

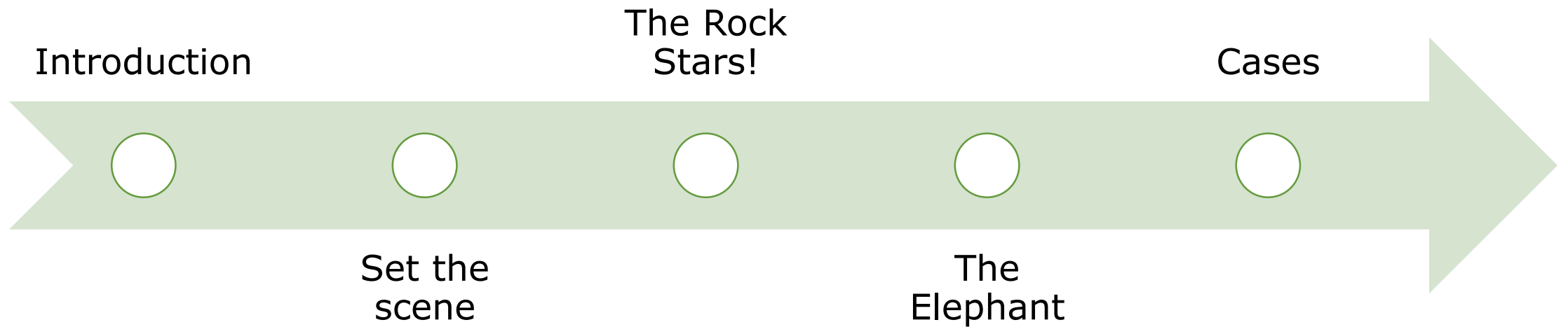
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”WHY CITIES AND MAYORS ARE THE ROCKSTARS OF THE FUTURE AND HOW TO EAT AN ELEPHANT”

Setting the scene, the focus and the approach to creating
tomorrow's cities...

CONTENT



TORSTEN ESBJØRN

- Married to Kathrine Wang Esbjørn
- Have Vitus (2001) and Thit (2004)
- Lived in Pretoria for little more than 2 years
- Also lived in Tanzania in the late '80's
- Lived in India for 4 years
- Worked in cities like Singapore, Bangkok, Jakarta, Copenhagen, Dubai, Riyadh/Jeddah, Barcelona, San Francisco, LA

- What particularly interests me:
 - The inability or unwillingness to accept the rules of the game:

Every major city of the world HAVE TO CHANGE, NOW!

SETTING THE SCENE

” Planning Africa 2016 is about “**Making Sense of the Future**”, debating and discussing the ingredients and features of **Disruption** and **Reinvention**, and about **sharing ideas** on how to “Make Sense of the Future”.

SETTING THE SCENE

WHAT ARE THE FACTS WE HAVE TO REACT TO?



Overpopulation

2025: floor space equivalent to **85%** of the existing urban residential and commercial building stock must be built

(2012, McKinsey)

2030: Area covered by city increased by **150%**; **60%** of the cities we expect to live in not built yet.

(2012, U.N. Convention on Biological Diversity)

Studies show that the area of our cities grow more than twice as fast as the population → spatial planning and management have never been more important

SETTING THE SCENE

WHAT ARE THE FACTS WE HAVE TO REACT TO?



Congestion

Top 10 most congested cities, each commuter on average waste 65hrs per year in traffic

(Inrix. 2013)

In Jakarta alone, the cost is estimated to amount to \$1.4 billion/year in wasted petrol, productivity and health

(Reuters, 2010)

SETTING THE SCENE

WHAT ARE THE FACTS WE HAVE TO REACT TO?



Pollution

2013: due to poor air quality, tourism dropped 14% in Beijing in the first half year equivalent to ~3b\$ in revenue

Breathing Mumbai's air is equivalent to smoking 2 packets of cigarettes per day

SETTING THE SCENE

WHAT ARE THE FACTS WE HAVE TO REACT TO?



Social issues

2005: 900m people lived under slum conditions

(UN Millennium Report 2005)

2009: in Africa, 50% of city dwellers lived in slums

(Global Health Observatory, WHO)

2050: of 5,1b living in cities, 2b will live under slum conditions

(Citylab.com)

SETTING THE SCENE

WHAT ARE THE FACTS WE HAVE TO REACT TO?



Scarcity of water and energy

2025: urban municipal water demand will **rise by 40%** from today's level
(McKinsey, 2012)

→ SA will have to find **~668mill m³** if population growth is an indicator

Cities account for over **60%** of global energy consumption

SETTING THE SCENE

WHAT ARE THE FACTS WE HAVE TO REACT TO?



Waste problems

(Urban municipal solid waste pr pers pr day,
Mckinsey, 2012))

2002: 0,64 kg solid waste per day
per person

2012: 1,2 kg of solid waste per day
per person

2025: 1,42 kg...

