



**BUSINESS 2 SYSTEMS SERVICES LLC**  
TRANSFORMING COMPLEX SYSTEMS INTO SOLUTIONS FOR TOMORROW



# SYSTEMATIC APPROACH FOR SMARTER CITIES

*PRESENTED BY: MANYPHAY (Many-TT) VIENGKHAM*



# SMART CITIES

## WCCD Cities

Certification Year: Most Recent



# SMART CITIES

## WCCD Renewable Electricity Sources

Certification Year: Most Recent



ELECTRICITY FROM RENEWABLE  
SOURCES





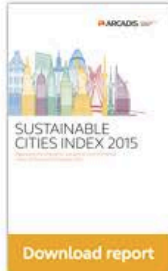
# SMART CITIES

## WCCD Water Access Improvements

Certification Year: Most Recent



# SMART CITIES



## Arcadis Sustainable Cities Index



The Sustainable Cities Index explores the three demands of People, Planet and Profit to develop an indicative ranking of 50 of the world's leading cities.

Download the 2015 report or dive into the findings below.

Overall	People	Planet	Profit
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- 1 Frankfurt
- 2 London
- 3 Copenhagen
- 4 Amsterdam
- 5 Rotterdam
- 6 Berlin
- 7 Seoul
- 8 Hong Kong
- 9 Madrid
- 10 Singapore

- 11 Sydney
- 12 Toronto
- 13 Brussels
- 14 Manchester
- 15 Boston
- 16 Paris
- 17 Melbourne
- 18 Birmingham
- 19 Chicago
- 20 New York

- 21 Houston
- 22 Philadelphia
- 23 Tokyo
- 24 Rome
- 25 Washington
- 26 Kuala Lumpur
- 27 San Francisco
- 28 Los Angeles
- 29 Dallas
- 30 Santiago

- 31 São Paulo
- 32 Mexico City
- 33 Dubai
- 34 Abu Dhabi
- 35 Shanghai
- 36 Istanbul
- 37 Johannesburg
- 38 Buenos Aires
- 39 Beijing
- 40 Rio de Janeiro

- 41 Doha
- 42 Moscow
- 43 Jeddah
- 44 Riyadh
- 45 Jakarta
- 46 Manila
- 47 Mumbai
- 48 Wuhan
- 49 New Delhi
- 50 Nairobi



# SMART CITIES GOALS AROUND THE WORLD

## Boston

- Climate Action Plan
- Reduce GHG 25% by 2020, 80% by 2050

## Frankfurt

- 100% Climate Protection

## Yokohama

- Yokohama Smart City Project
- Reduce carbon gas 30% by 2025 and 60% by 2050

## Guadalajara

IEEE Smart City Initiative

## Singapore

- Smart Nation
- Transportation, home & environment, business productivity, health, and public services



