



الأكاديمية العربية للعلوم والتكنولوجيا والنقل البحري  
Arab Academy for Science, Technology & Maritime Transport

MRCC



**International Maritime Transport and logistics Conference  
Toward Smart Ports**

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# LOGISTICS ROADMAP FOR SMART PORTS

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1-Smart Port Concept

2- Characteristics of Smart  
Transport Corridors

3- Smart Ports KPIs and  
Criteria

4- Challenges  
Facing Smart Ports

5- Smart Ports and 2050  
Visions

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# Introduction

- Port organizations serve as intelligent hubs.
- Contributing to a sustainable growth.
- Remove bottlenecks and the technical barriers.
- Reaching remote markets in less times.
- Low environmental impact and energy efficiency.
- Investing in the new technologies.
- A greener and smarter transport systems.

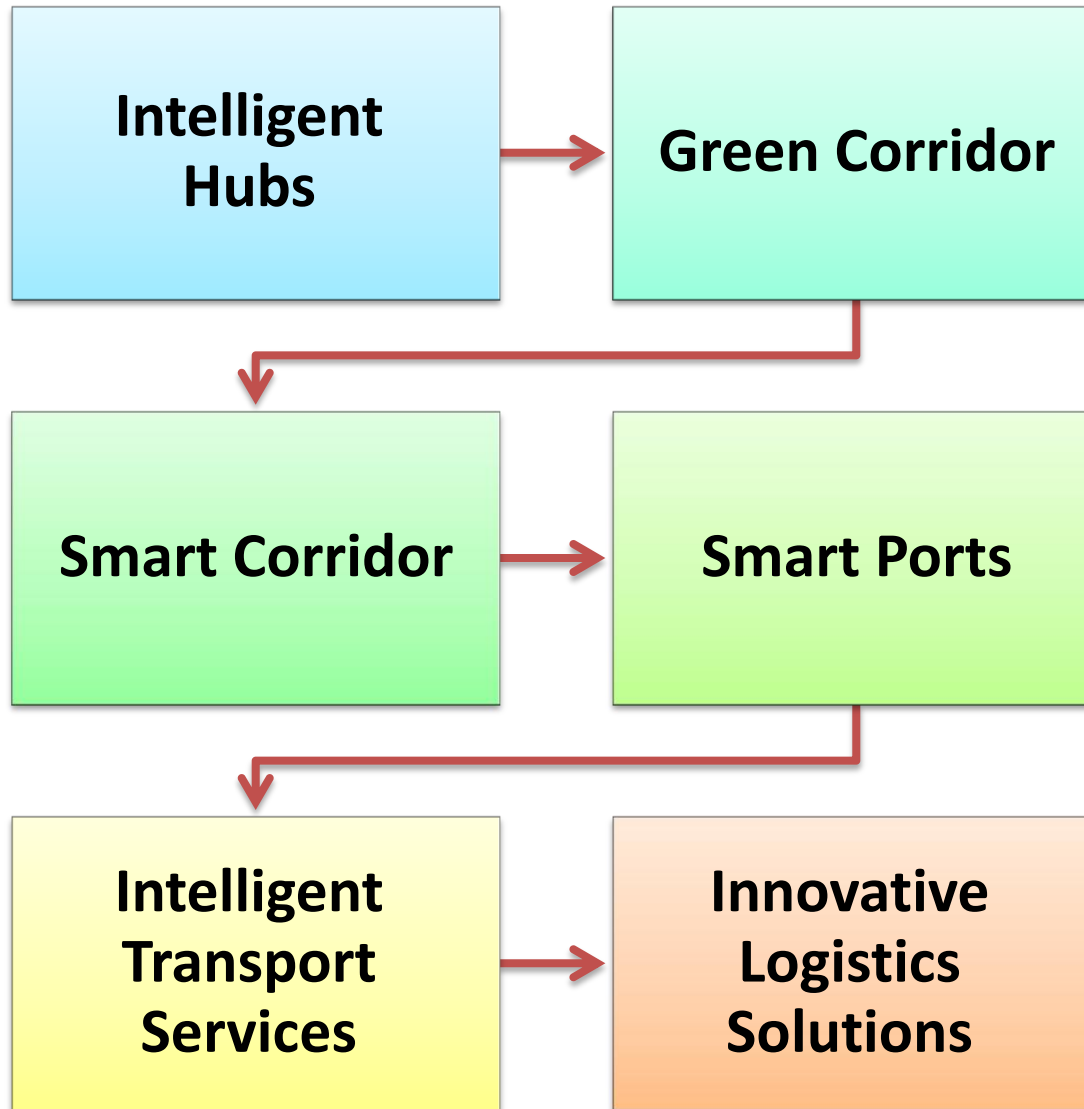
- ‘Technology Platforms’ providing the needed innovation.



