DATA ANALYTICS IN SMART INFRASTRUCTURE

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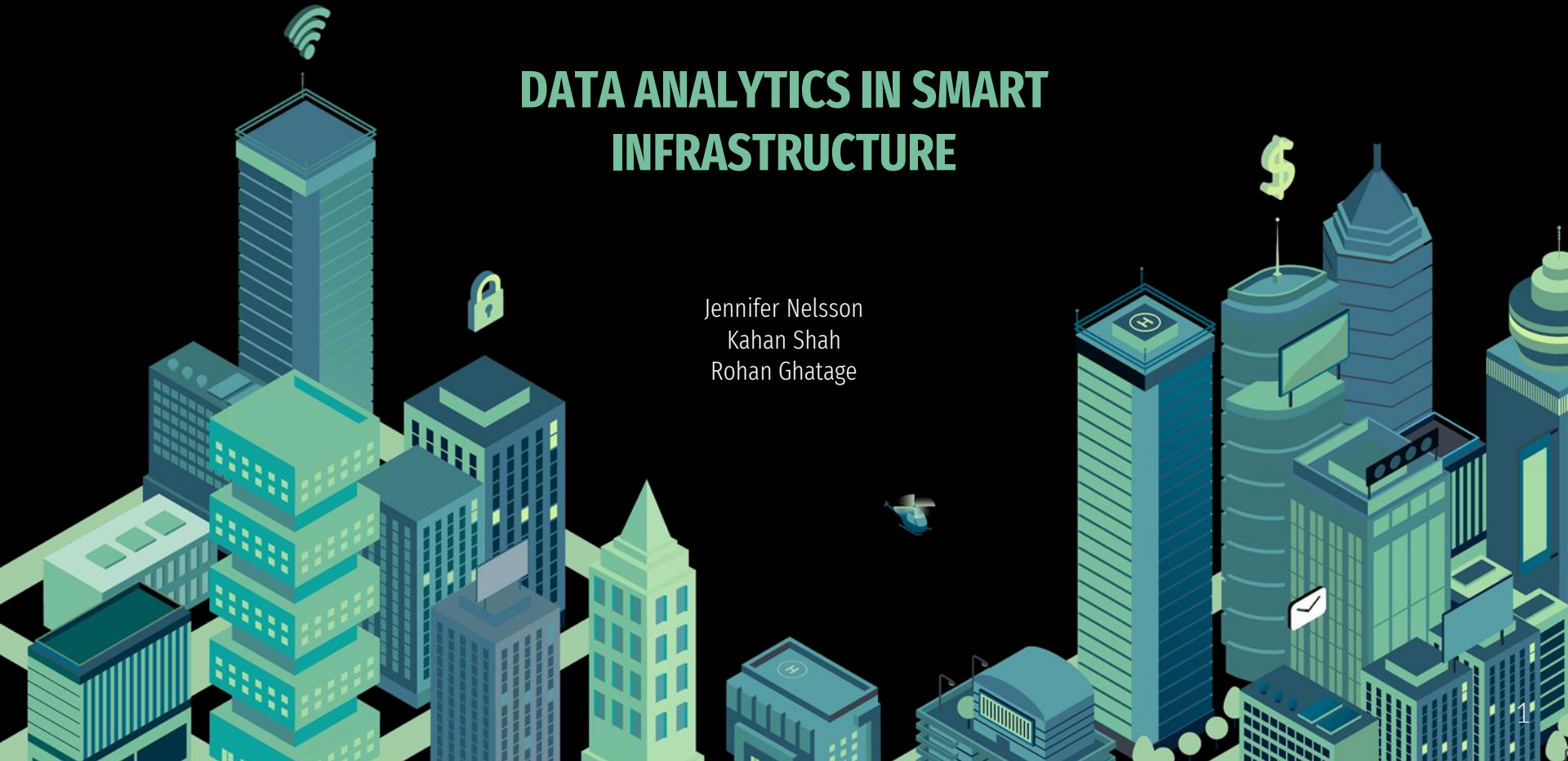