# SMART CITIES **QUALITY OF LIFE**

## LIVABILITY

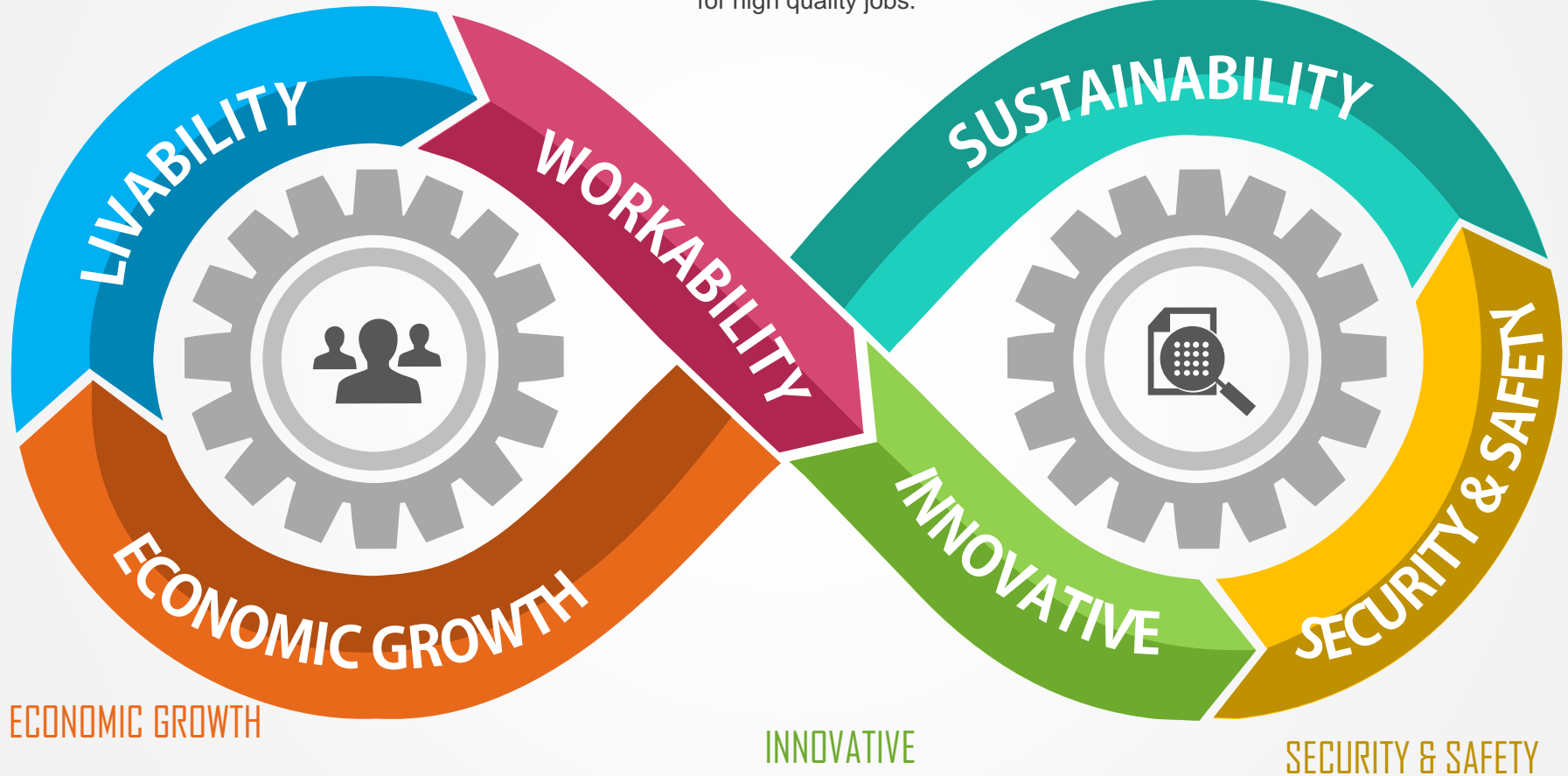
Conditions that are suitable for human living

## WORKABILITY

Infrastructure and services that enable global competition for high quality jobs.

