



**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



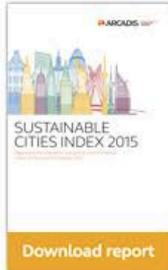
# SMART CITIES

## 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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- Europe
- North America
- All

- Asia-Pacific
- Central & South America

- Middle East
- Africa

- Frankfurt
- London
- Copenhagen
- Amsterdam
- Rotterdam
- Berlin
- Seoul
- Hong Kong
- Madrid
- Singapore

- Sydney
- Toronto
- Brussels
- Manchester
- Boston
- Paris
- Melbourne
- Birmingham
- Chicago
- New York

- Houston
- Philadelphia
- Tokyo
- Rome
- Washington
- Kuala Lumpur
- San Francisco
- Los Angeles
- Dallas
- Santiago

- São Paulo
- Mexico City
- Dubai
- Abu Dhabi
- Shanghai
- Istanbul
- Johannesburg
- Buenos Aires
- Beijing
- Rio de Janeiro

- Doha
- Moscow
- Jeddah
- Riyadh
- Jakarta
- Manila
- Mumbai
- Wuhan
- New Delhi
- 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

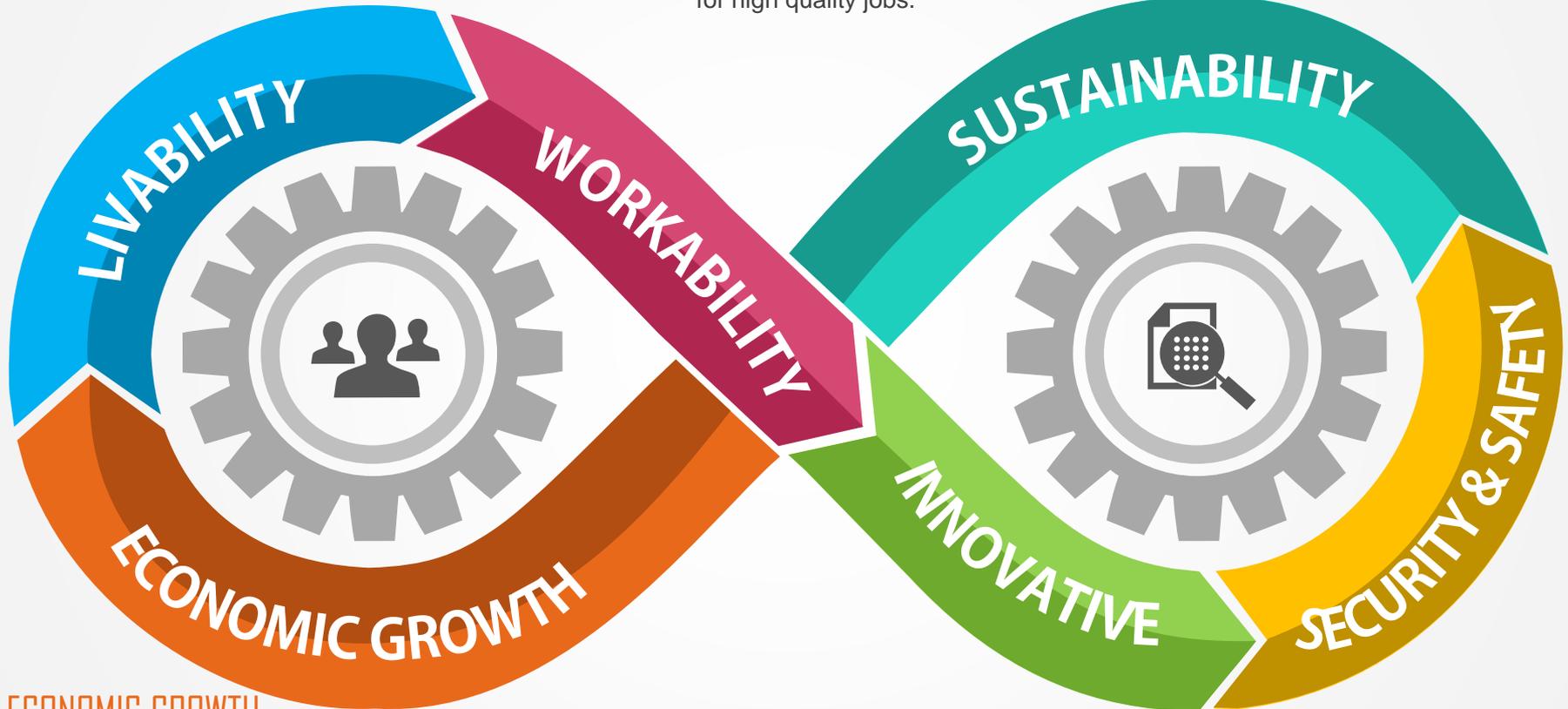
Conditions that are suitable for human living