Adjusted against population growth:
an increase in tonnage by 249%
world wide, but **390% in Africa!**

PERSPECTIVE

BY 2025, INDIA MUST BUILD HOUSING FOR 1.3 TIMES THE U.S



**322 mill people
(2015)**

9.8 mill km²



**1,311 mill
people (2015)**

3.3 mill km²



Growth

+151 mill people

**Poverty
eradication**

+278 mill people

**Additional 429 mill people will
require housing in India by 2025**

**—
mostly in cities**

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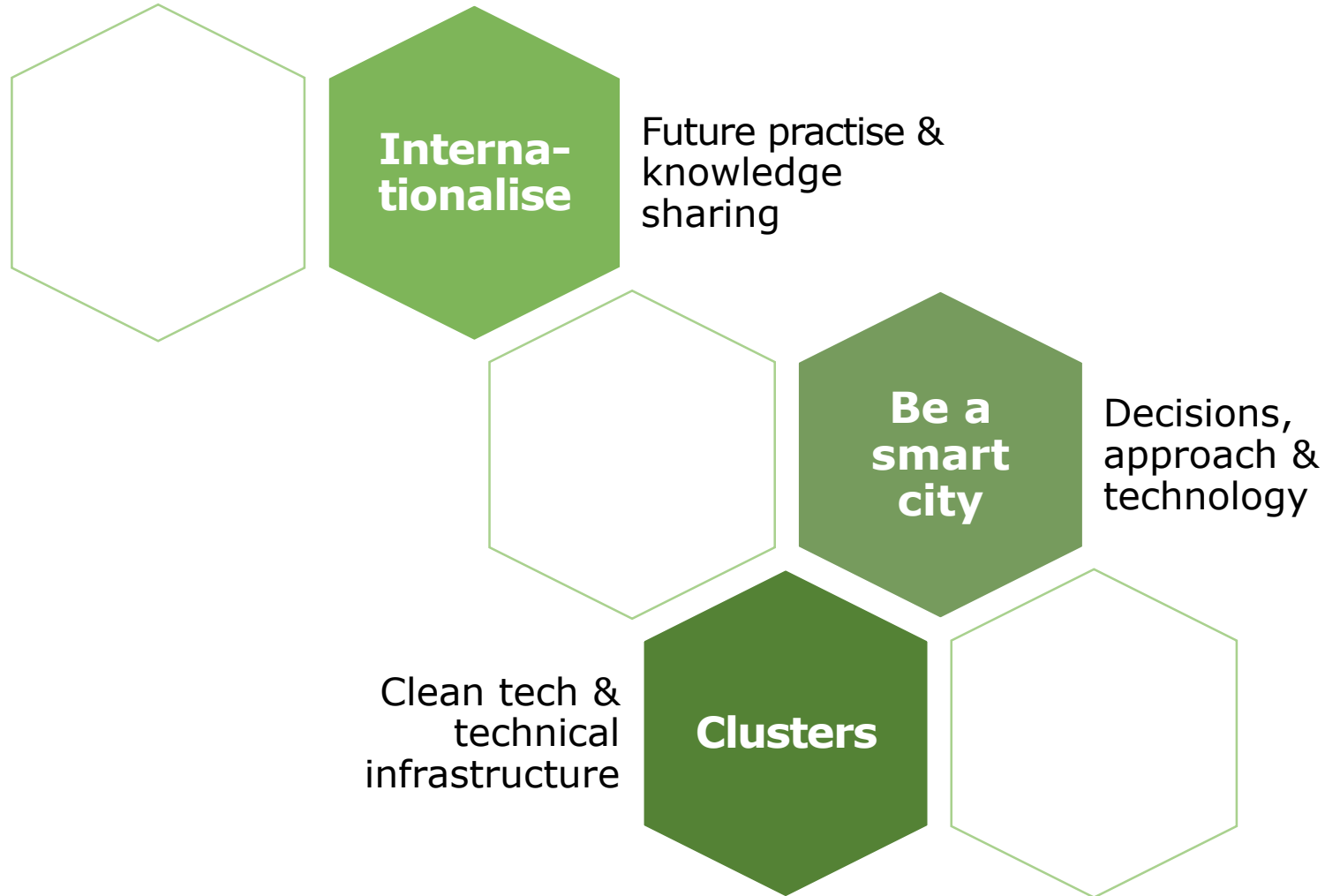
INSURMOUNTABLE CHALLENGES REPRESENTS GREAT OPPORTUNITY

- It is no longer a question of **IF...**
- **It is NOW!**
- Provides solid opportunities to get it right
 - Economy of scale
 - Critical size and population
- Allows for unmatched opportunity for world class urban design and development

SO WHAT SHOULD WE DO?

WHAT DO HAVE TO DO TO BE SUCCESSFUL?

THE LOW HANGING FRUITS...



SEEK INSIGHT, KNOWLEDGE & EXPERTISE

CLUSTERS... TRIPLE HELIX PARTNERSHIPS... INTERNATIONALISE...

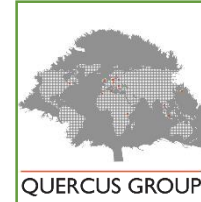
Clusters

- New cluster setup
- Building capacity in existing
- Connect internationally
- Living labs

Danish Solution Collaboration

- Market analysis
- Co-creation
- Stakeholder management
- Building consortia

QUERCUS GROUP



Cluster & Triple Helix specialists

Associated partner...

How the built environment connects with people's quality of life

In collaboration with...



