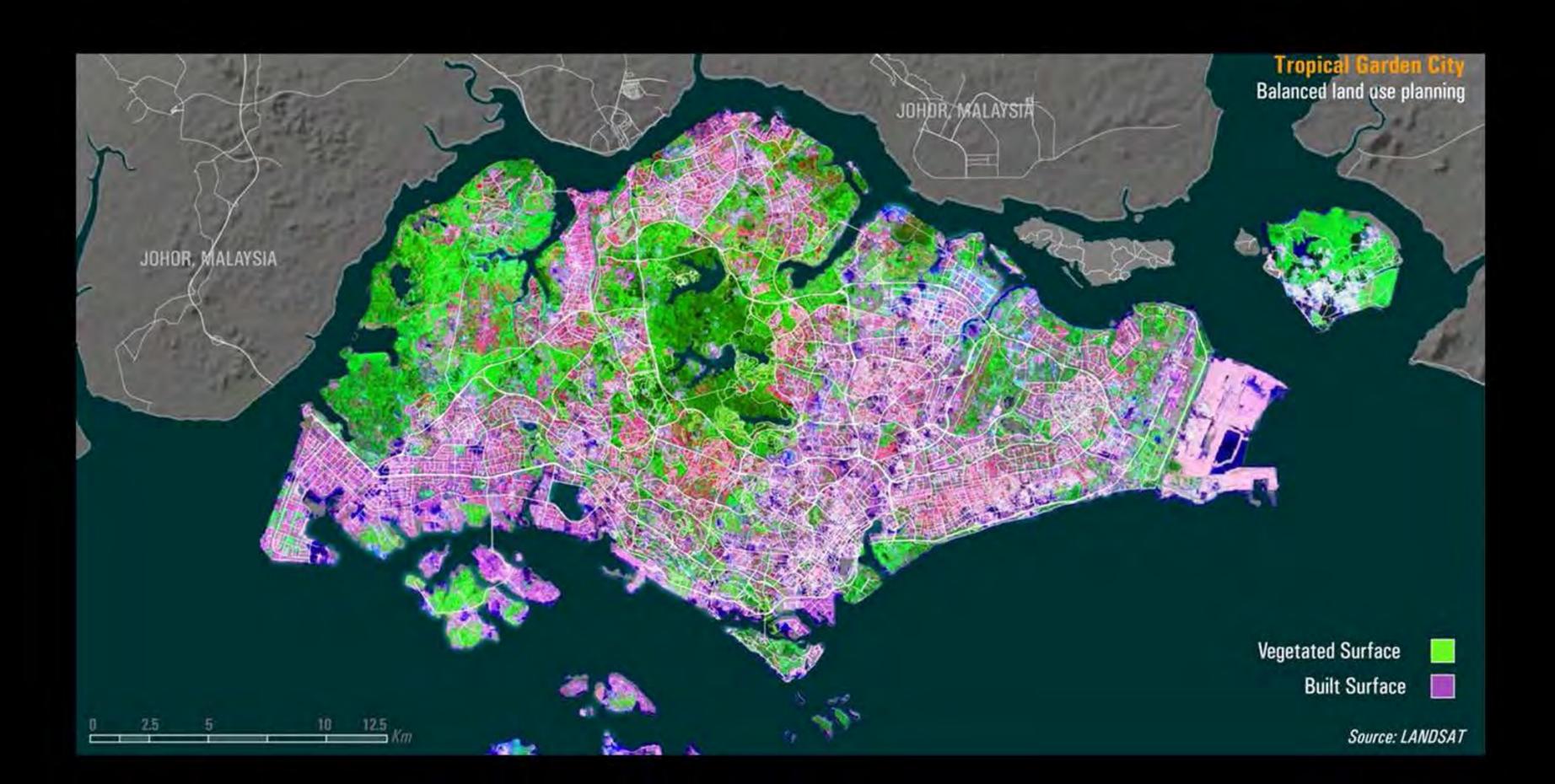
## Hacia un Modelo Territorial Policéntrico

