



# **DIGITAL MARINE & MARITIME**

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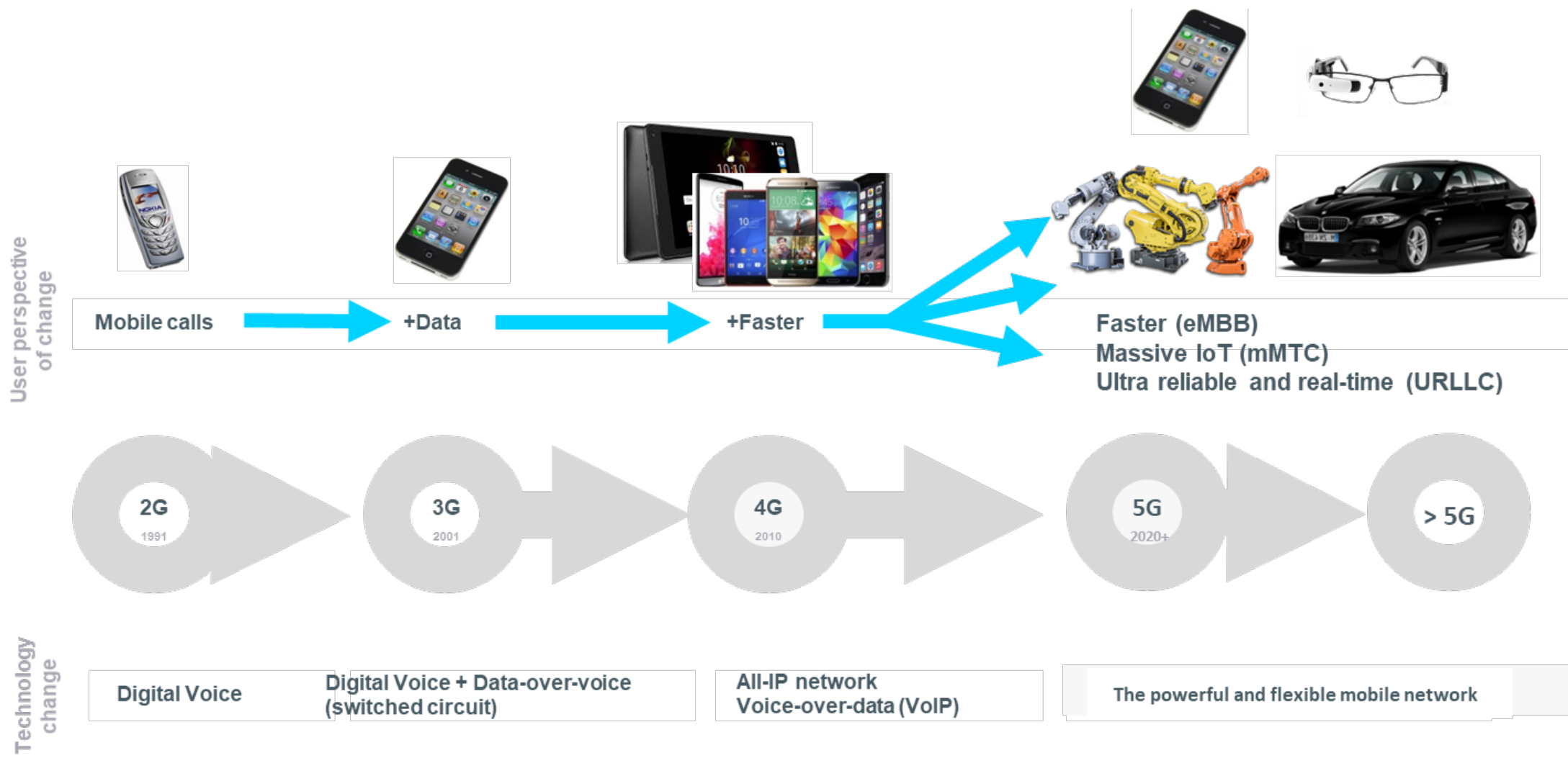
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Senior Consultant Digital Transformation & 5G