A proven Rock Star!
City of Copenhagen

Part of the triple helix...
Technical University of Denmark



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SMART URBAN DEVELOPMENT & VALUE-ADD

CO-CREATING (PPP) AND BUILDING THE POLITICAL CASE

Working with the Private sector **Creating creative fora**

- Creating access to decision makers
- **Political will & courage – committed and long term!**
- Welcoming uncharted territory
- Remember the business case

Enabling

- Break-down of silos
- Knowledge sharing
- Value-add and innovation

The political case **Best practice to future practice**

- Strategic relevancy
- Economic growth and socio-economic benefits
- Strong planning principles
- Governance and execution

Allowing for

- Technical expertise
- Architectural brilliance
- Engineering master pieces

THE PROGRESSIVE & MODERN CITIES...

COMPONENTS

Modern & progressive cities

Utilities

Energy, waste,
water...

Society

Mobility, health,
education,
culture...

Environment

Pollution, food
systems, land
use...

Economy

Green growth...

THE PROGRESSIVE & MODERN CITIES...

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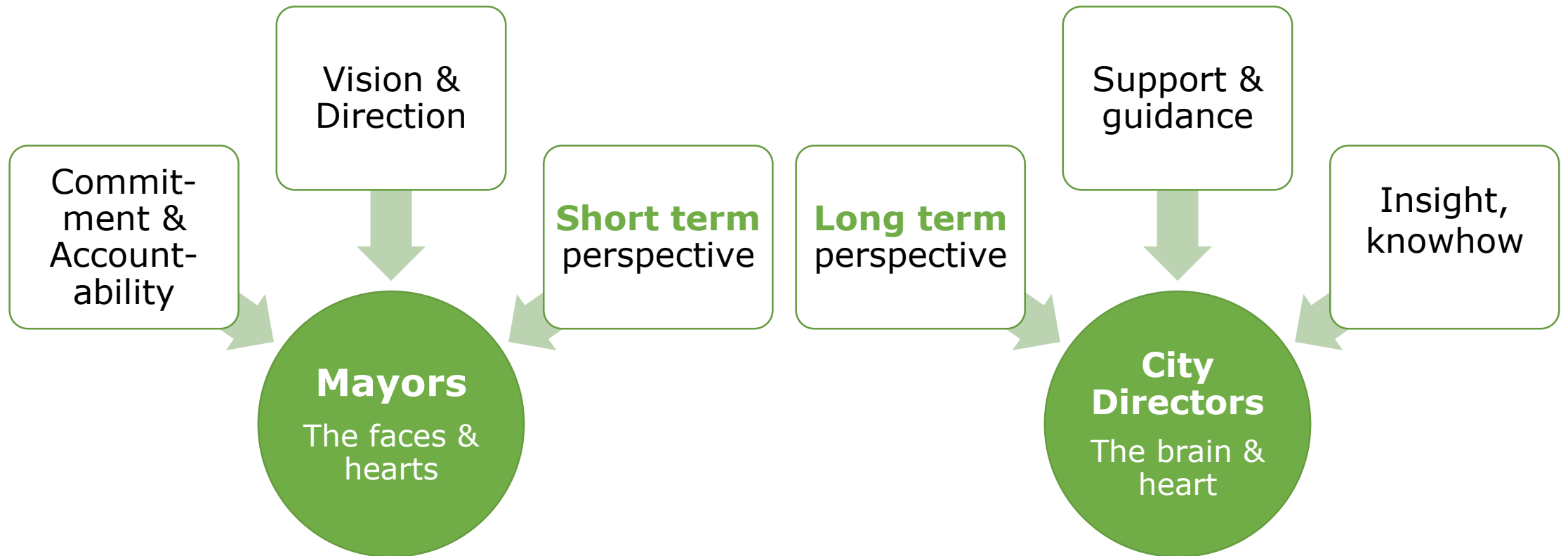
Green growth...

What sectors are involved?
Suffice to say that **everything**
comes into play when planning and
developing our cities!