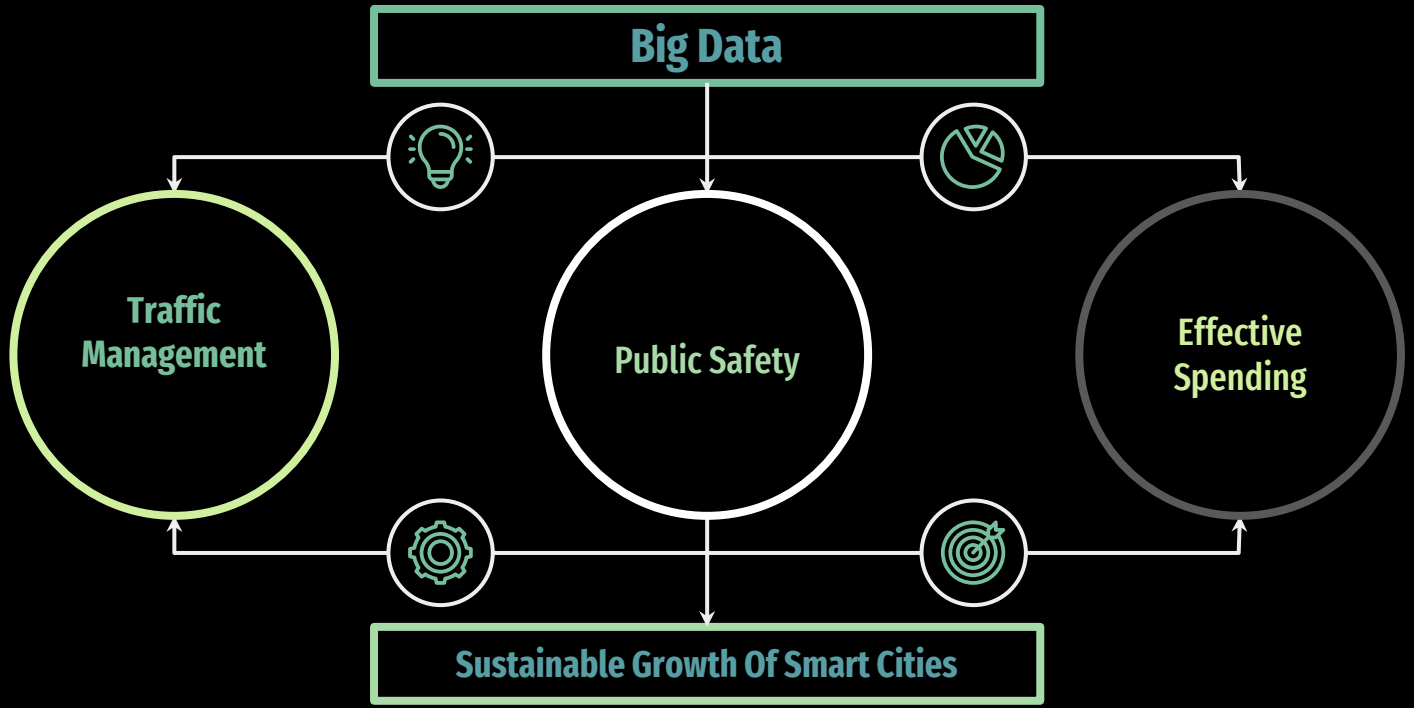
Introduction

68%

Of the world population is expected to live in cities by 2050, pushing to make our cities more efficient and citizen-friendly backed by smart technology

Source: https://www.analyticsinsight.net/key-benefits-big-data-developing-smart-cities/

Impacts of Big Data on Smart Cities



Case Studies

Singapore

- Intelligent transport systems
- Monitoring and Advisory Systems
- Maximized savings through digitizing

Hong Kong

- Smart Mobility
- Open Data, Digital Twin, Data Sharing, Sensors

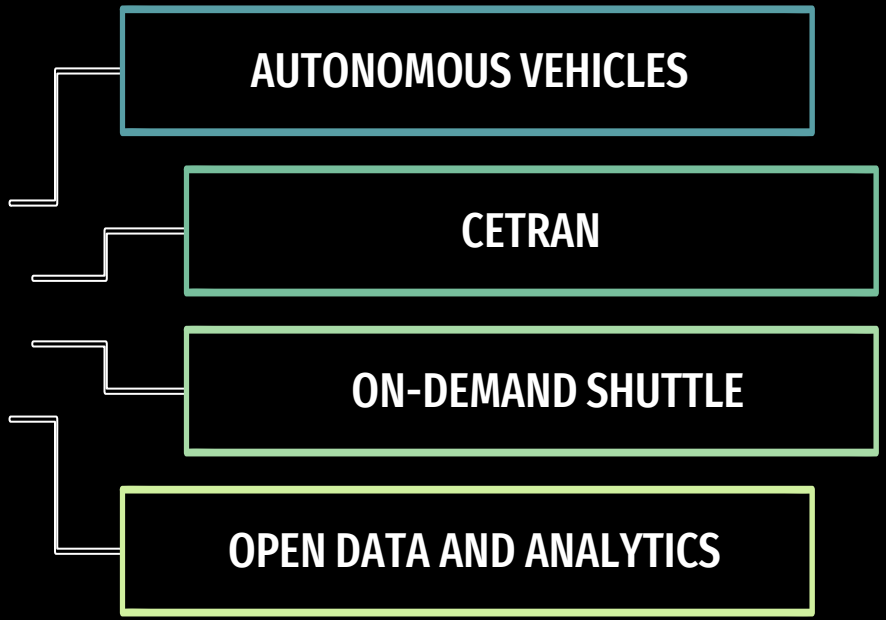
Copenhagen

- Infrastructure and Open Data
- Smart Waste, Traffic Optimization, Smart Parking
- Applications