Las ciudades. Espacios clave para el desarrollo y la equidad









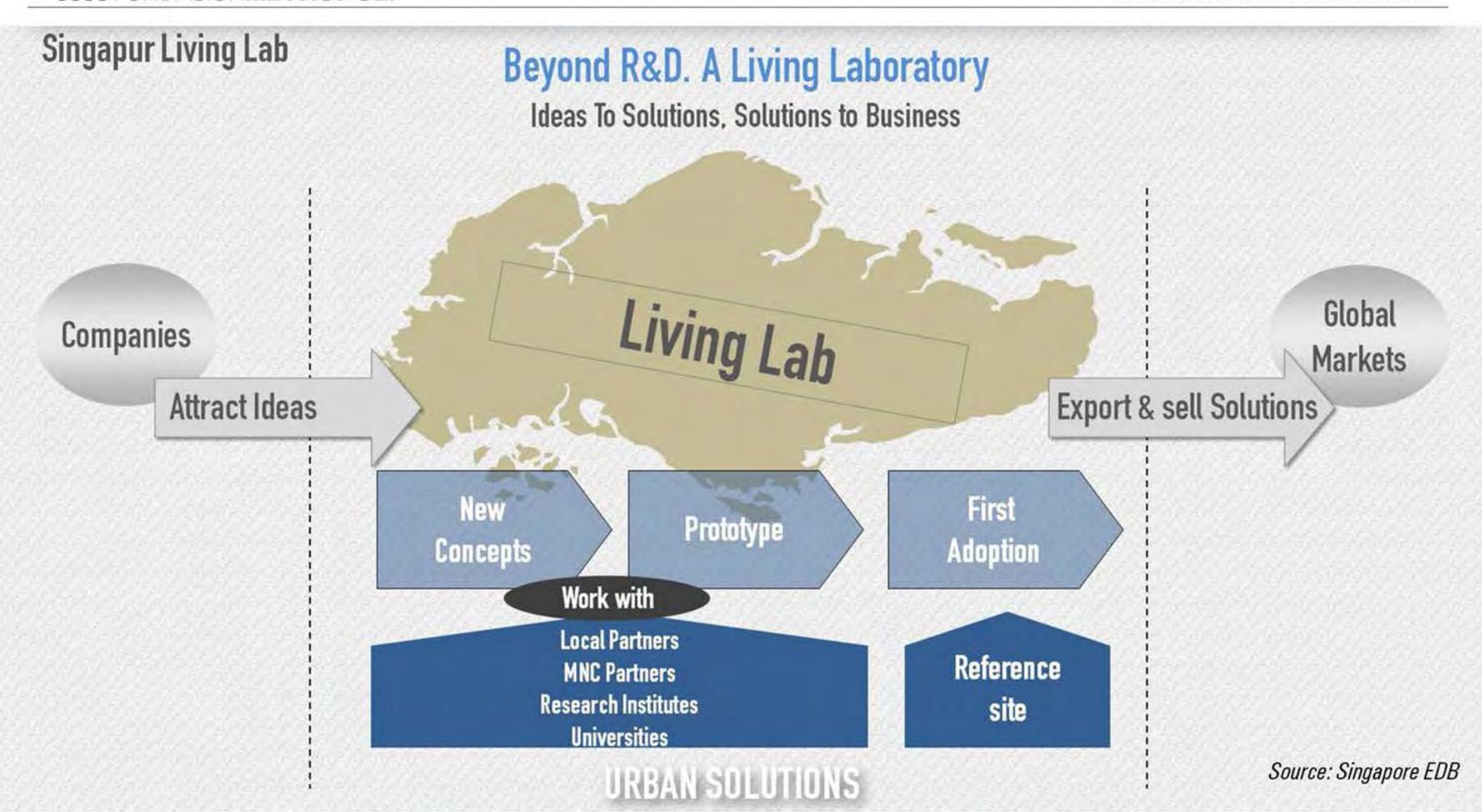
#### **Urban Solutions** Eco-Precinct @ Punggol Gardens by the Bay Built One North **Environ** Energy Transport Cleantech Park Zero-Energy Bldg @ BCA ERP Urban Solutions Comms **Environ** & Water & IT Marina Barrage **NEWater** Security e-Govt Services iN 2015 National **Broadband Network** Pulau Semakau Ports of Entry: Civil Defence Visitors & Goods Preparedness