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...AND THE ROCK STARS



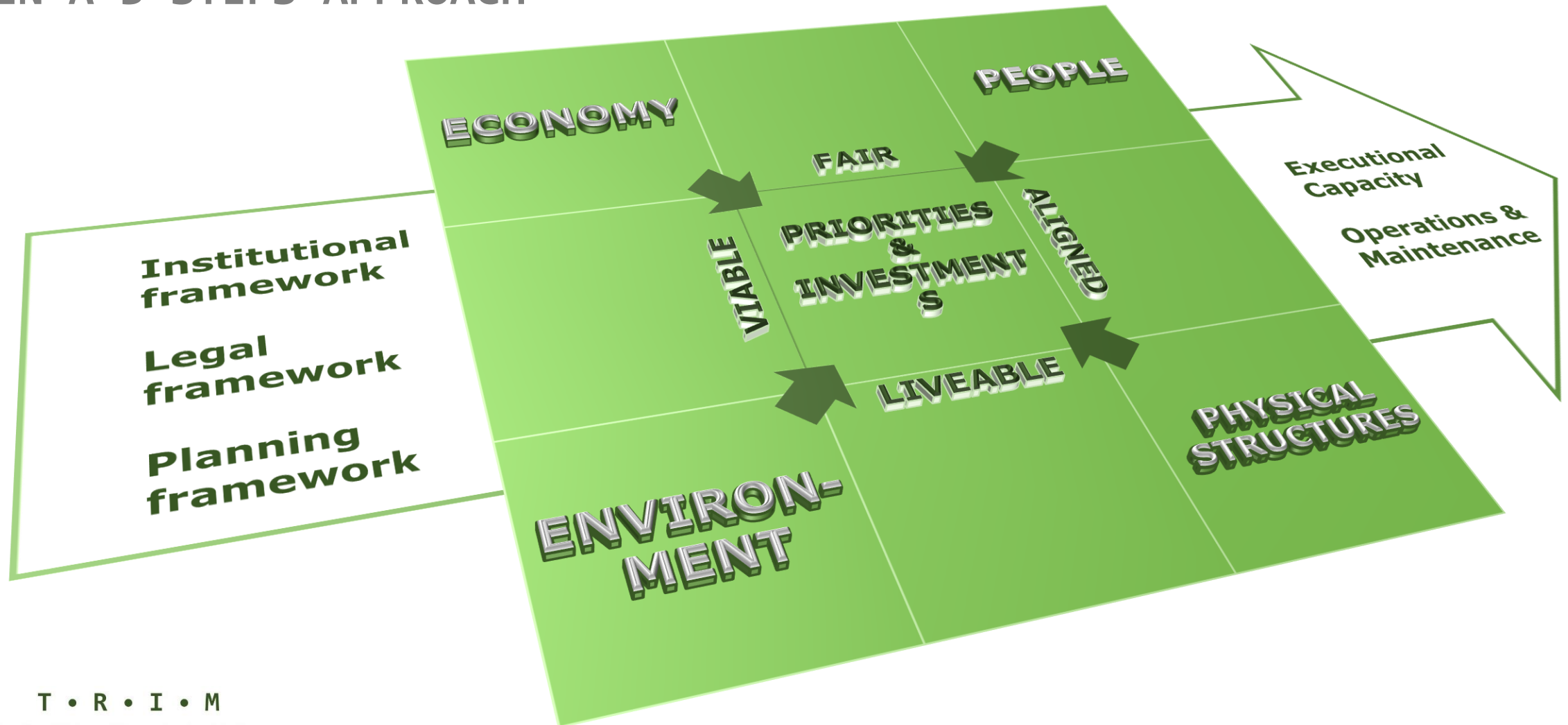
WELL KNOWN & PROVEN PRINCIPLES...