Case Study on Singapore - Smart Nation Initiative

12%

Land set aside for roads and infrastructure



Express Monitoring & Advisory System

Incident detection and vehicle recovery services by the LTA

Smart Lamp Posts

Collect and communicate data for better urban planning

ADAMS

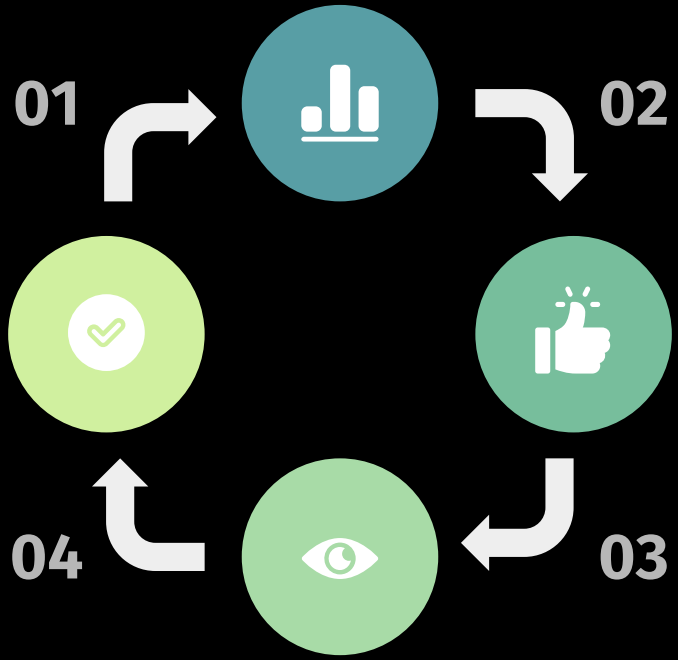
Using data to identify top risk drivers and reduce overall accident rates

Electronic Police Centre

CrimeStopper on ePC - online crime reporting system

Digitizing Design

Run tests
Avoids the cost of changing the designs physically

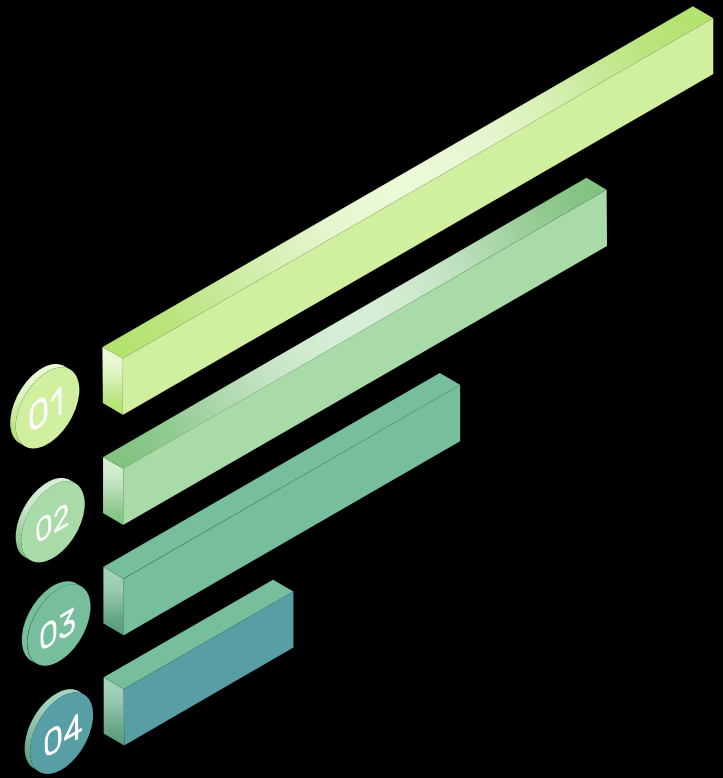


Simulations
Simulate and improve the accuracy of plans

Maximized Savings
Finding potential problems before embarking on a project

Coordination
Increased collaboration in production and delivery of building modules

Conclusion



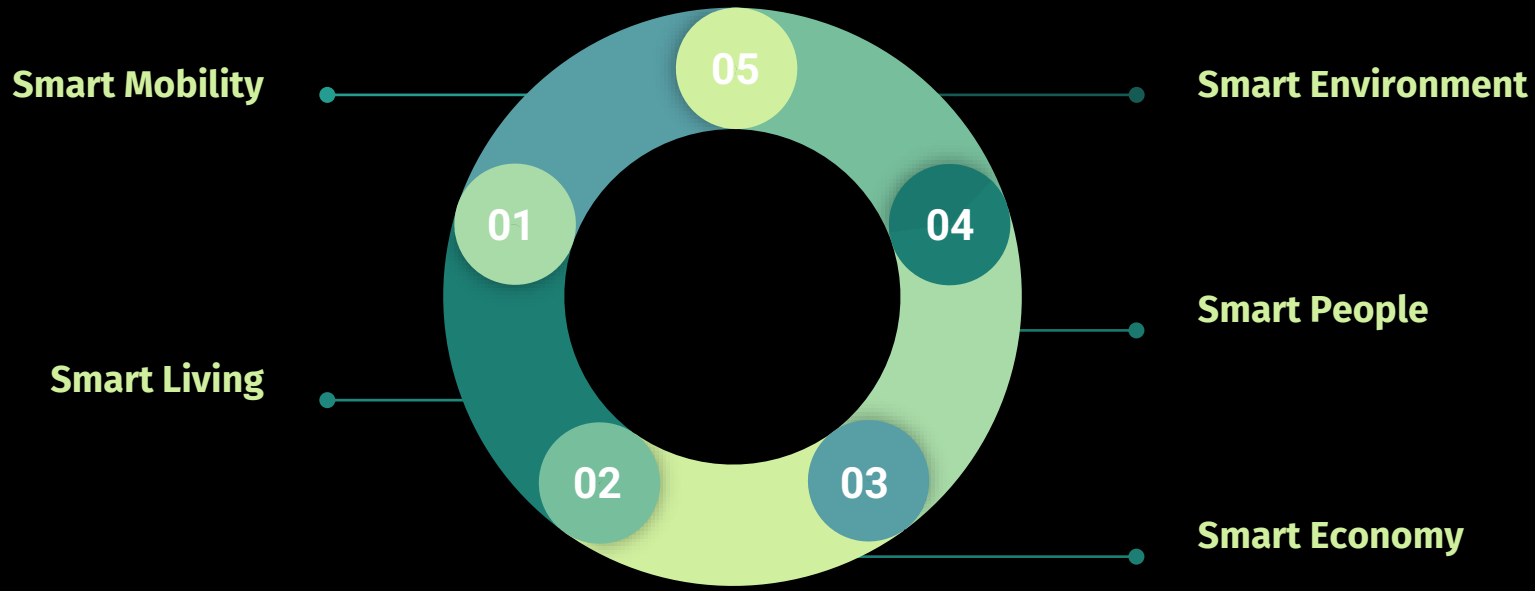
Strategic opportunity to be at the forefront of technological revolution