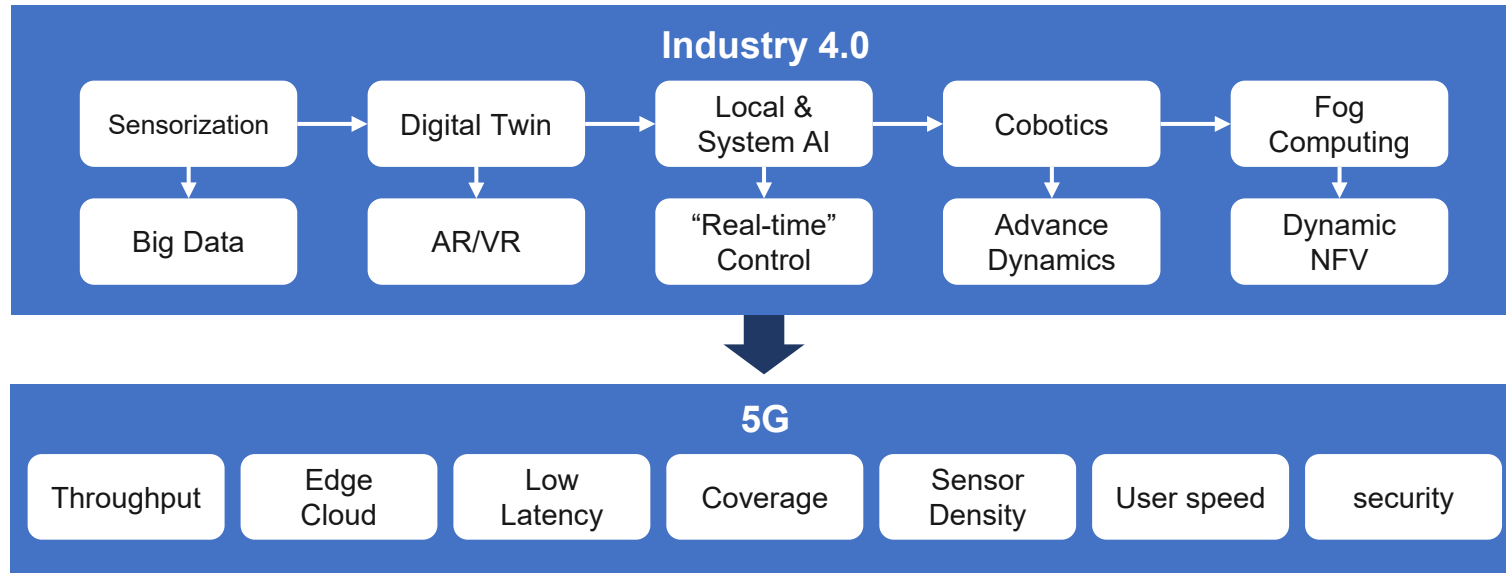
# Agenda

- Short Intro on 5G and Industry 4.0
- Global Challenges
- Domains of Digitalization
- Few examples
- Suggestions for Cyprus digital growth

# 5G is not just another G



# Industry 4.0 and Connectivity



## Quotes from CXOs:

"Predictive maintenance saves us **80%** versus scheduled maintenance"

"Removing humans from hazard positions saves as **30%**"

"System AI saves me **20%** in energy consumption"

"Real-timeness in my supply-chain is a my **Competitive advantage**"

"Remote maintenance with AR saves us **millions**"

"Machine as a Service **Transformed** my business model"

- Non-reversible journey
- Early benefits have started to show
- High value from adopting faster
- SMEs are being left behind
- Different requirements per sector
- Can change the business model to XaaS
- Unclear who will be the provider of the service
- Standardization are not clear
- Need for overall cost reduction

**5G allows industrial sectors to reduce costs with Industry 4.0 and evolve their business models**

# Marine & Maritime: The Big Global Challenges

- Marine Trade and Transport
- Marine Biosources
- Energy and Subsea Resources
- Climate and the Environment
- Society and Governance

## For Cyprus Specifically:

- Our history is interlinked to the sea
- Thriving sector of the economy
- Maritime is 7%+ of GDP
- 5% of this is from ship management
- Fish farming is leading area with great potential
- Our security and prosperity depends on the sea