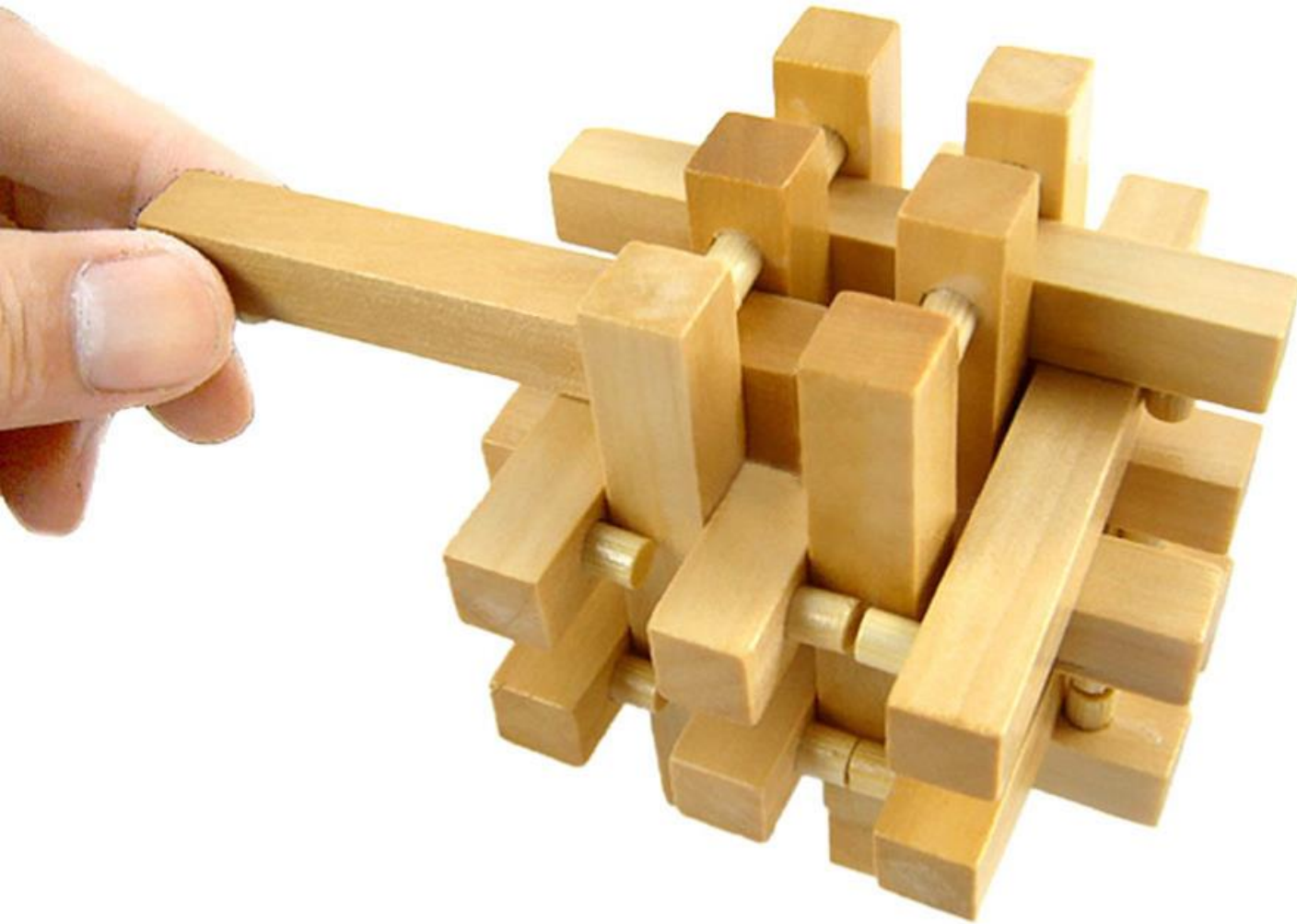
BUT MEANINGLESS IF NOT EXECUTED

- The compact city
- Proximity to public transportation
- Mixed integrated use
- It will be correct and ambitious to compare and aspire
 - Look to successful cities
- However, approach must be adapted to local conditions and context
 - You cannot adopt/copy approach of Copenhagen to Johannesburg → irrelevant

A TOOL: THE FOUR-DIMENSIONAL BALANCE LIVEABILITY

IN A 3-STEPS APPROACH





The complexity of urban development almost encourages the attempt to simplify...

Unfortunately, there are no shortcuts!

Remove layers of your plan (and thereby city) and you compromise your benefit...

SUMMARY – SO FAR WE HAVE...

Set the scene

Identified the
Rock Stars

4-dimensional
framework

WHAT DO HAVE TO DO TO BE SUCCESSFUL?

SMART CITY - COURAGE, WILL AND CHOICE



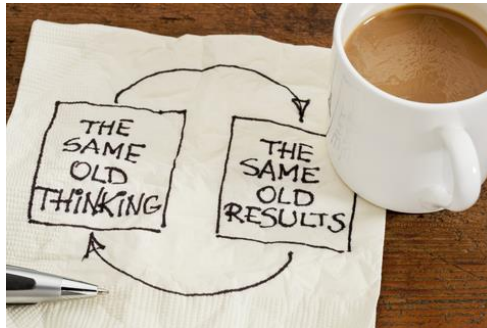
**NO LIMIT BUT THE
IMAGINATION**

LACK OF CREATIVITY
WHAT TO DO WITH ALL THE
DATA & TECHNOLOGY?



**COUNTERPRODUCTIVE
MINDSETS**

LET ME DO WHAT I KNOW



**OUTDATED LAWS AND
REGULATIONS**

PUBLIC/PRIVATE CO-
CREATION HAMPERED BY
PROCUREMENT POLICIES

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DUBAI RETRO FITTING

Goal

Want to be one of the most sustainable cities in the world.

Mission statement uses words like: *sustainable ... world-class ... reliability ... efficiency ... safety...*

...and under their motto:

"this can only be achieved by taking an ethical and sustainable attitude to the development of electricity and water."

Smart solution and tech

Retro fitting ~30.000 buildings – a project under DEWA

An after-thought...

Everything in Dubai is new!

Why allow building with outdated technology in the first place?

Smart choice

Reducing energy consumption

Increasing energy efficiency

CHICAGO LAKESIDE – THE FUTURE OF URBAN DESIGN



Challenge

Vision to breathe new life into South Chicago

How to create a liveable and sustainable city for future generations

What Ramboll did

Prepared design concept for sustainable energy, water management and waste management

Mandatory connection to utility company...

AFTERTHOUGHT

Mandatory connection to grids are in direct contradiction to the American way...

The owner bailed in the last hour, compromising the foundation of the urban design

Effect

New way of living

Urban design strategy is key differentiator

Winner of Sustainia Community Award

Visualisation: Skidmore, Owings & Merrill LLP/MIR.

JEDDAH ENVIRONMENTAL & SOCIAL MASTER PLAN

SAUDI ARABIA

Challenge

Rapid urbanisation of city
Severe environmental problems

Vision to improve overall living conditions by 2030

What Ramboll did

Environmental assessment and social master plan

Covers 15 disciplines
Socio-economic study – cost of environmental degradation (COED)