Harnessing power of digital tech to expand businesses internationally

Government plays a vital role in implementing digital transformation to achieve greater infrastructure productivity

Digital tech in ensuring public safety and efficiency of traffic management systems

Case Study on Hong Kong



Source: https://opengovasia.com/hong-kong-leveraging-ai-and-big-data/

Case Study on Hong Kong

Open Data

Web-based dashboard - parking lot availability, weather data, traffic information

Digital Twin

Combining BIM to represent real buildings in a 3D virtual space

Sensors

Real-time transport data, ultrasonic detection of water levels, monitor slope conditions

Data sharing

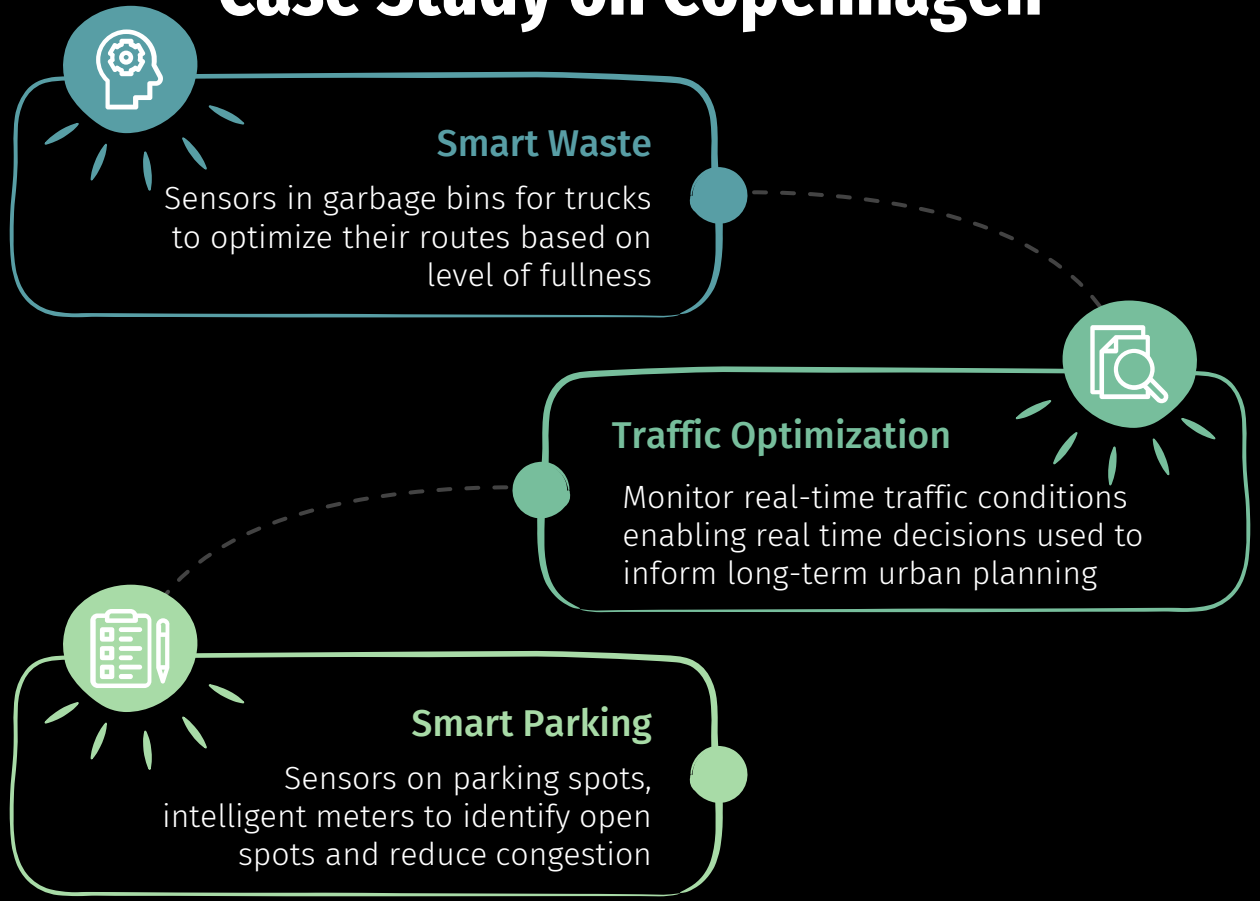
One-stop platform for free access to datasets in a readable format, leading to innovation