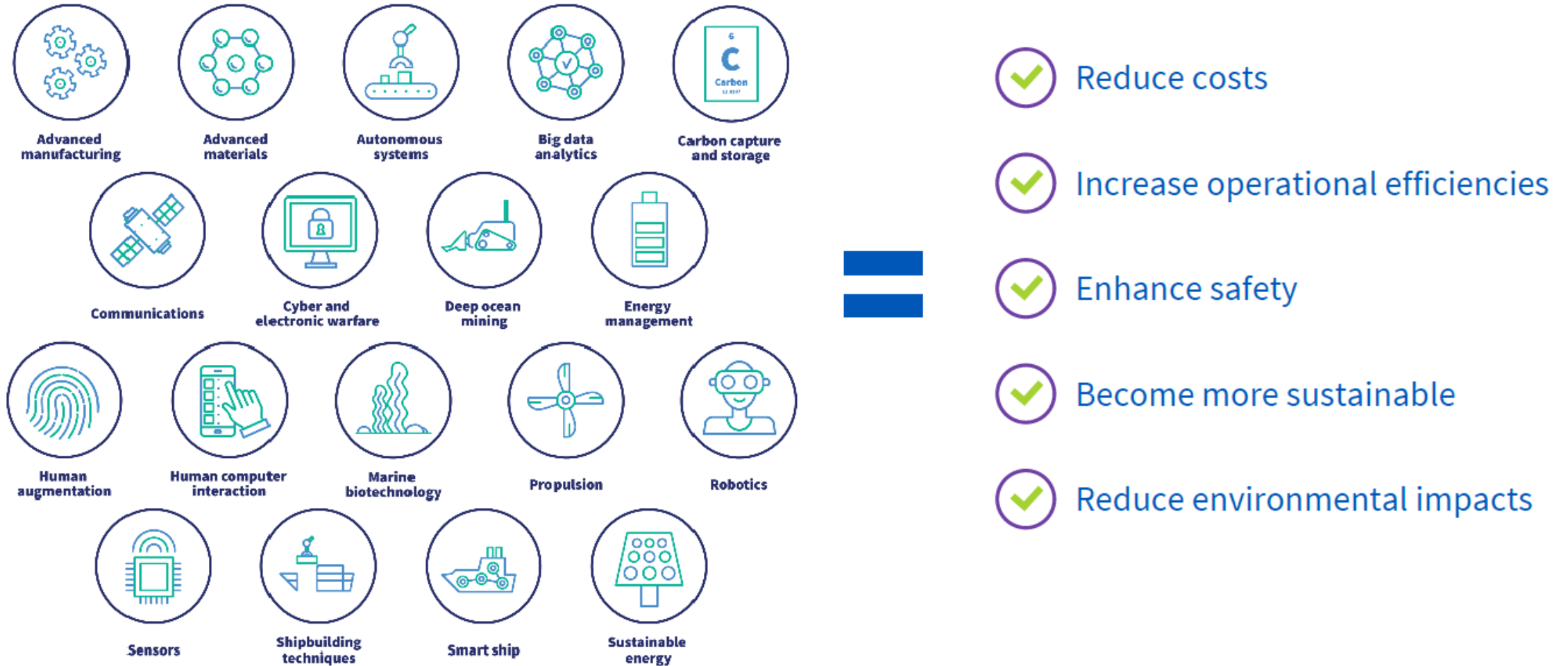
**Digitalization can be a driving Force!**

# Cyprus Marine and Maritime Institute

Vision: Develop practical solutions to real industrial, and societal, needs within the appropriate time frame. The CMMI will develop 10 key areas of expertise:

1. Big data and cyber security
2. Robotics and autonomous systems
3. Materials, structures, and testing
4. Environmental modelling and mapping
5. Energy and subsea resources
6. Vessel design and performance
7. Marine bioresources
8. Ports, logistics, and tourism
9. Safety, risk, and regulation
10. Cultural heritage