## SUSTAINABILITY

Providing services without stealing resources from future generations



## ECONOMIC GROWTH

Increase in business and economic growth

## INNOVATIVE

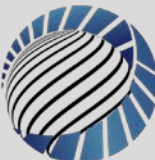
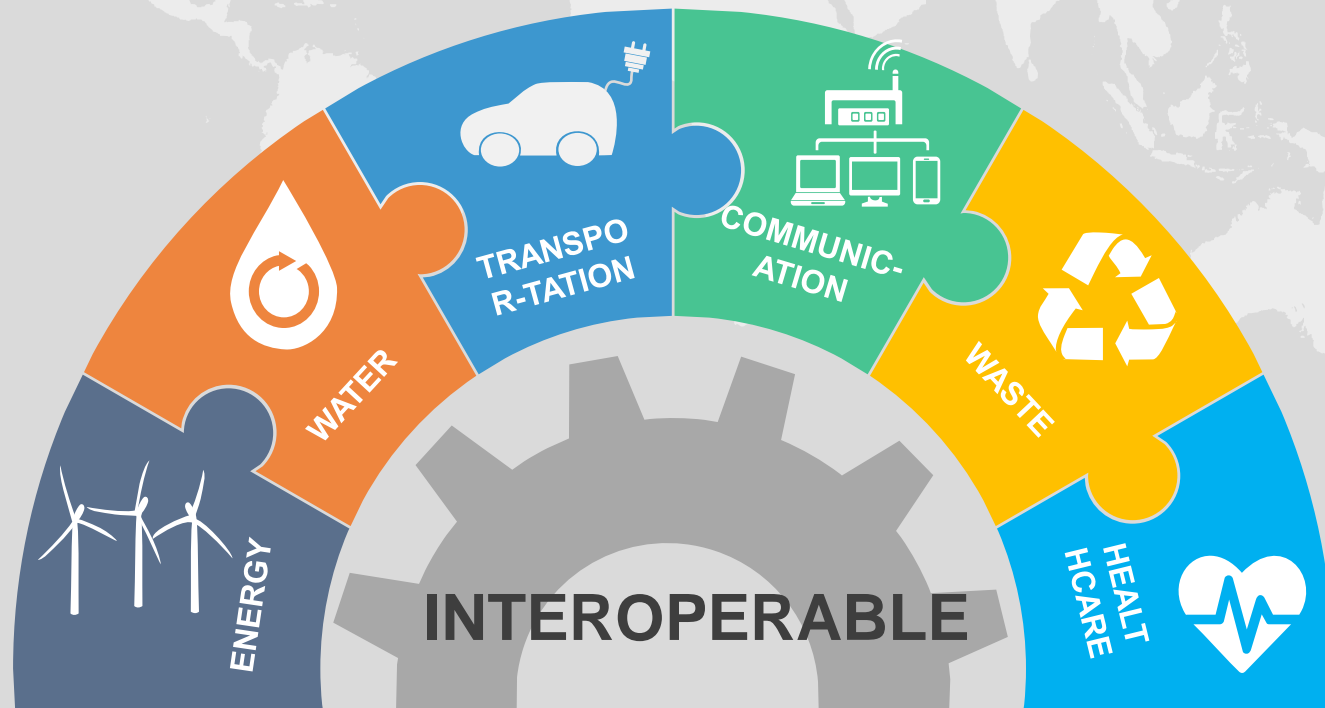
Introducing or using new ideas to improve city life

## SECURITY & SAFETY

Secure from the threat of danger, harm or loss.