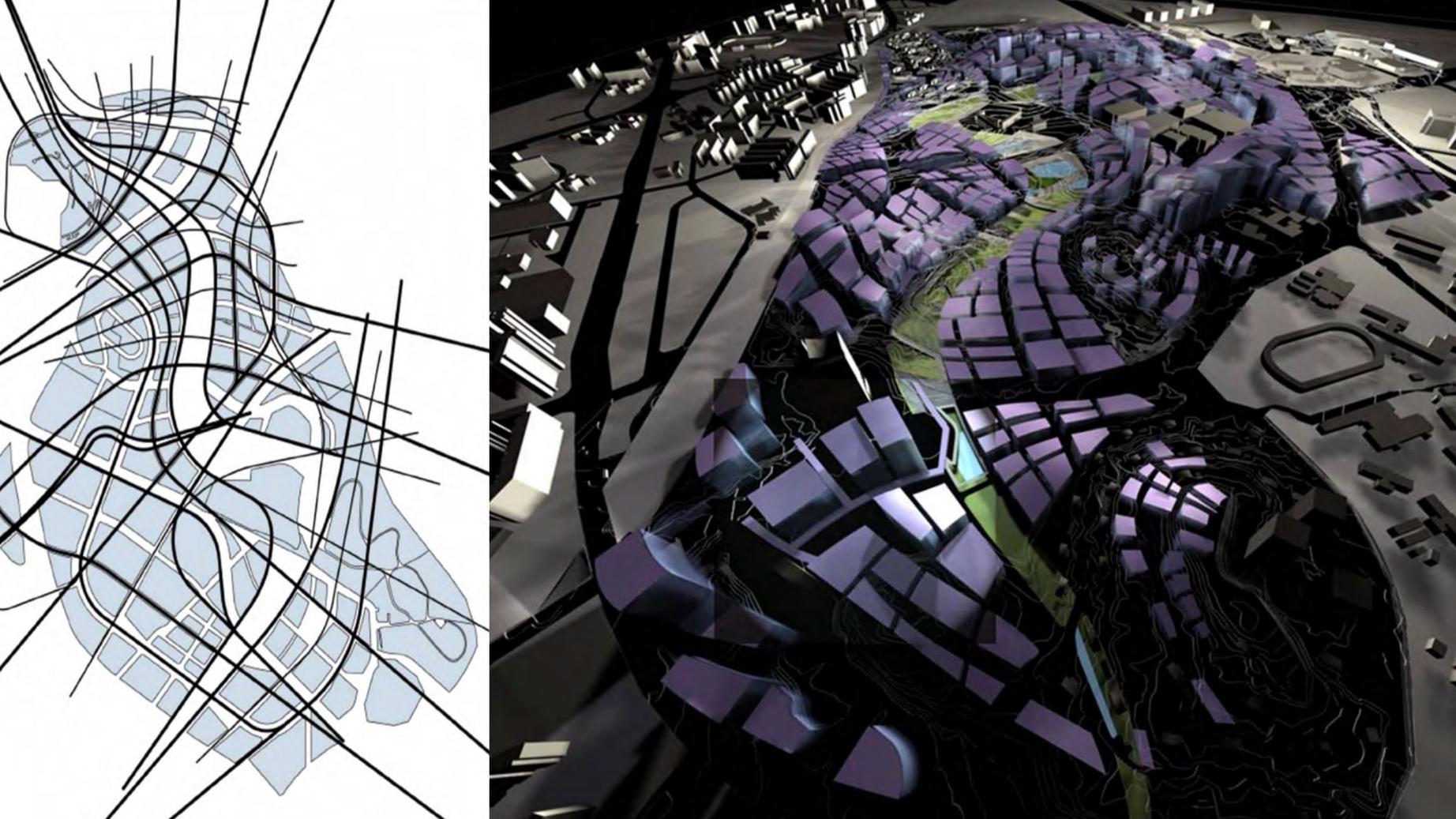
clearance systems

# SINGAPORE Soluciones Urbanas

## Algunas ciudades ya se están posicionando en este escenario:

Singapore que presenta los mejores indicadores de sostenibilidad de Asia, ha planteado el sector de "Soluciones Urbanas" como la principal prioridad de su economía para los próximos años, utilizando la ciudad como laboratorio y desarrollando «start ups» para la creación de nuevas ciudades en el exterior.