# Technologies Transforming the Maritime Sector





# Digital Shipping

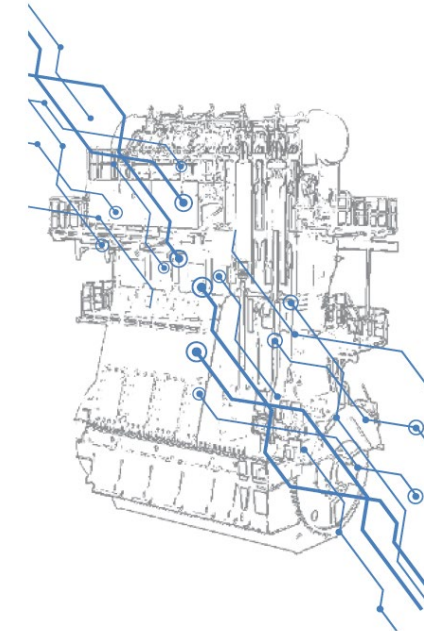
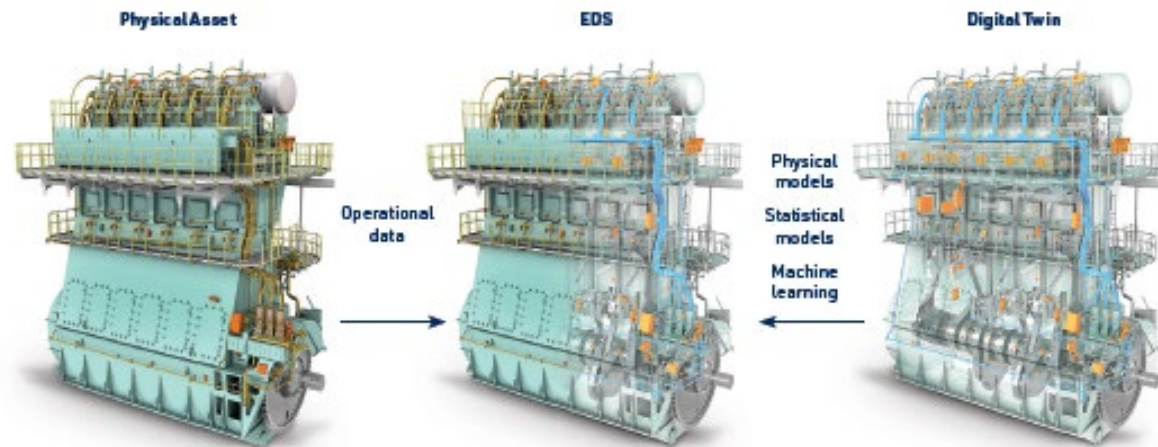


*Source: LAROS, Prisma Electronics*



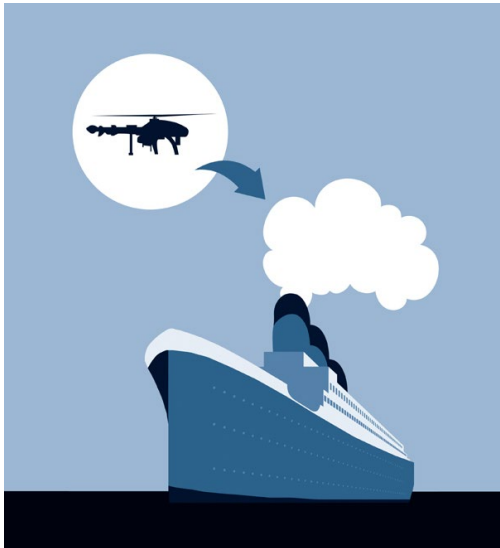
# Digital Twins for ships and engines

- Dynamic monitoring of thermodynamic digital twin
- Can save significant maintenance costs and reduce faults and delays
- Potential for AR/VR training and remote maintenance
- Advanced connectivity can enable continuous monitoring



# Digital Maritime

- Ship emission measurement using drones
- Accelerate ship inspection and enhance accuracy
- Weight and cargo management
- Submersive drone inspections of the ship's underwater structure





# Digital Ports



*Source: McKinsey & Co*

- €10B investments in port digitalization and growing
- Rotterdam, Hamburg, Baltics & Nordics investing
- 20-40% cost improvements expected
- Biggest barrier is shortage of specialized people

# Offshore fish farming



- Norway and Scotland exploring
- Can significantly increase production
- Improve environmental impact
- Test new kinds of fish



# Exciting Marine Initiatives in Cyprus



**Open Sea Aquaculture  
in the Eastern Mediterranean**

[www.osaqua.eu](http://www.osaqua.eu)

The Project is co-financed with 850K Euro by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation with grant number INTEGRATED/0918/0046  
Coordinator: Ioannis Kyriakides  
**Project selected for funding**




**Ευρωπαϊκή Ένωση**  
Ευρωπαϊκό Ταμείο  
Περιφερειακής Ανάπτυξης



Κυπριακή Δημοκρατία



Διαρθρωτικά Ταμεία  
της Ευρωπαϊκής Ένωσης στην Κύπρο




**MARI-Sense**


**Maritime Cognitive Decision  
Support System**

[www.marisense.eu](http://www.marisense.eu)


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*Source: Project descriptions*