Effect

Baseline of current conditions

Corrective actions

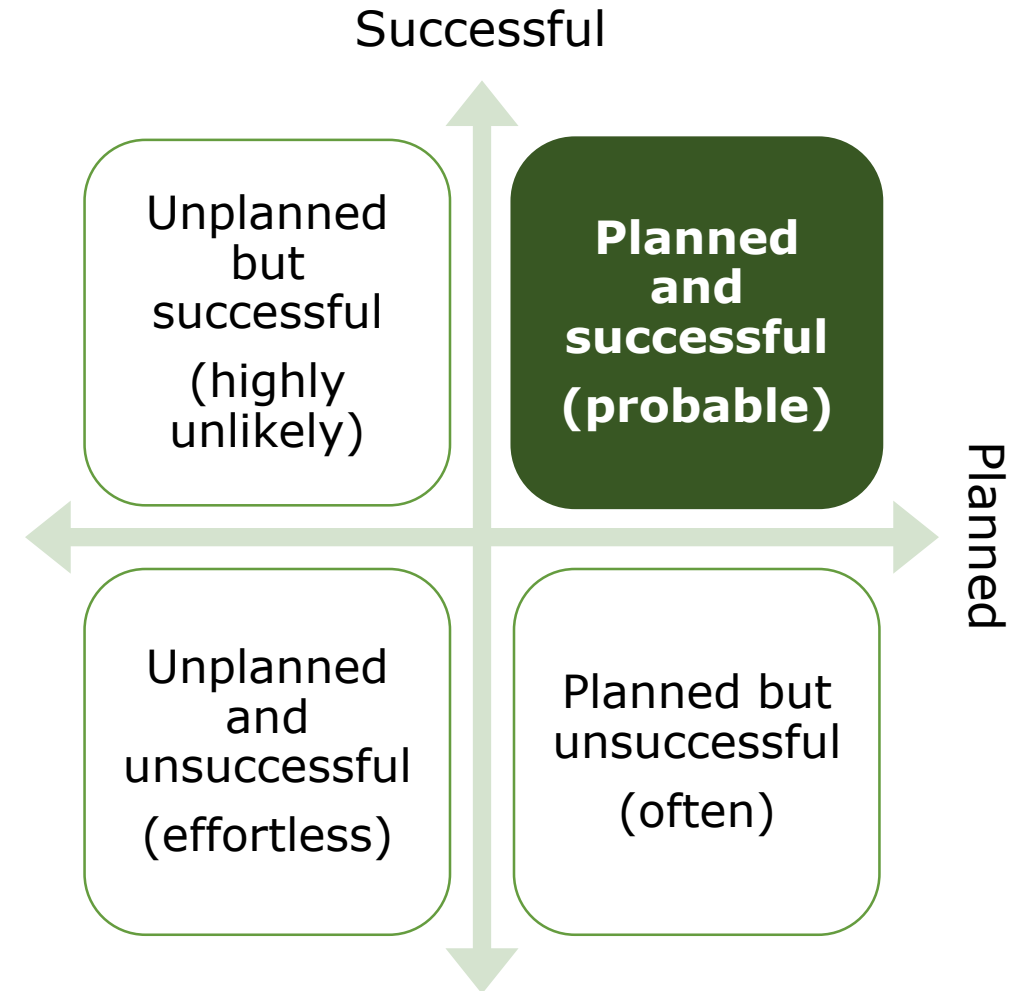
Cost/benefit analyses to help prioritise

1 USD Invested, 3 USD Return!

Cost of passiveness: 7b\$/year

I HOPE YOU WILL TAKE AWAY THAT...

- **Cities must consider themselves as active providers of development options rather than passive managers of assets**
- **Strong business** cases and **strong political** cases are drivers for development
- Cities must open their doors and invite the **private sector** in and we have to remember their business case
- The **governance and executional** systems must be able to focus, commit and implement
- We are building for the next 100 years – we need strong and **long term strategies**



INTERNATIONAL PROJECT SUCCESS STORIES



Singapore – Bishang Park



The Copenhagen story



A Smart City project



Skt. Jørgens Lake, Cph



North Harbour, City development

BISHAN PARK, SINGAPORE

URBAN DESIGN - AN ENABLER FOR DEVELOPMENT

01

02

03

The outcome

Silos broken down... Focus on the end game: the park and the people of Singapore

01

An attractive urban area.
The Park Authorities...

02

The storm water drain - effectively a playground and a sponge city.
The Utilities Board...

03

The park: a value adding public space

INTERNATIONAL PROJECT SUCCESS STORIES

The Copenhagen story

- Political and institutional development, planning cycles, and executional excellence
- Long term commitment keeping the politicians under control so they do not ruin anything

District energy

- Decades of fortunate circumstances and proactive will

Special Purpose Vehicle

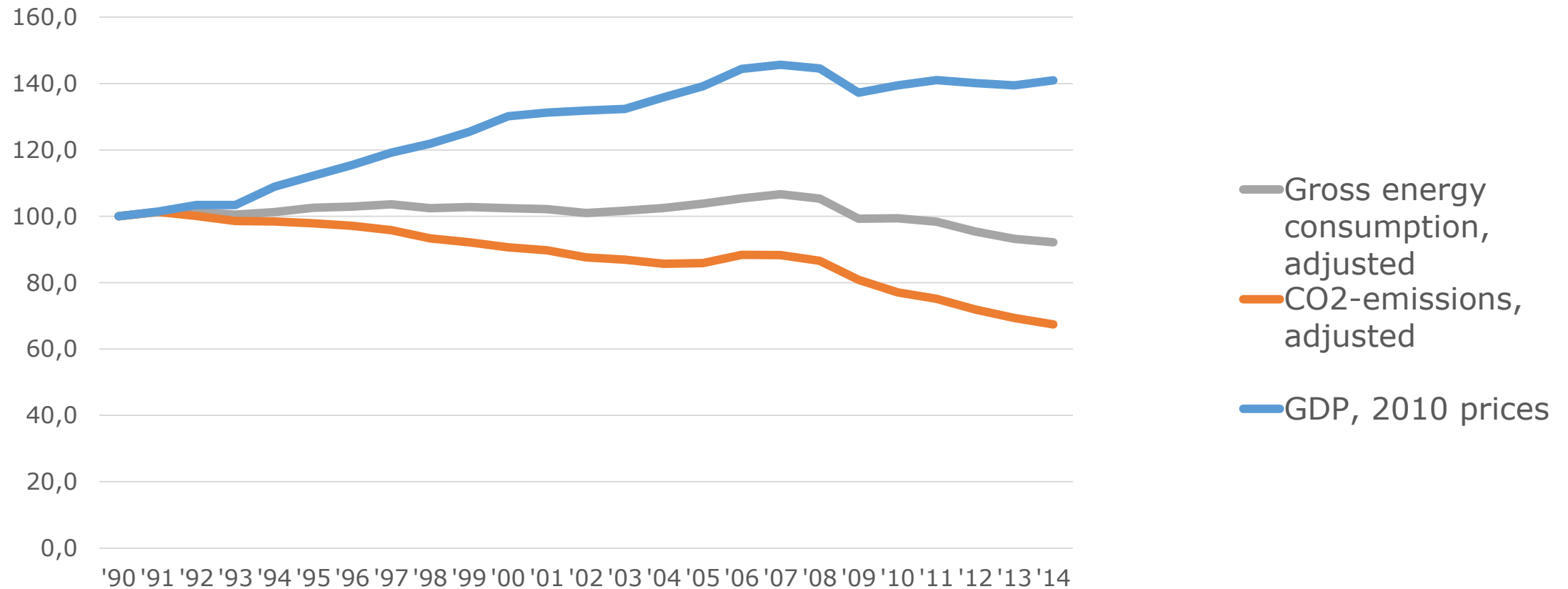
- Special purpose vehicles for planning large scale developments (By & Havn)