***Green corridors will lead to smart corridors where an intelligent transport services can be provided***

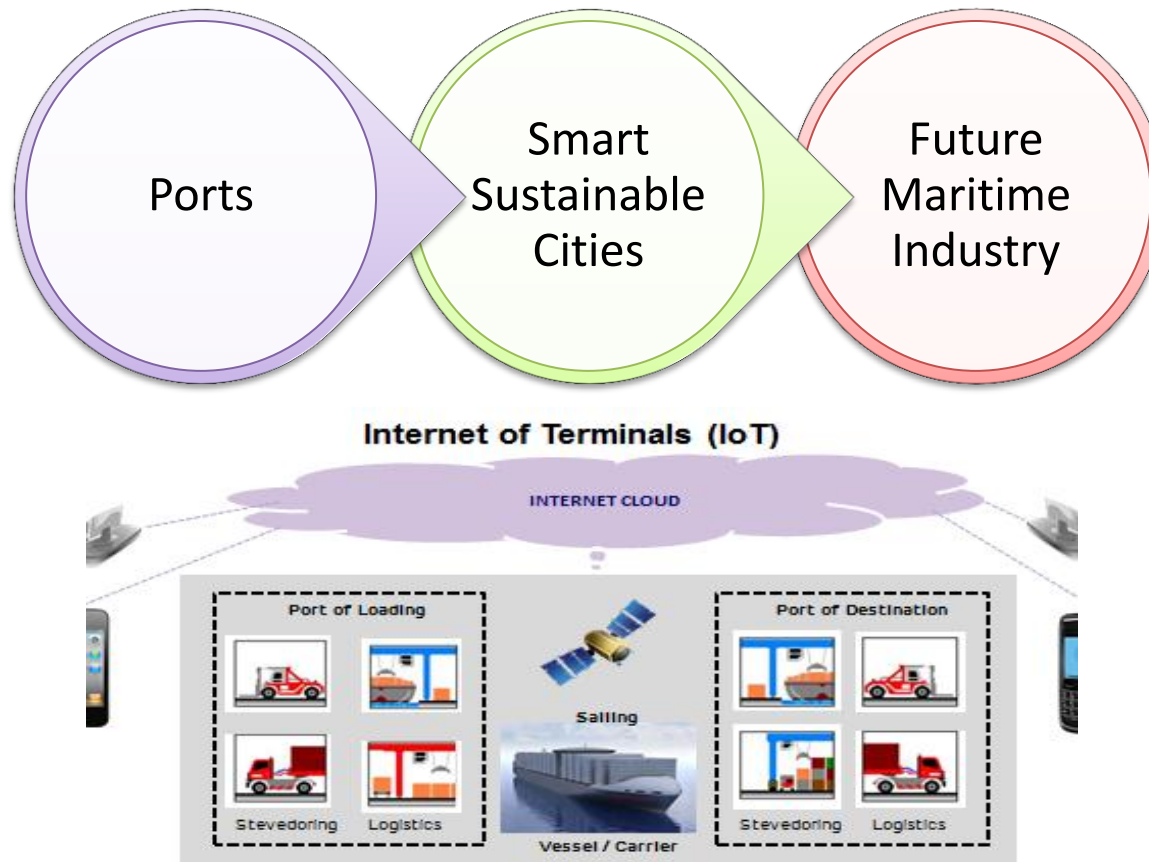
TOWARD SMART PORTS

13– 15 MARCH 2016



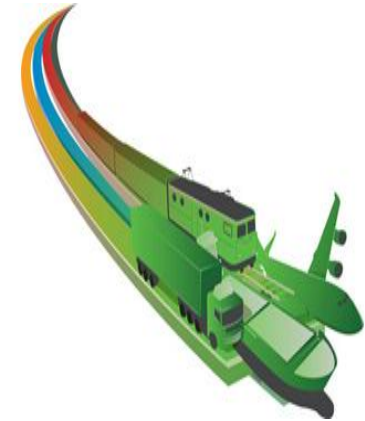
# 1. Smart Port Concept

- The smart port concept can be displayed as the port where the environmental impacts, operations, and the energy consumption are addressed (ITU, 2015, p. 8).



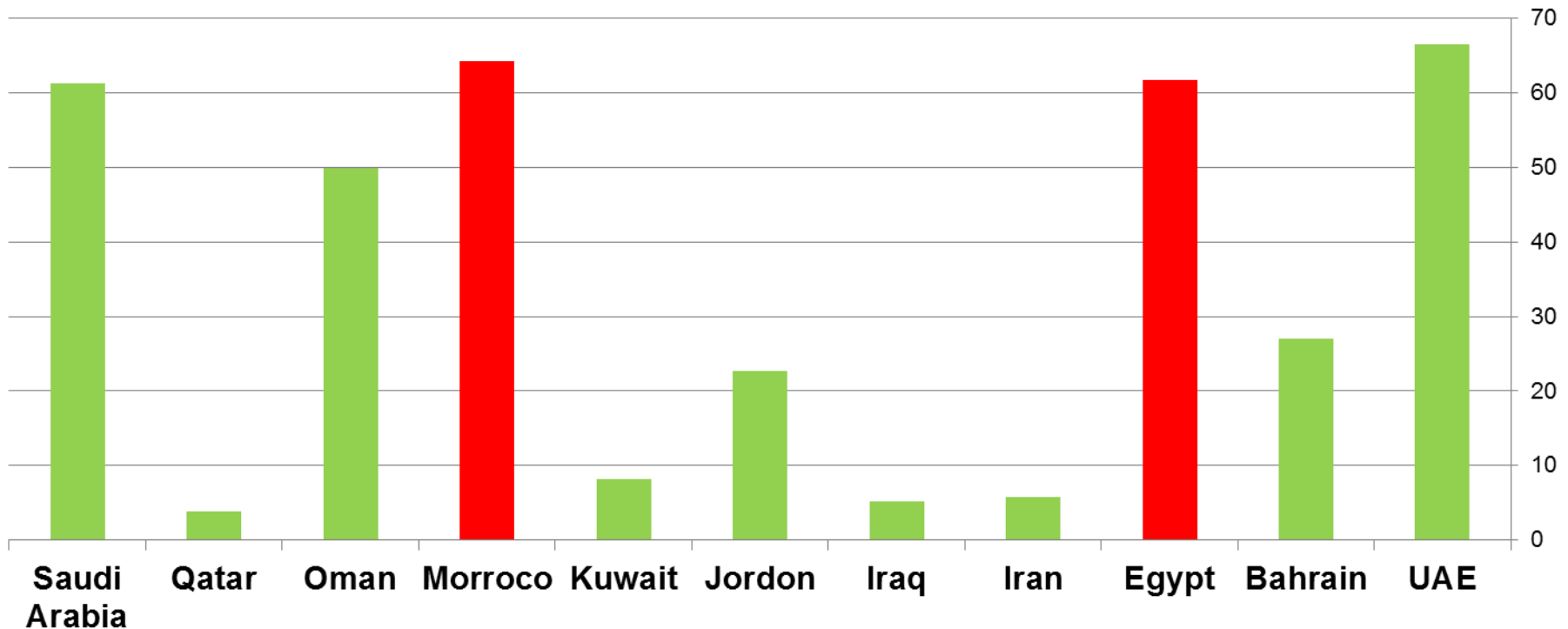
## 2. The Characteristics of Smart Transport Corridors

1. Sustainable logistics solutions.
2. High safety.
3. High quality.
4. Integrated logistics concepts.
5. Optimal utilization of all transport modes.
6. Harmonized regulations with openness for all actors.
7. A concentration of national and international freight traffic .
8. Efficient and strategically placed trans-shipment.
9. Supportive infrastructure.
10. Innovative logistics solutions, including information systems.