# SMART CITIES SERVICES AND INFRASTRUCTURE





# SMART CITIES SERVICES AND INFRASTRUCTURE



# COMPLEXITIES OF SMART CITIES

Regulations & Constraints

Scale factor

Big Data and IoT

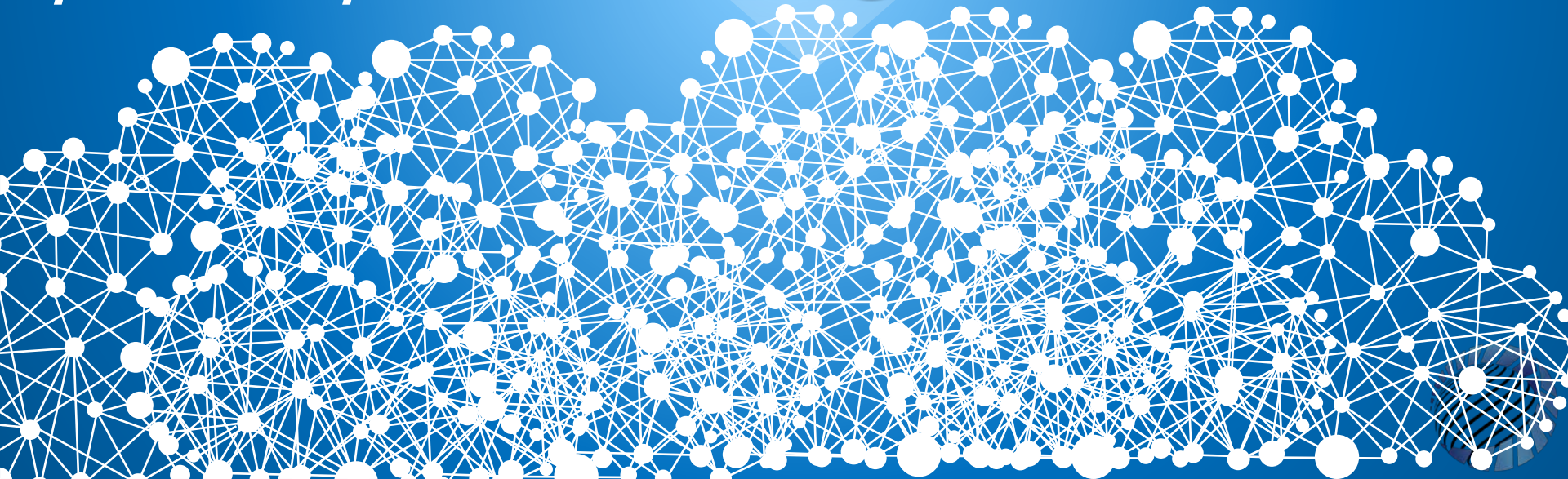
Systems-of-systems

Diverse Stakeholders

Human Behavior Factors

Economic Factors