## 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

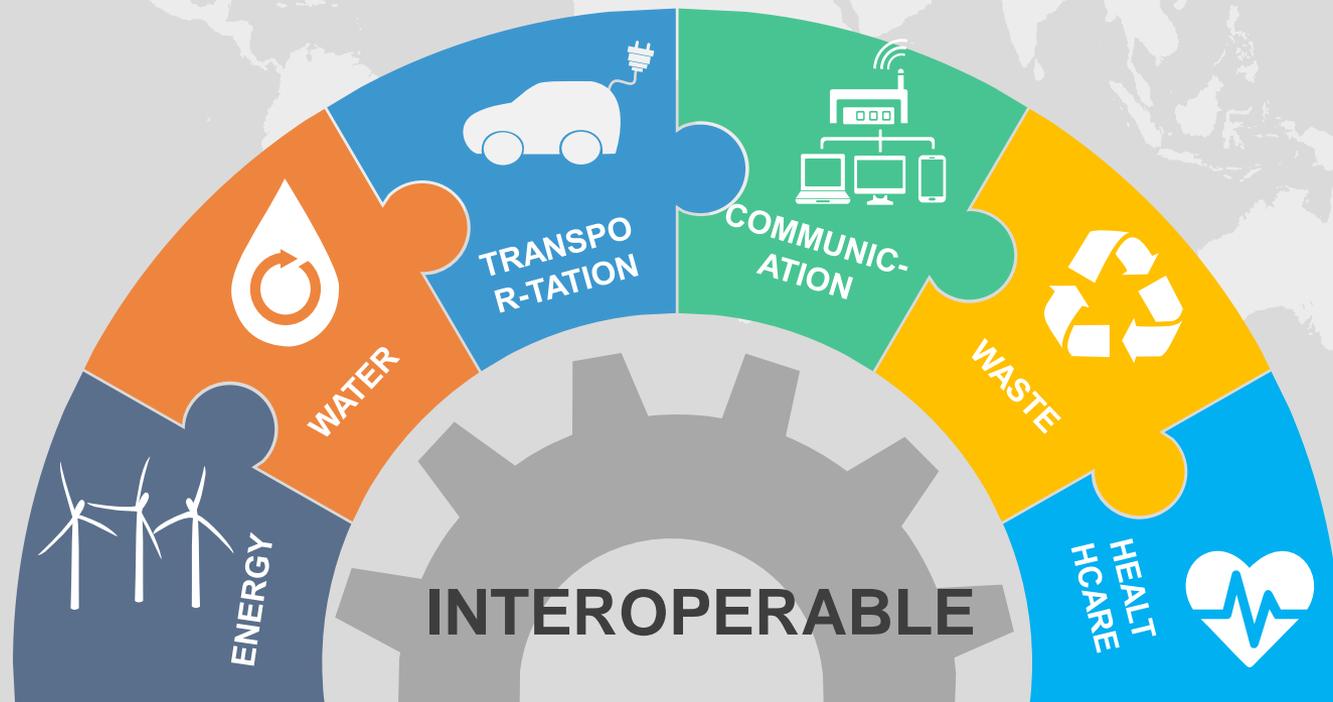
Introducing or using new ideas to improve city life