Green Growth proven

- Successfully decreased energy consumption & reduced CO2 emissions while securing growth

PROOF: GREEN GROWTH IN DK

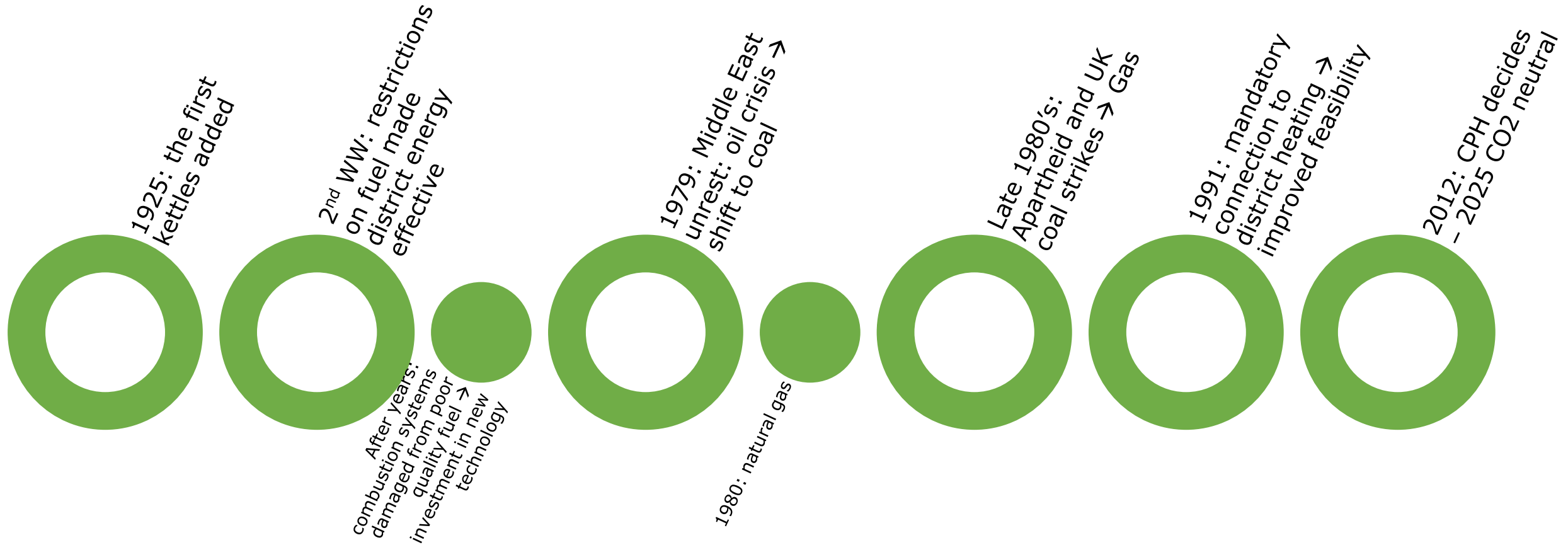
DON'T LISTEN TO THE NAYSAYERS



Source:
Statistics Denmark and
the Danish Energy Agency

DISTRICT ENERGY IN COPENHAGEN

THE ABILITY, THE WILL, AND CIRCUMSTANCES TO ACT AND CHANGE



THE URBAN DEVELOPMENT VEHICLE IN COPENHAGEN



COPENHAGEN CONNECTING – SMART DIGITAL NETWORK

The Challenge

To assess the potential of big-data; what a new city-wide wireless and cabled digital infrastructure will bring to citizens, businesses, organisations and researchers.

The assessment also included sensor technology that in real-time will identify and enable efficient problem solving

The socio-economic case

Total of **587m€** in benefit

ITS	→ 235m€
Environment	→ 111m€
Innovation	→ 104m€
ICT	→ 51m€

**10%
reduction in
congestion
through ITS**

**For every 1
sharing car,
private car
ownership is
reduced by 4**

**20% off travel
time through
route planners**

**2 min off per
trip through
smart parking**

CLOUDBURST MITIGATION PLAN, CPH

A SMART SOLUTION SOLVES MORE THAN ONE ISSUE

Challenge

Destructive cloudburst event in 2011

EUR 800 million in damages

Smart tech

Modelling and technology provided the data... there was not a drop of water we didn't know of...