TITI FUNDACIONMETROPOLI

Alfonso Vegara



one-north an exceptional place of vision and inspi lion where ideas gr

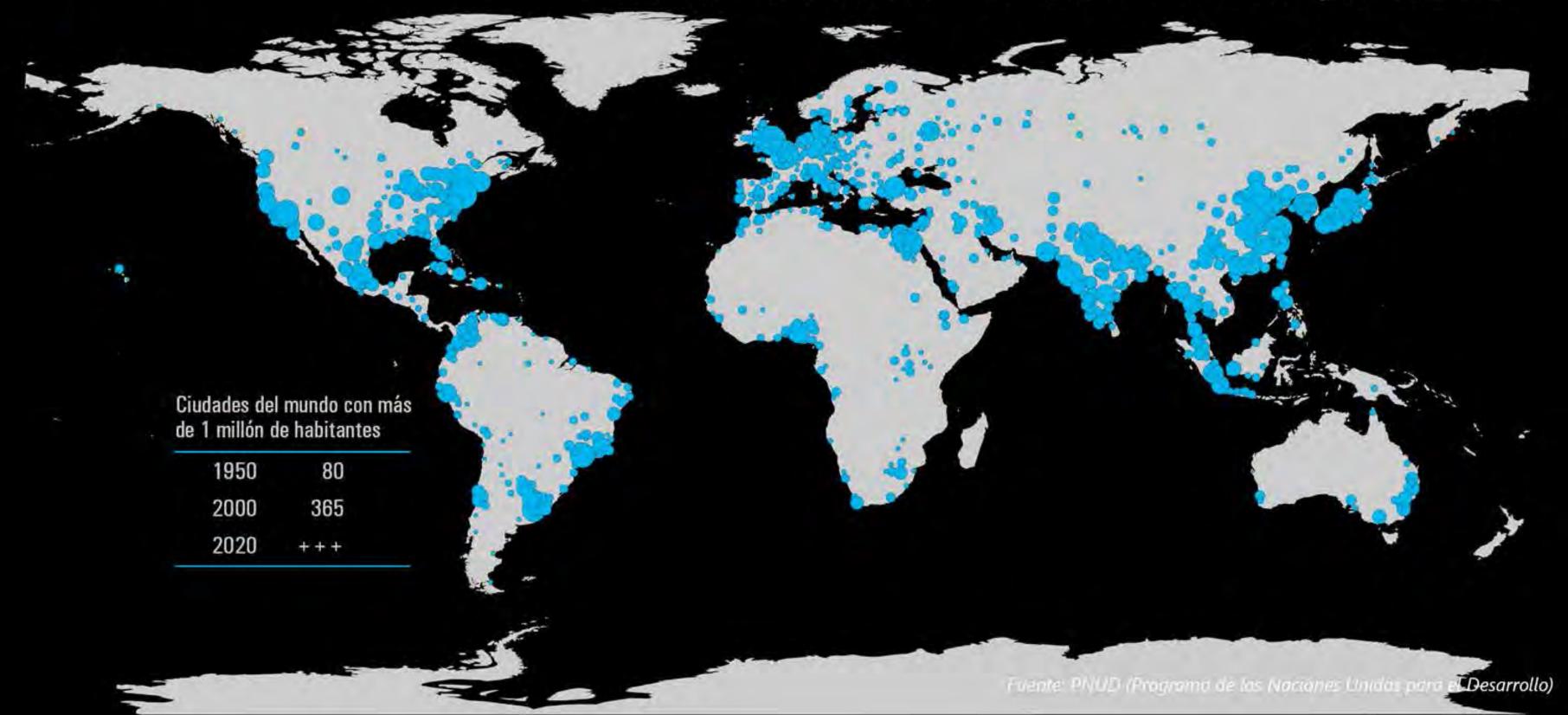
FUNDACIONMETROPOLI www.fundacion-metropoli.org