Case Study on Hong Kong - Conclusion

Case Study on Copenhagen

Source - https://www.brookings.edu/wp-content/uploads/2017/10/safe-city-innovation_final.pdf

Case Study on Copenhagen



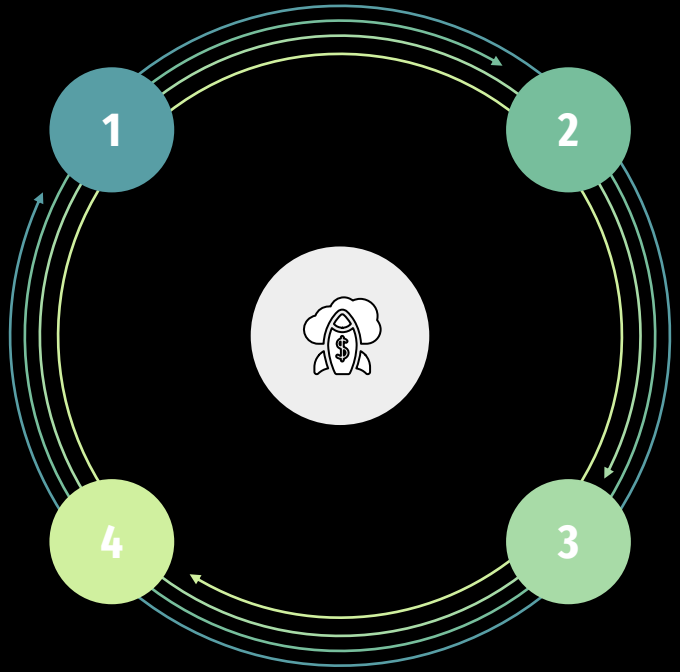
Case Study on Copenhagen

Improve own decision making

Holistic overview, better planning and improved transparency

Improve public-private partnerships