But no solution!

Smart solution

Ambitious and detailed master plan on city level
Solve cloudburst issues *and* add recreational value

Effect

Positive impact on city liveability

Beach park saves approx. EUR 134 million over storm water pipe

A solution

A traditional storm water pipe so big a metro line could fit in it...

A solution, but not a smart solution!

**FLOOD
PROTECTION**

MAINTENANCE

**WATER
QUALITY**

**RETRO
FITTING**

TRAFFIC

Atelier Dreiseitl
URBAN PLANNING

Copenhagen Municipality
WATER UTILITIES

Fredricksberg Municipality
PARKS & NATURE

Fredricksberg Municipality
ROAD MAINTENANCE

Fredricksberg Municipality
WATER UTILITIES

Rambøll
ENGINEERING

Copenhagen Municipality
PARKS & NATURE

HOFOR
UTILITIES

Fredricksberg Municipality
TRAFFIC

Copenhagen Municipality
ROAD MAINTENANCE

Copenhagen Municipality
URBAN PLANNING

Fredricksberg Municipality
URBAN PLANNING

Copenhagen Municipality
TRAFFIC

**FLOOD
EVENT**

**SITE
VISIT**

WORKSHOP II

**EXPERT
REVIEW**

**FINAL
DOCUMENT**

**PUBLIC
CONSULTATION**

ACTION

2011

WORKSHOP I

2014

NORDHAVN NOMINATED 'WORLDS BEST MASTERPLAN'



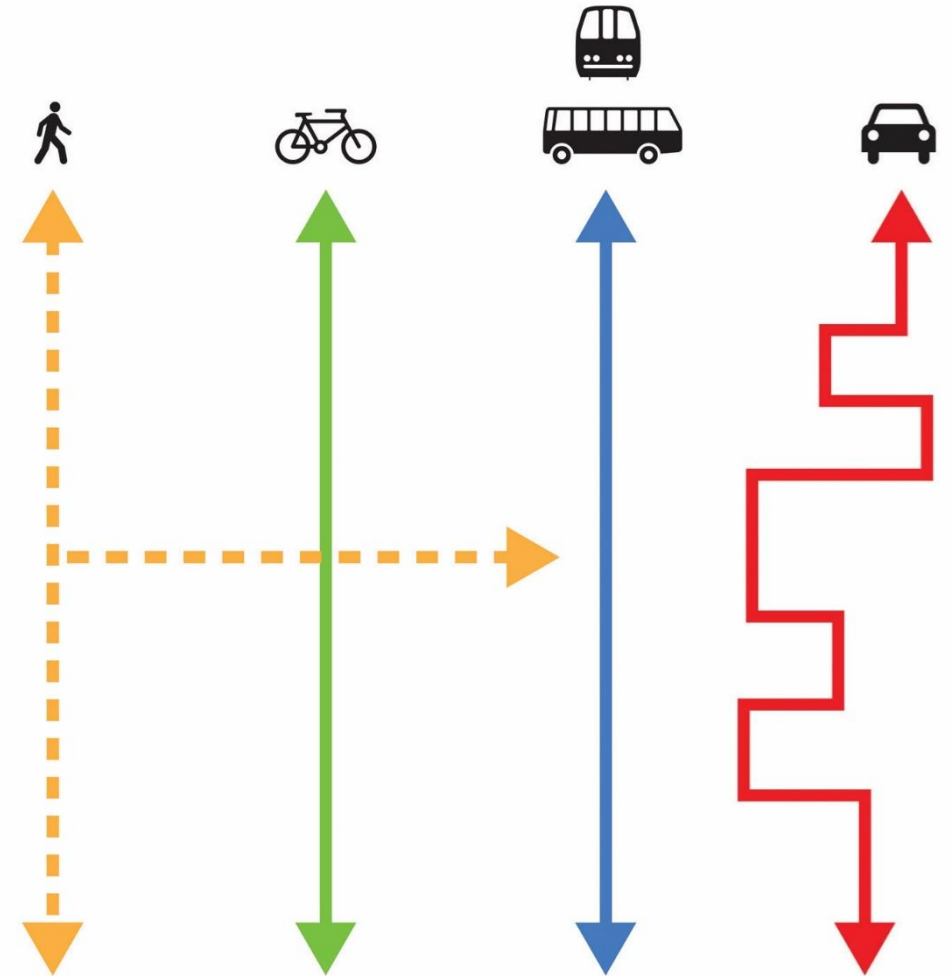
Sustainable and smart

- 40.000 inh. 40.000 workplaces
- CO2 neutral
- Smart city solutions
- Sea wheat for bioethanol and biogas
- District heating and cooling
- Large energy store
- Intelligent waste handling
- Public transport prioritization
- Parking strategy
- Super bicycle paths
- Solar systems

SMART TRANSPORTATION

THE FIVE MINUTE CITY

- High quality public transport is one of the defining elements
- Direct and high class bicycle routes – super cycle paths
- Crooked car routes
- Location strategy for buildings for public use – institutions, shops, culture etc.



THANK YOU

Torsten Esbjørn

torsten@trimconsult.dk

+45 53537391

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