System Interdependencies



# A SYSTEMATIC APPROACH FOR A COMPLEX SYSTEM

# TAKE A STRATEGIC APPROACH



*Complex systems require strategic approach.*



# TAKE A STRATEGIC APPROACH

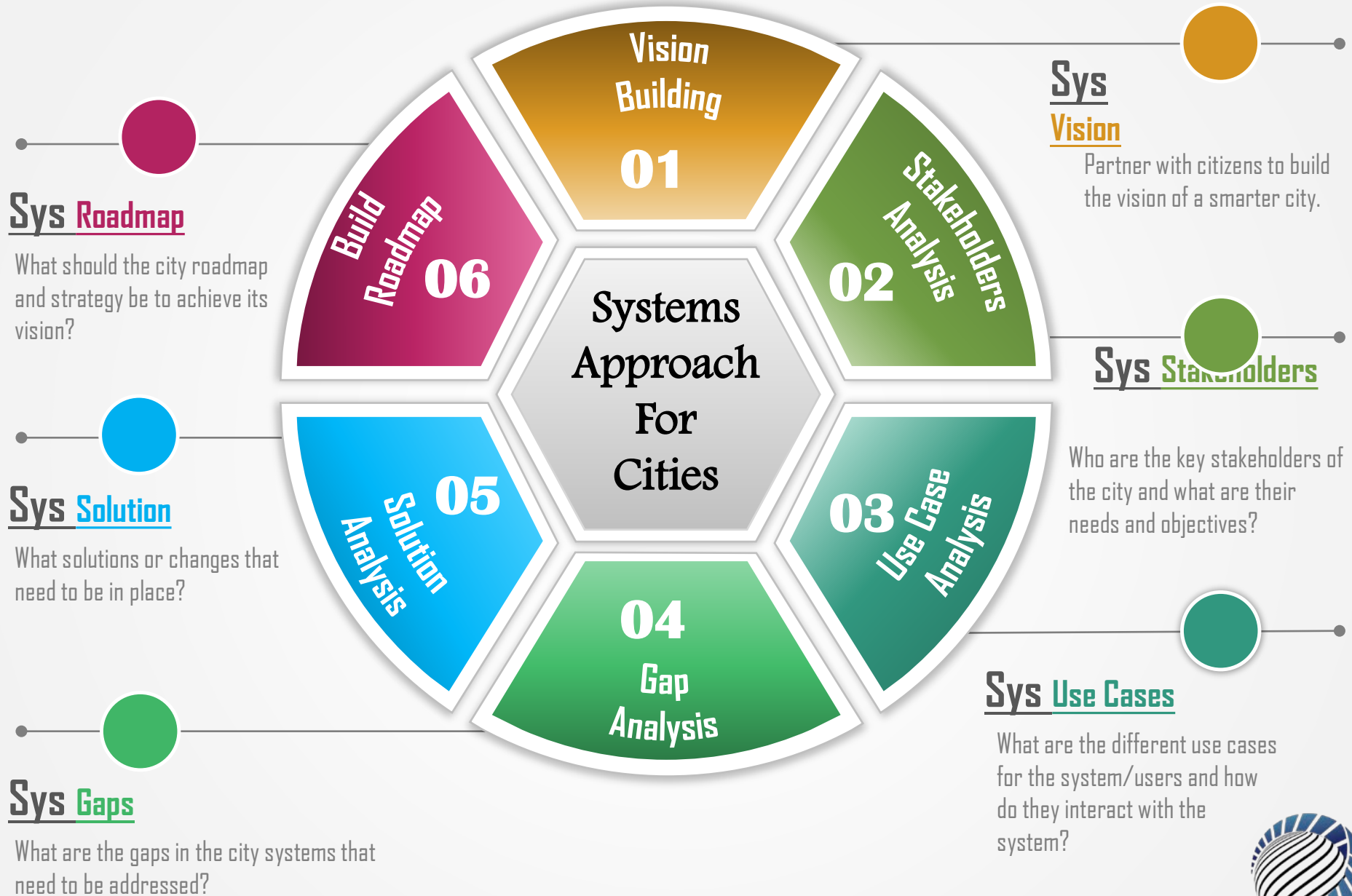


*Complex systems require strategic approach.*

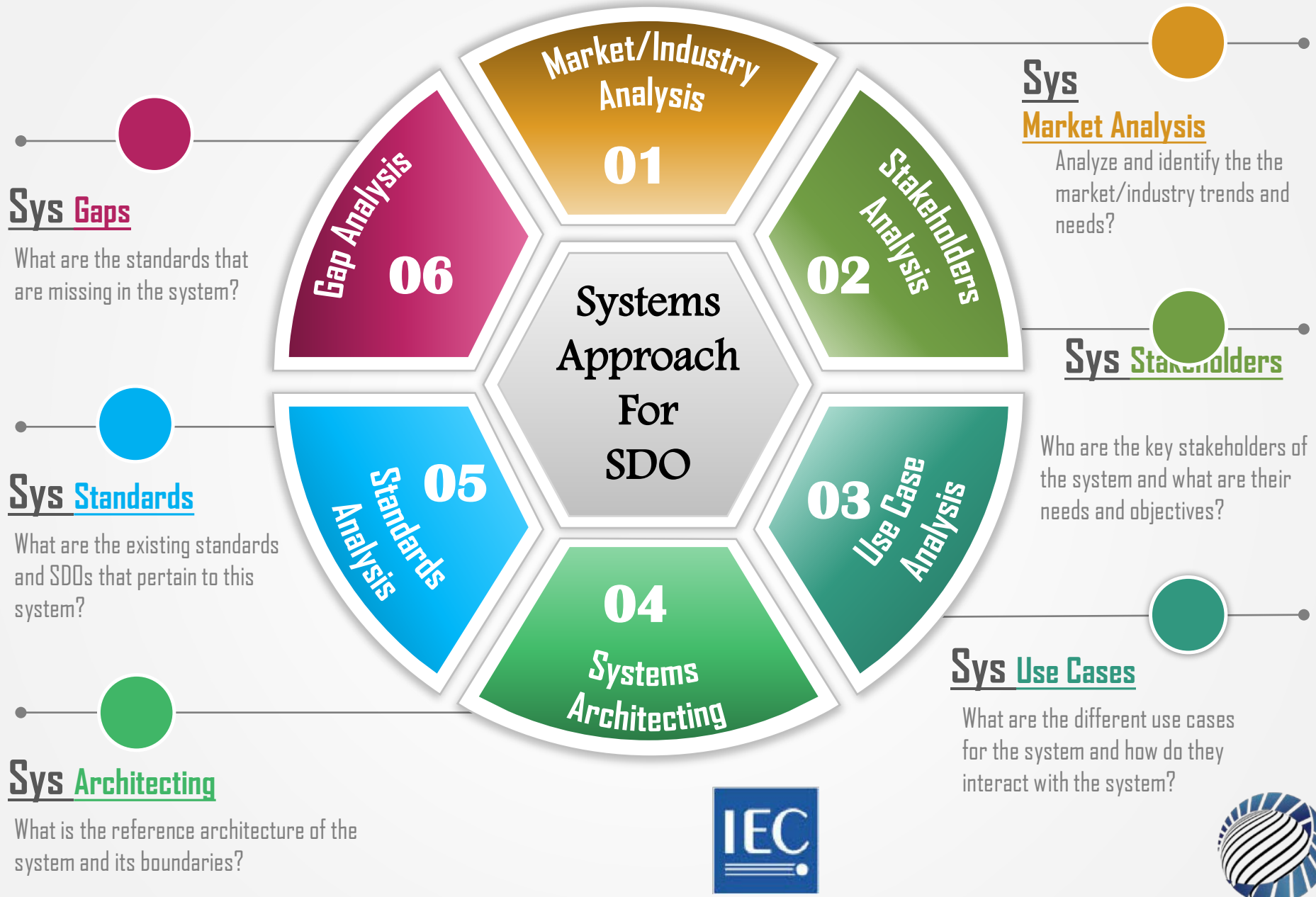