Coordinated urban development and infrastructure development



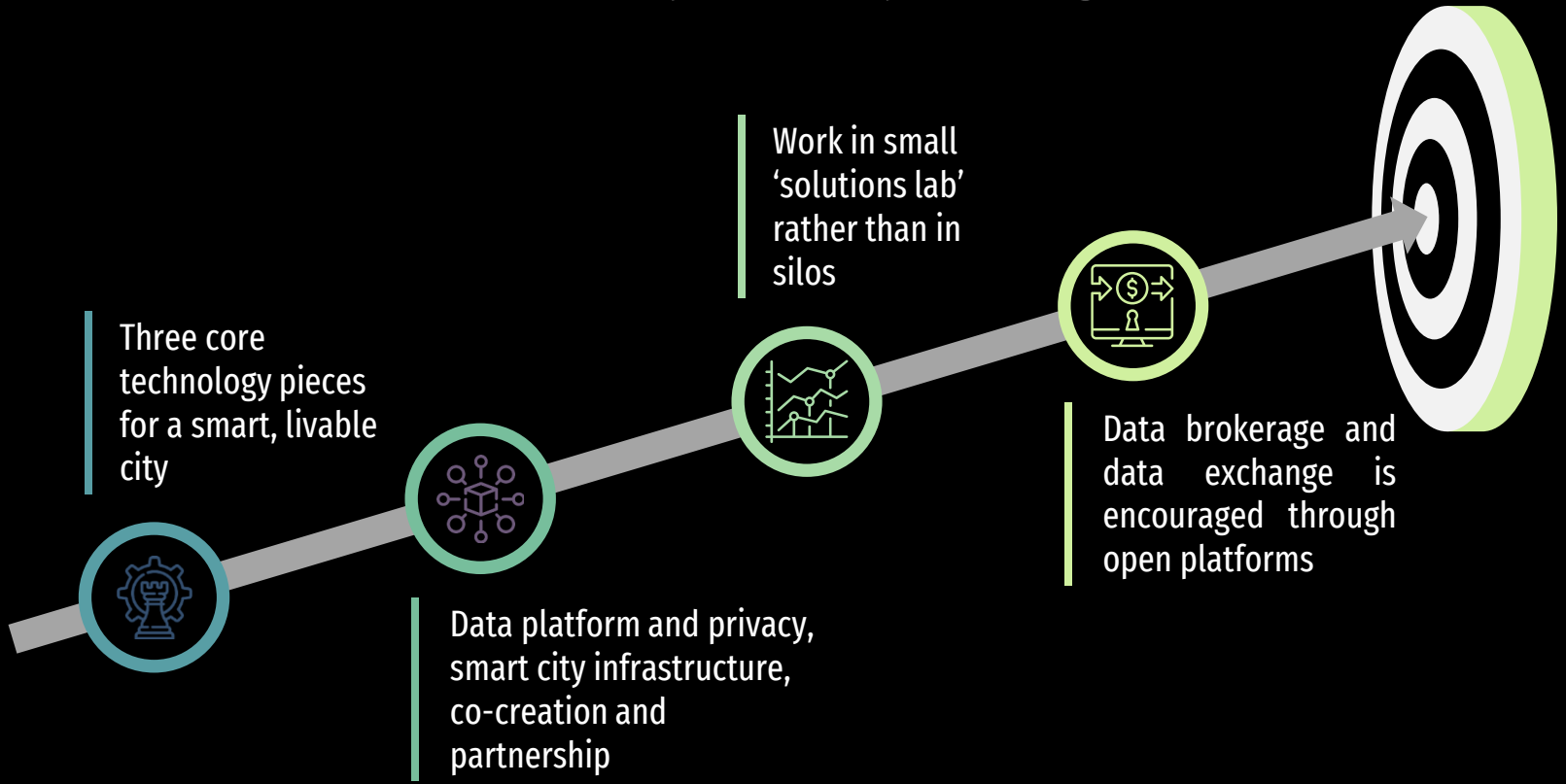
Create a data marketplace

Promote innovation, creativity, inclusion and solve challenges

Support Political and Strategic Initiatives

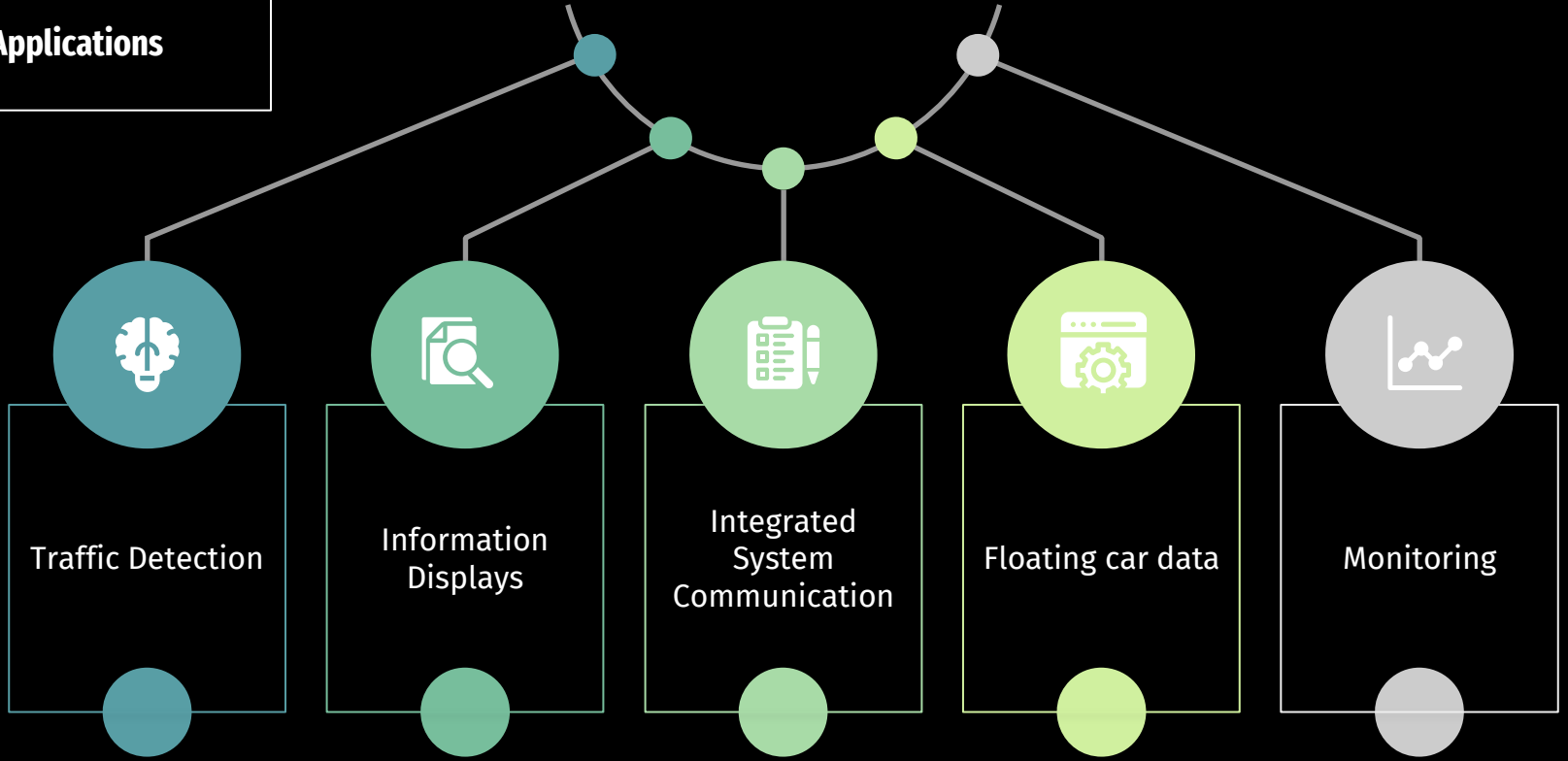
Support green growth, innovation, sustainability, job creation, etc.