## Liner Shipping Connectivity Index (LSCI)

### Egyptian LSCI - 2014





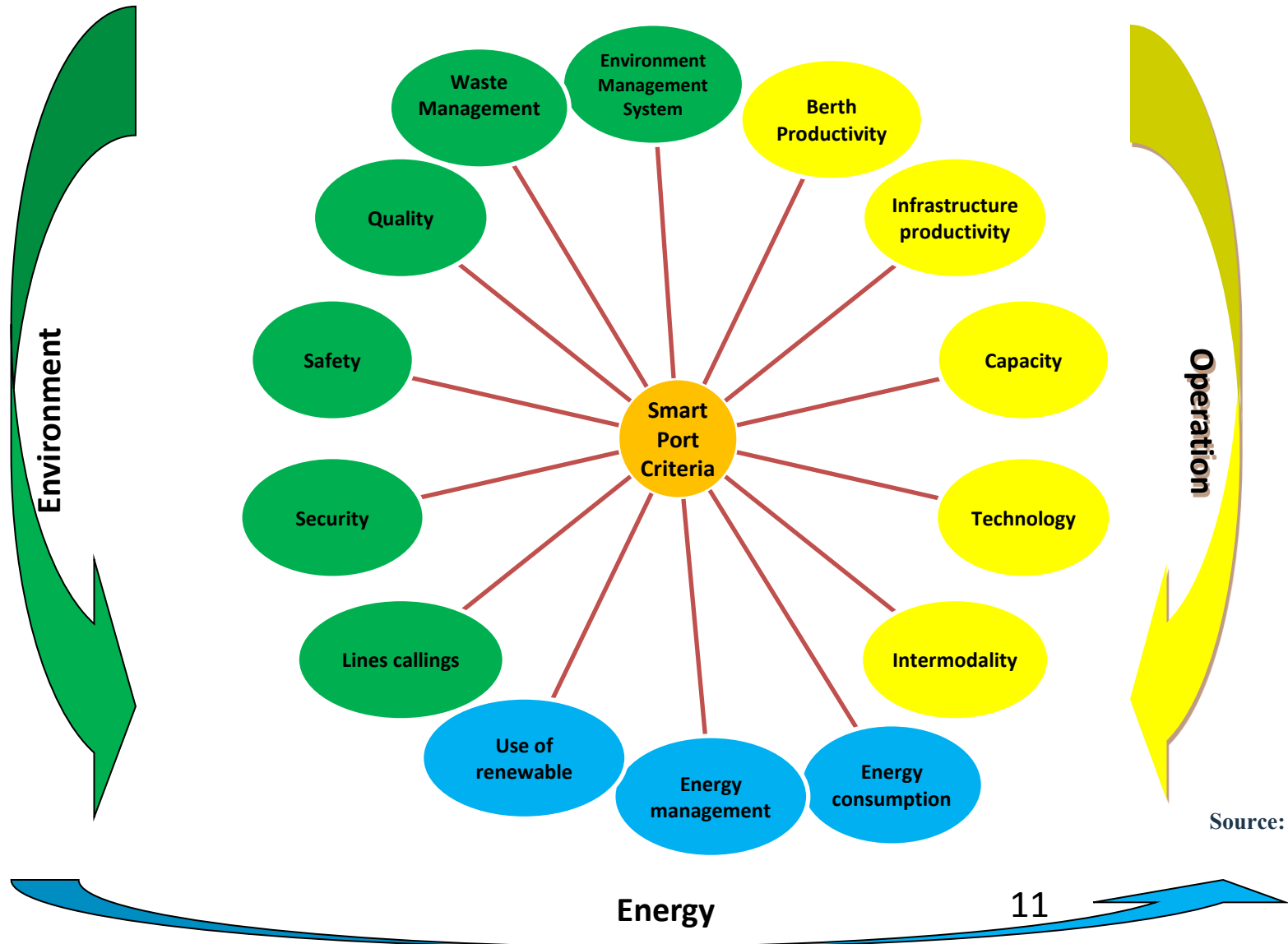
# Top 50 Ports -2014

29	Yingkou, China	5.30	4.85	4.03	<a href="http://www.ykport.com.cn">www.ykport.com.cn</a>
30	Jeddah, Saudi Arabia	4.56	4.74	4.01	<a href="http://www.ports.gov.sa">www.ports.gov.sa</a>
31	Algerciras Bay, Spain	4.50	4.11	3.60	<a href="http://www.apba.es">www.apba.es</a>
32	Valencia, Spain	4.33	4.47	4.33	<a href="http://www.valenciaport.com">www.valenciaport.com</a>
33	Columbo, Sri Lanka	4.31	4.26	4.26	<a href="http://www.slpa.lk">www.slpa.lk</a>
34	Jawaharlal Nehru, India	4.12	4.26	4.32	<a href="http://www.jnport.com">www.jnport.com</a>
35	Sharjah, United Arab Emirates	4.12	4.00	3.23	<a href="http://www.sharjahports.ae">www.sharjahports.ae</a>
36	Manila, Philippines	3.77	3.71	3.46	<a href="http://www.ppa.com.ph">www.ppa.com.ph</a>
37	Felixstowe, U.K.	3.74	3.95	3.74	<a href="http://www.portoffelixstowe.co.uk/">www.portoffelixstowe.co.uk/</a>
38	Santos, Brazil	3.45	3.17	2.99	<a href="http://www.portodesantos.com">www.portodesantos.com</a>
39	Ambarli, Turkey	3.38	3.10	2.69	<a href="http://www.altasliman.com/en">www.altasliman.com/en</a>