## 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

Diverse Stakeholders

Human Behavior Factors

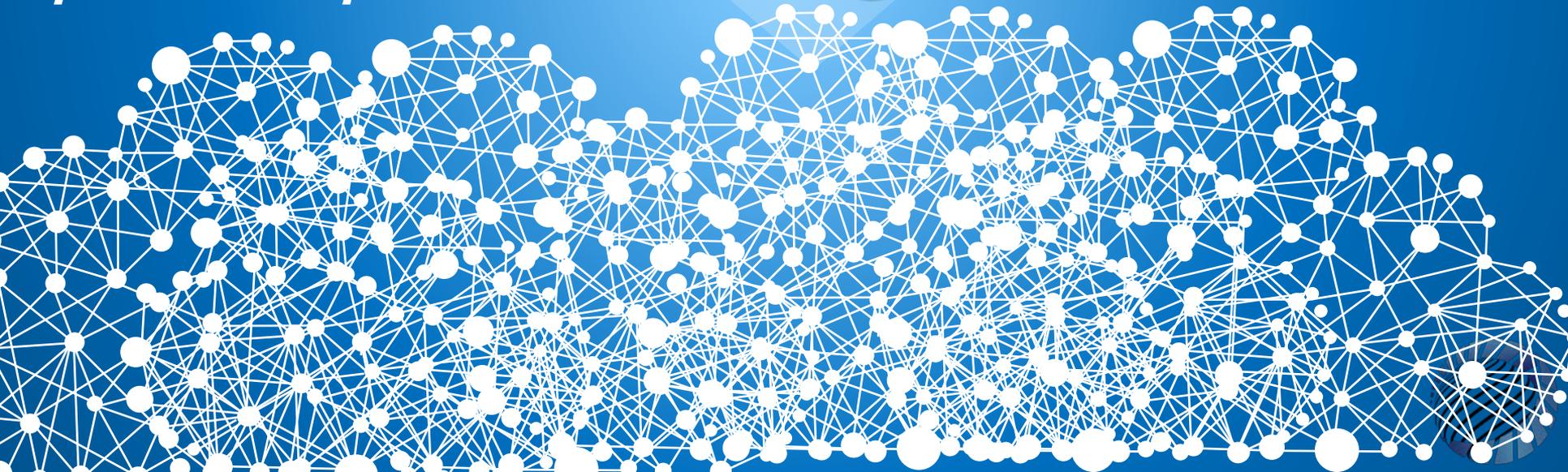
Scale factor

Economic Factors

Big Data and IoT

System Interdependencies

Systems-of-systems



# A SYSTEMATIC APPROACH FOR A COMPLEX SYSTEM

# TAKE A STRATEGIC APPROACH



*Complex systems require strategic approach.*



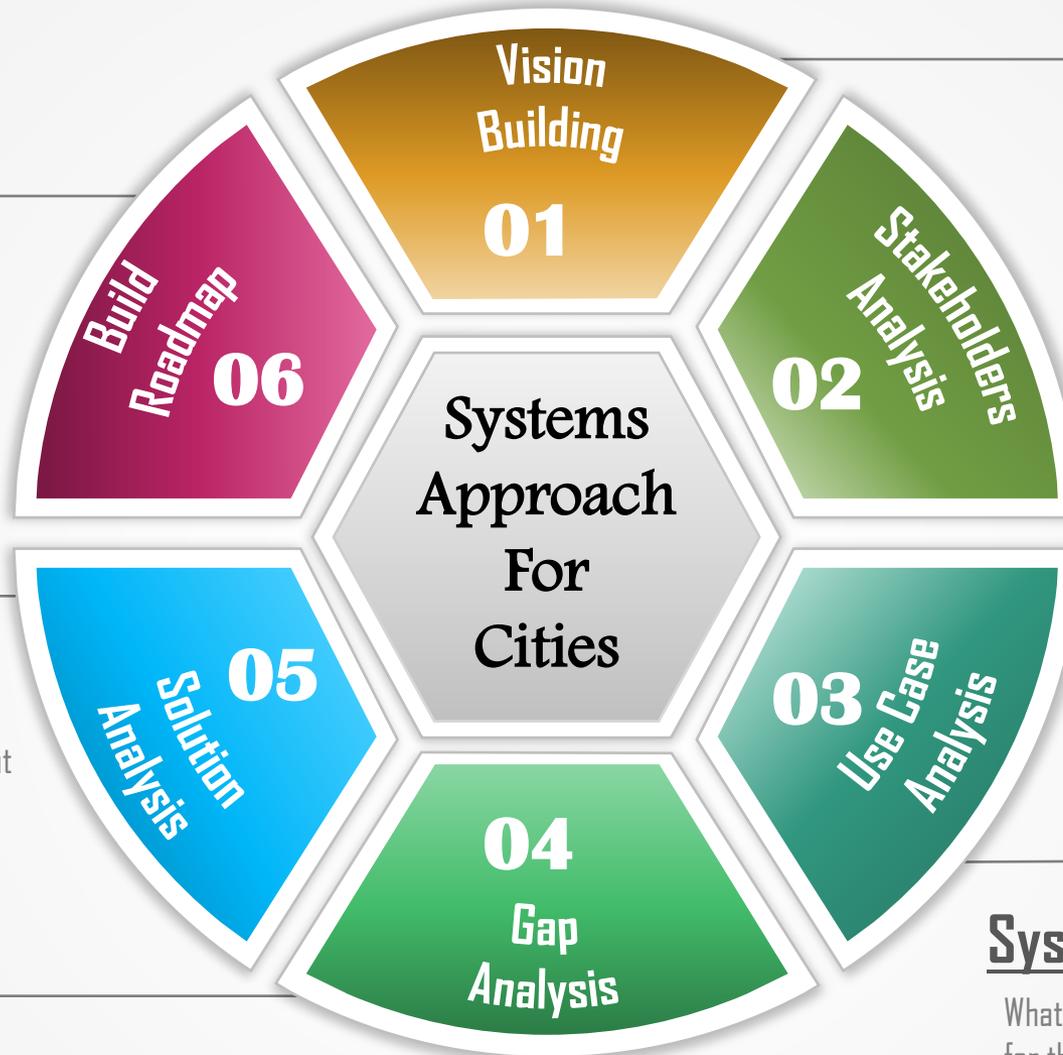
# TAKE A STRATEGIC APPROACH



*Complex systems require strategic approach.*



# SYS APPROACH FOR CITIES



## Sys Vision

Partner with citizens to build the vision of a smarter city.

## Sys Stakeholders

Who are the key stakeholders of the city and what are their needs and objectives?

## Sys Use Cases

What are the different use cases for the system/users and how do they interact with the system?

## Sys Roadmap

What should the city roadmap and strategy be to achieve its vision?