Case Study on Copenhagen



1 TRAFFIC MANAGEMENT

Applications

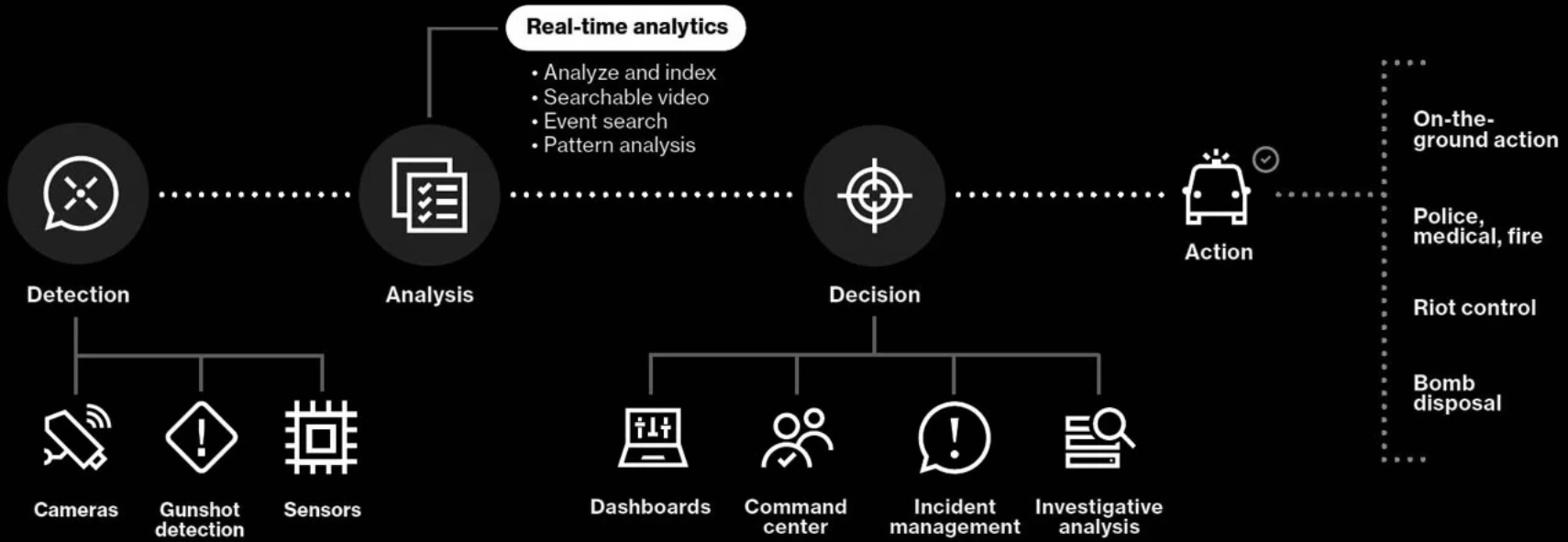


Recommendations

1. Regulatory and liability frameworks to facilitate the deployment of AVs
2. Industry standards to facilitate the testing, and collection and usage of data
3. Refine the current traffic systems planning process by predictive analysis using diverse datasets
4. Time and cost savings by prioritizing replacement of specific parts over entire systems

2 PUBLIC SAFETY

A Safe City Workflow



Recommendations

Transparency

Build trust and gain support through transparent operations

Engagement

Proactive programs, build engagement using data and analytics

Unambiguous

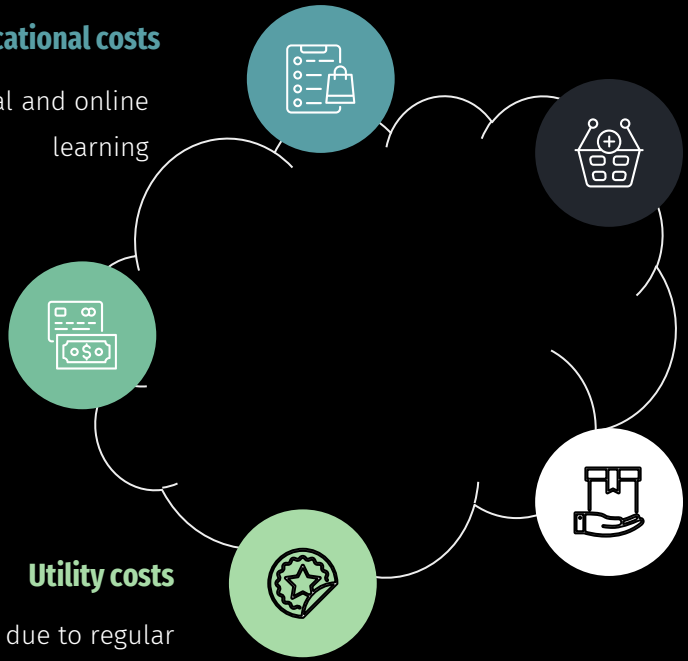
Make information robust by using concrete systems and protocols