Alfonso Vegara



## Hacia un Modelo Territorial Policéntrico

Las ciudades. Espacios clave para el desarrollo y la equidad

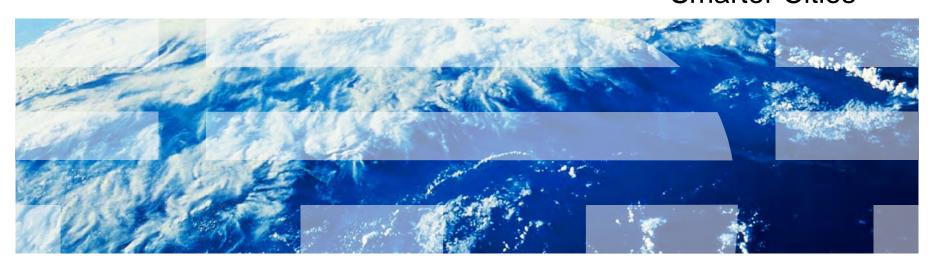






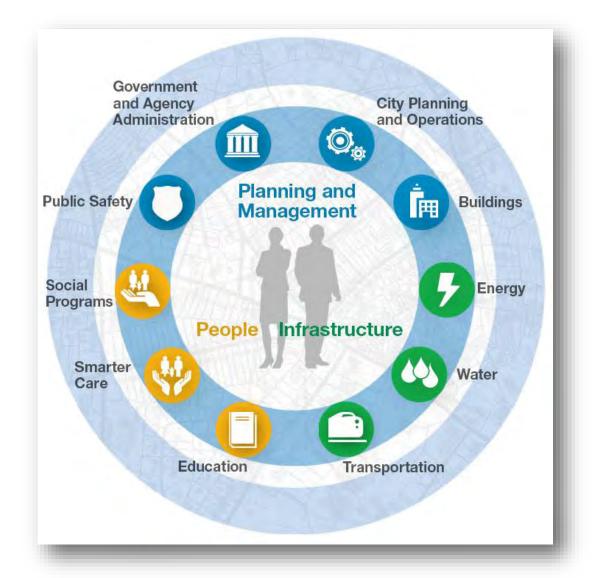
#### "Co-create urban solutions through smart technologies"

IBM Japan. Ltd. Smarter Cities



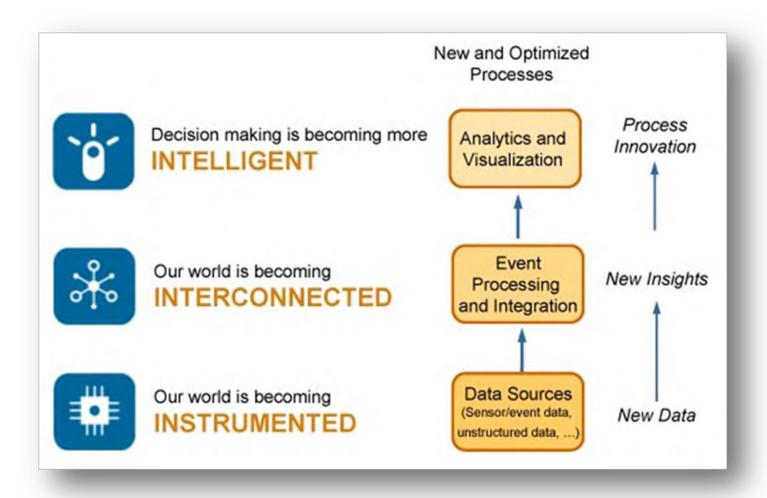


Collaboration and cooperation of industry, government and academia that goes beyond the framework of the administrative.





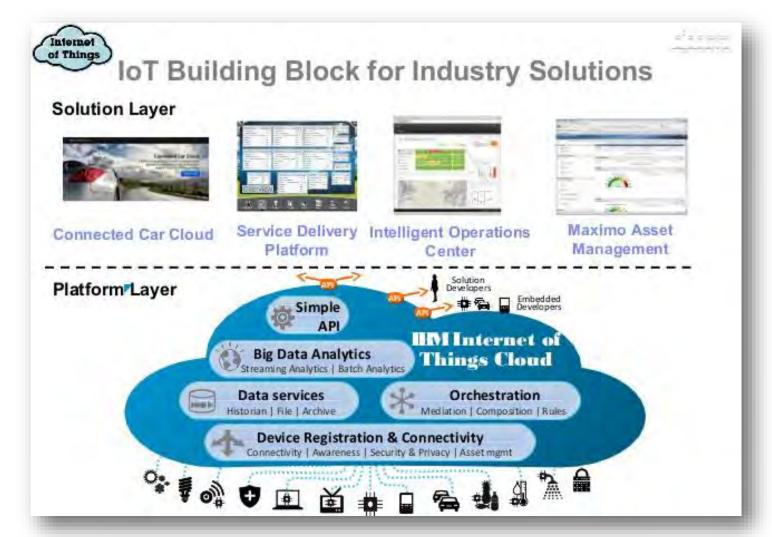
Realization of utilizing ICT "smart social infrastructure and social services."