## Sys Solution

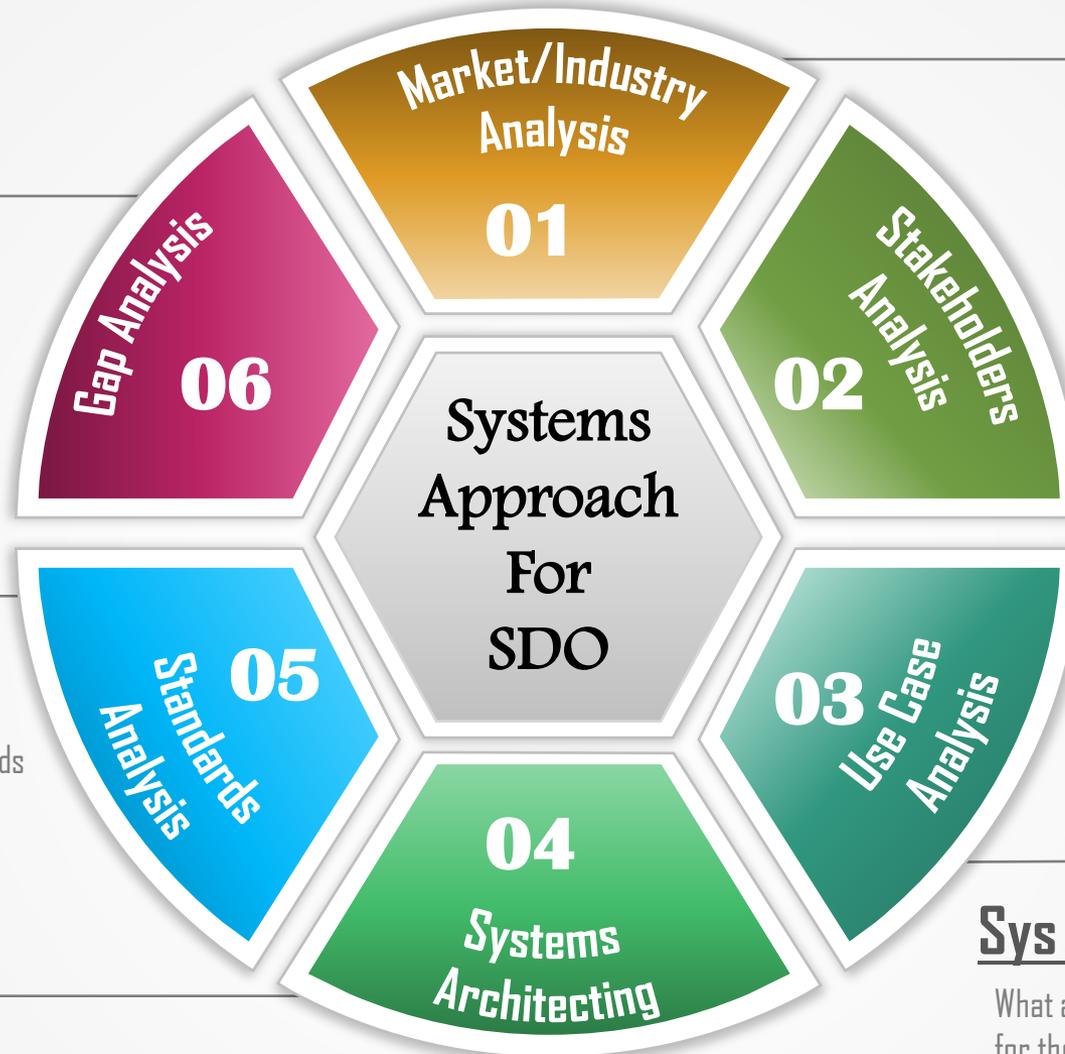
What solutions or changes that need to be in place?

## Sys Gaps

What are the gaps in the city systems that need to be addressed?



# SYS APPROACH FOR STANDARDS DEVELOPMENT



## Sys Gaps

What are the standards that are missing in the system?

## Sys Standards

What are the existing standards and SDOs that pertain to this system?

## Sys Architecting

What is the reference architecture of the system and its boundaries?

## Sys Market Analysis

Analyze and identify the the market/industry trends and needs?