Digital resources

Online statistics and performance measures for easy access

3 EFFECTIVE SPENDING

Effective Spending



Reduced educational costs

System of physical and online learning

Embracing urban innovation

Faster ROI, project approvals and accelerated deployment

Business spending

Lower transportation costs and increased efficiency

Efficient decision making

Readily-available and sorted data

Utility costs

Reduced costs due to regular monitoring with smart systems

Source: Smart Cities and Cost Savings Report by ABI Research

Recommendations

01

Identify problem patterns, bottlenecks and opportunities

02

Direct financial resources more efficiently to optimize expenses

03

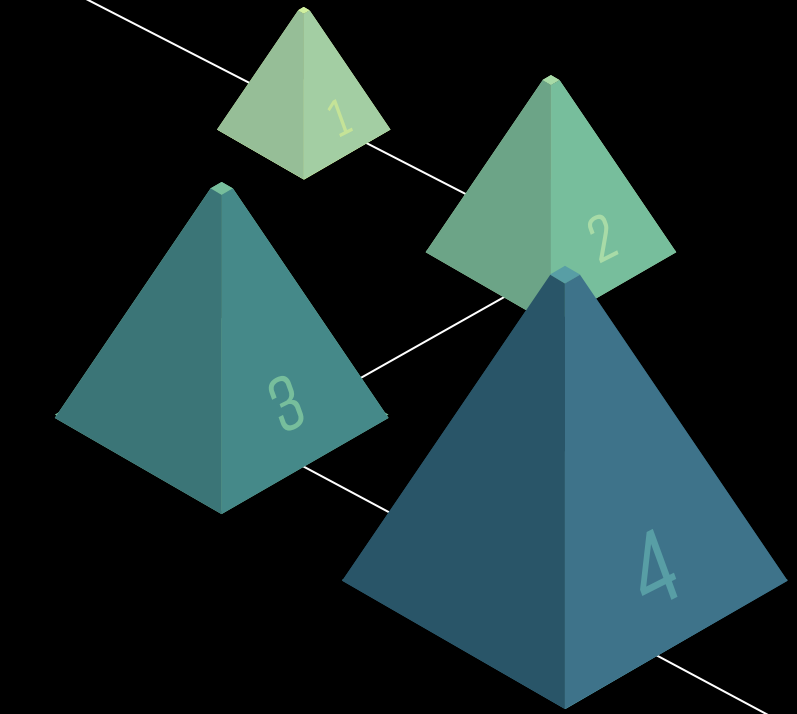
Using big data to cut costs and increase profits

04

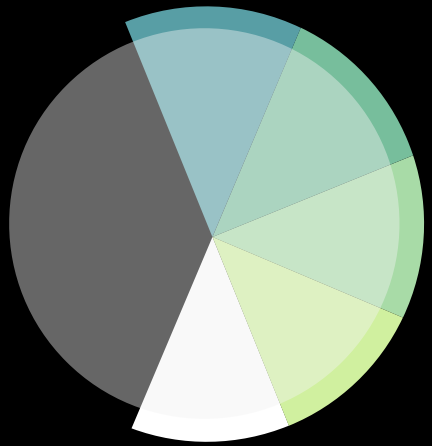
Identify weaknesses to enhance interactions with public

Future merits

1. Capacity to combine historical and near-real-time data
2. Ability to blend and analyze all of this data
3. Capacity to delve into historical data to understand what former projects have been effective
4. Apply predictive algorithms to become more successful in the future



Challenges



01 Data Privacy

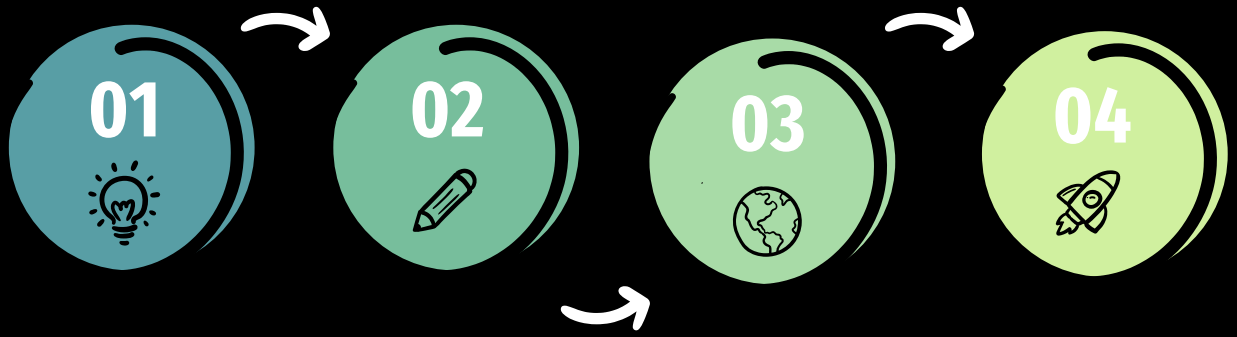
02 Processing Power

03 Power Usage

04 Skills Gap

05 Data Integration

Influencing sustainable growth of cities



Establish a strategy for city data

Build analytics capacity

Work collaboratively

Establish data commons that can benefit all

Thank you!

Questions?