40	Colon, Panama	3.36	3.52	3.37	<a href="http://www.cct-pa.com">www.cct-pa.com</a>
41	Salalah, Oman	3.34	3.63	3.20	<a href="http://www.salalahport.com">www.salalahport.com</a>
42	Balboa, Panama	3.19	3.30	3.23	<a href="http://www.ppc.com.pa/balboa.php">www.ppc.com.pa/balboa.php</a>
43	Port Said East, Egypt	3.12	2.86	3.2	<a href="http://www.scctportsaid.com">www.scctportsaid.com</a>

## *What is the logistics roadmap for the future smart seaports?*

- Those criteria that affect the transformation of seaports to be smart in the future
- The challenges and obstacles facing the smart ports
- Smart port and the 2050 visions

### 3. Smart Port KPIs and Criteria



Source: Med, 2015

- **In ports' operations context:**
  1. Measuring productivity such as berth productivity and berth efficiency
  2. Infrastructure productivity
  3. Capacity of infrastructure and equipment
  4. Reliable, accurate and secure flow of information
  5. Intermodality criteria



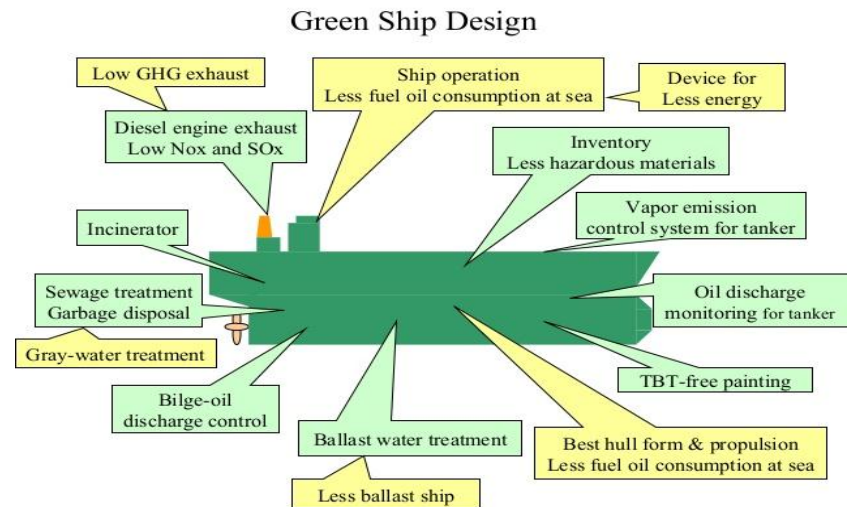
## In ports' energy context:

1. Energy consumption
2. Energy efficiency and savings
3. Technologies applied at ports such as wind technology, photovoltaic and marine technologies.