© 2015 IBM Corporation



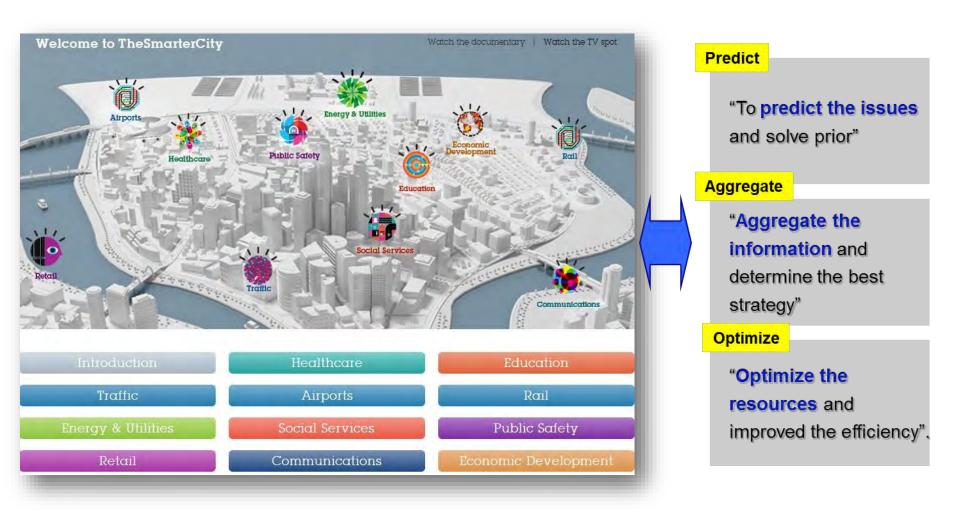
#### Imagine the possibility of analyzing all this data in real time



© 2015 IBM Corporation



## Towards the sustainability of cities Towards the value creation of the city



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# FINETECH CO., Ltd

Going for Green
Technologies for low carbon society

### The 4<sup>th</sup> Asia Smart City Conference

Sustainable Growth by GREEN TECHNOLOGIES



www.finetech.co.jp

#### **FINETECH:**

#### A member company of Y-PORT CENTER **Yokohama Urban Smart Solution Alliance**



#### Yokohama **Urban Smart Solution Alliance**

Over 10 Leading Private SMEs in Yokohama, including FINETECH, form up an alliance under the roof of Y-PORT CENTER to;

- Provide best available smart solutions
- Establish a showcase of smart urban solutions
- Serve and promote as onestop shop with SME's knowledge and technologies

to cities in Asia and the world.



# Y-PORT CENTER

#### Yokohama Urban Smart Solution

JGC **JFE Engineering** Government of Japan **CHIYODA** Cities in HITACHI emerging economies JICA Japan International Large Cooperation Agency Corporations

JBIC Japan Bank for International CITYNET Cooperation Yokohama Project Office

City of Yokohama

#### -POR

Yokohama ban Smart Soluti<mark>on</mark> **Alliance** 

**IGES** Institute for Global Environmental Strategies

Economic institutions in Yokohama

ADB Asian Development Bank Yokohama Water Co, Ltd.

Financial institutions

#### **Company Base**







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Aizu-wakamatsu Office (Now New Open)

#### "Smart Green Park" as Showcase of Renewable Energy Mix





#### **Green Energy Business**





**PV Power Generation** 



Biomass Gasification Power Generation



Micro hydropower generation



Semi-Carbonization Equipment (Mobile Type)





The operation status of the plant can be in real time observed from the remote place

監視室



#### Flexible Resource Recovery Technology (Green Energy)



#### **Inputs**

### Channels of sources (Organic Waste)

☑ Commercial Channel



☑ Industrial Channel



HEMARAJ

☑ Households Channel



☑ Agricultural Channel





☑ Dairy farm Channel





☑ Landfill Site



#### Conversion Process

### FINETECH Resource Recovery Technologies

Gasification & Bio-ethanol Conversion's



**Torrefaction** 



Dry Distilled Gasification (Small Scale)



#### **Outputs**

#### Products to market

✓ Semi-carbonization
Pellet Fuel





☑ Electricity to Grid (FIT / Regional Usage)



< Depend on Demand... >





☑ Live stock feed











#### **New Green Material from Biomass**











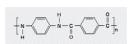
















**Nano Cellulose** 



"Bamboo Pla-Fine"



**Biomass Plastics** 

#### **FINETECH**



# Going for Green the way we work...