## Sys Stakeholders

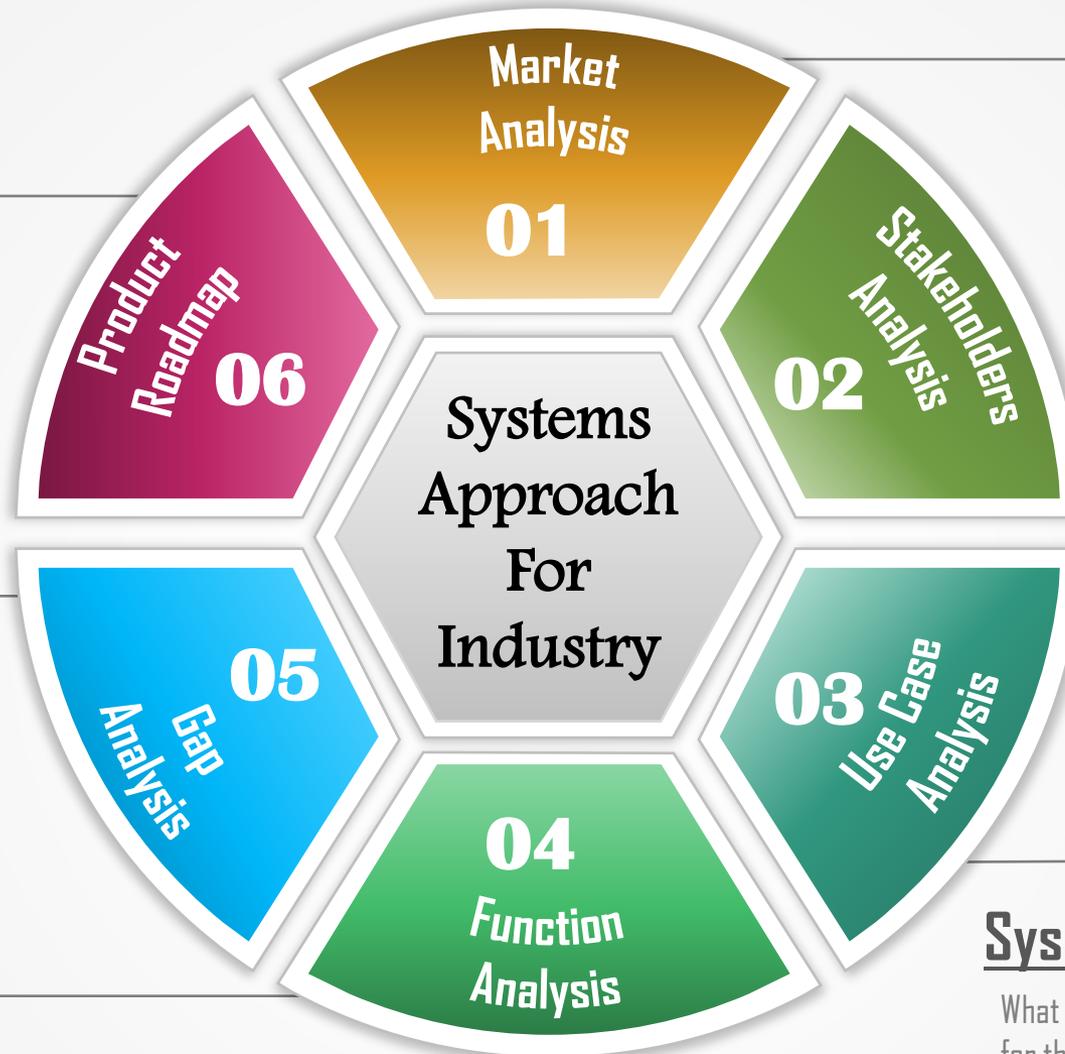
Who are the key stakeholders of the system and what are their needs and objectives?

## Sys Use Cases

What are the different use cases for the system and how do they interact with the system?



# SYS APPROACH FOR INDUSTRY



## Sys Roadmap

What should the business 1-3 year product/service roadmap be?

## Sys Gaps

What are the gaps in the business' product/services?

## Sys Function

What are the system functionalities that are required?

## Sys Market Analysis

Analyze and identify the the market/industry trends and needs?

## Sys Stakeholders

Who are the key stakeholders of the system and what are their needs and objectives?

## Sys Use Cases

What are the different use cases for the system and how do they interact with the system?



# THANK YOU



**BUSINESS 2 SYSTEMS SERVICES LLC**  
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