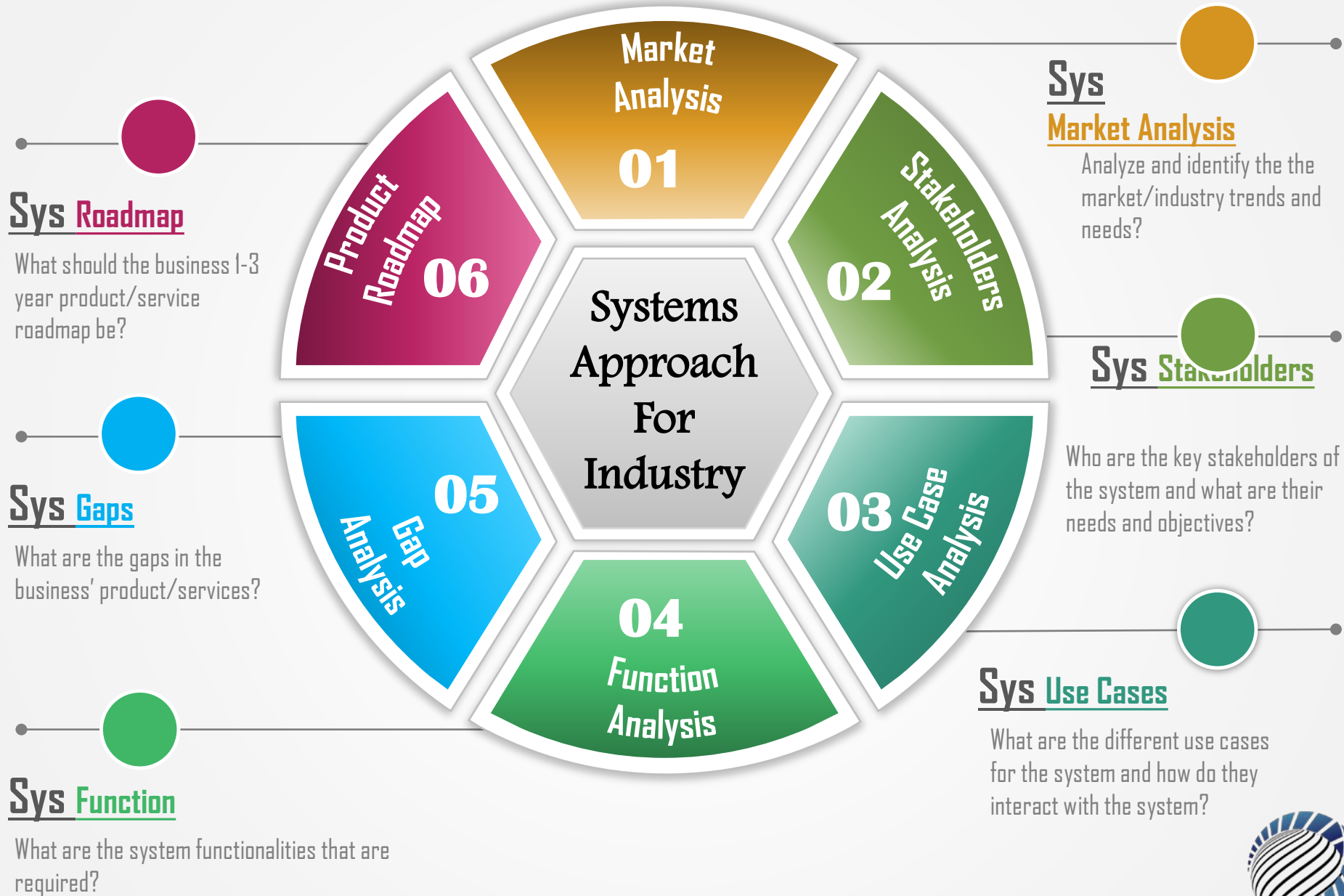
# SYS APPROACH FOR CITIES



# SYS APPROACH FOR STANDARDS DEVELOPMENT



# SYS APPROACH FOR INDUSTRY



# THANK YOU



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**Manyphay Viengkham**

Email: [Manyphay@B2SServices.com](mailto:Manyphay@B2SServices.com)

Phone: +1 678-491-4602