# Role of Government / Regulator



Source: Ofcom 2019

## CHALLENGES

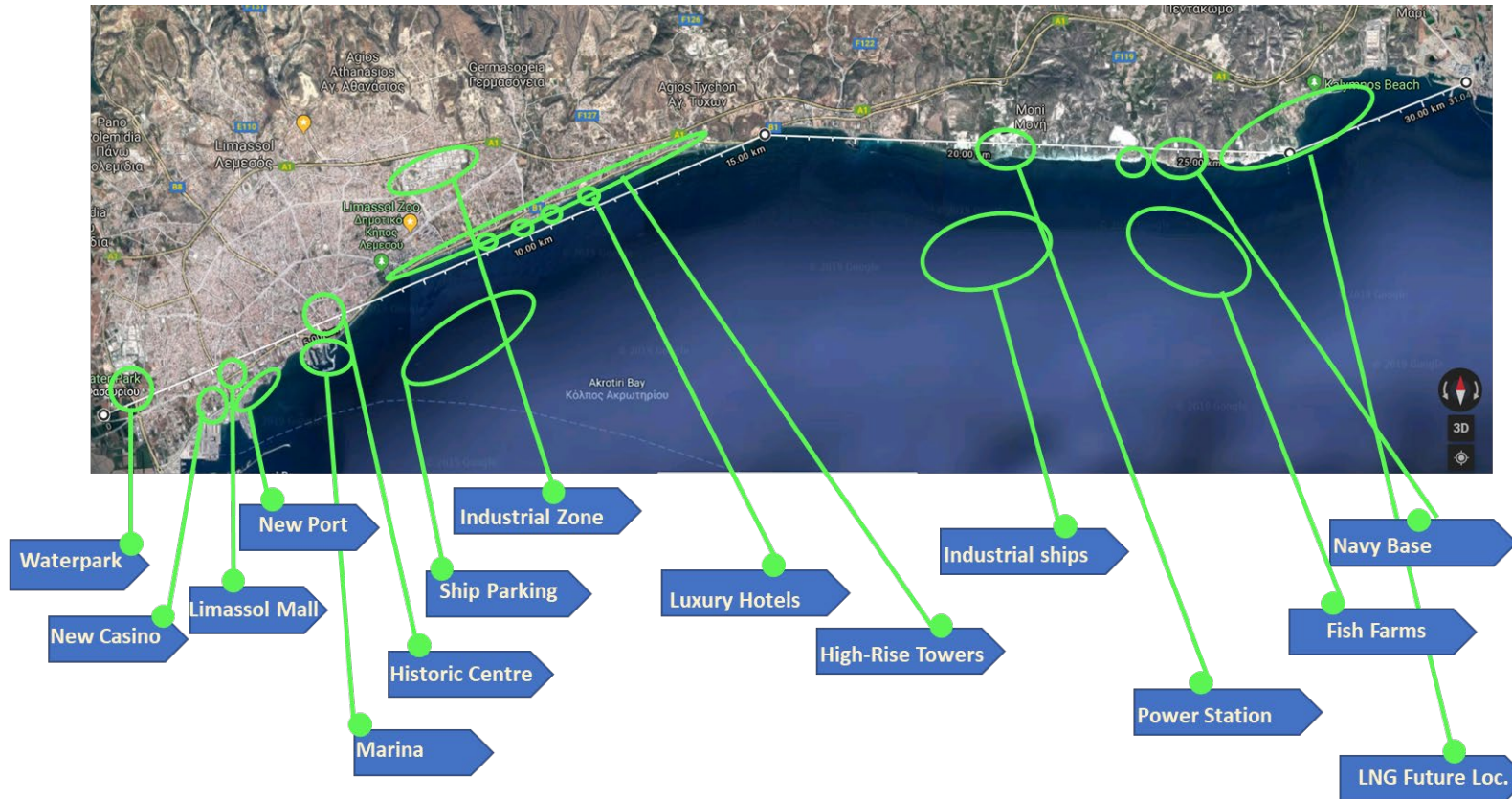
- Prioritize actions
- Technology Complexity
- Stakeholder linkage

## ACTIONS

- Spectrum availability
- Small cells licensing
- 5G as strategic advantage
- Enable 5G testbeds / sandboxes
- Bring industry together/ interoperability
- Operator models



# 5G Testbeds



- Countries enabling 5G testbeds
- Government driven
- Can energize testing and investment by various sectors