## In ports' environmental context:

1. Soil waste
2. Air pollution and water contamination
3. Waste management



## 4. CHALLENGES FACING SMART PORTS

1. Providing safe, environmentally friendly and economic operations.
2. The required skills acquired by operators at the sea industry.
3. Intermodality and associated cost.
4. Eliminating the global CO2 emissions.
5. Ship energy efficiency.
6. Damage control, security control, and illicit acts control.

## Doing Business - 2015

Country	Rank (189)
UAE	22
KSA	49
Qatar	50
Oman	66
Morocco	71
Kuwait	86
Lebanon	104
Egypt	112
Jordon	117

## Competitiveness Index - 2015

Country	Rank (144)
UAE	12
Qatar	16
KSA	24
Kuwait	40
Bahrain	44
Oman	46
Jordon	64
Morocco	72
Lebanon	113
Egypt	119



## Competitiveness Index of Egypt- 2015

Index	Rank (144)
Infrastructure	100
Labor Competency	140
Technology Readiness	95
Innovation	124

## Quality of Transport in Egypt- 2015

Index	Rank (144)
Quality of Infrastructure	125
Quality of Roads	118
Quality of Railways	78
Quality of Port Infrastructure	66
Quality of Air Transport	60
Quality of Electricity Supply	121

Source: World Economic Forum, 2015

## 5. Smart Ports Parameters

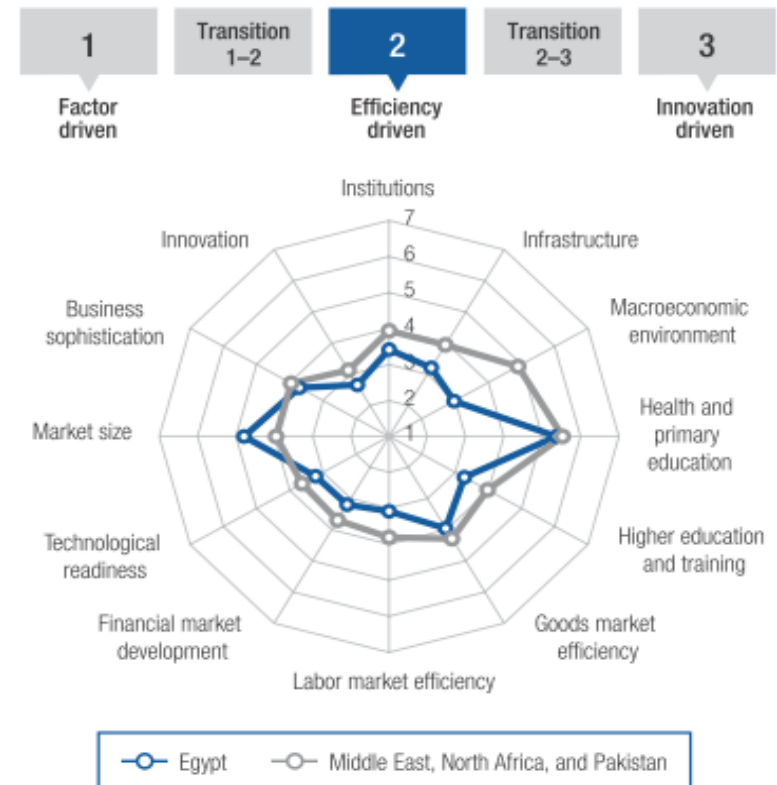
1. The ship use and new generations of ships are released.
2. Re-structuring the main world economic centers.
3. New kind of goods, such as drinking water and hydrogen.
4. A new need for modular ship is highly required.
5. Structuring of industrial stakeholders.
6. Globalized value chains.
7. The industrial ecosystem.

- The Global Competitiveness Index 2014-2015 and Egyptian Rank.

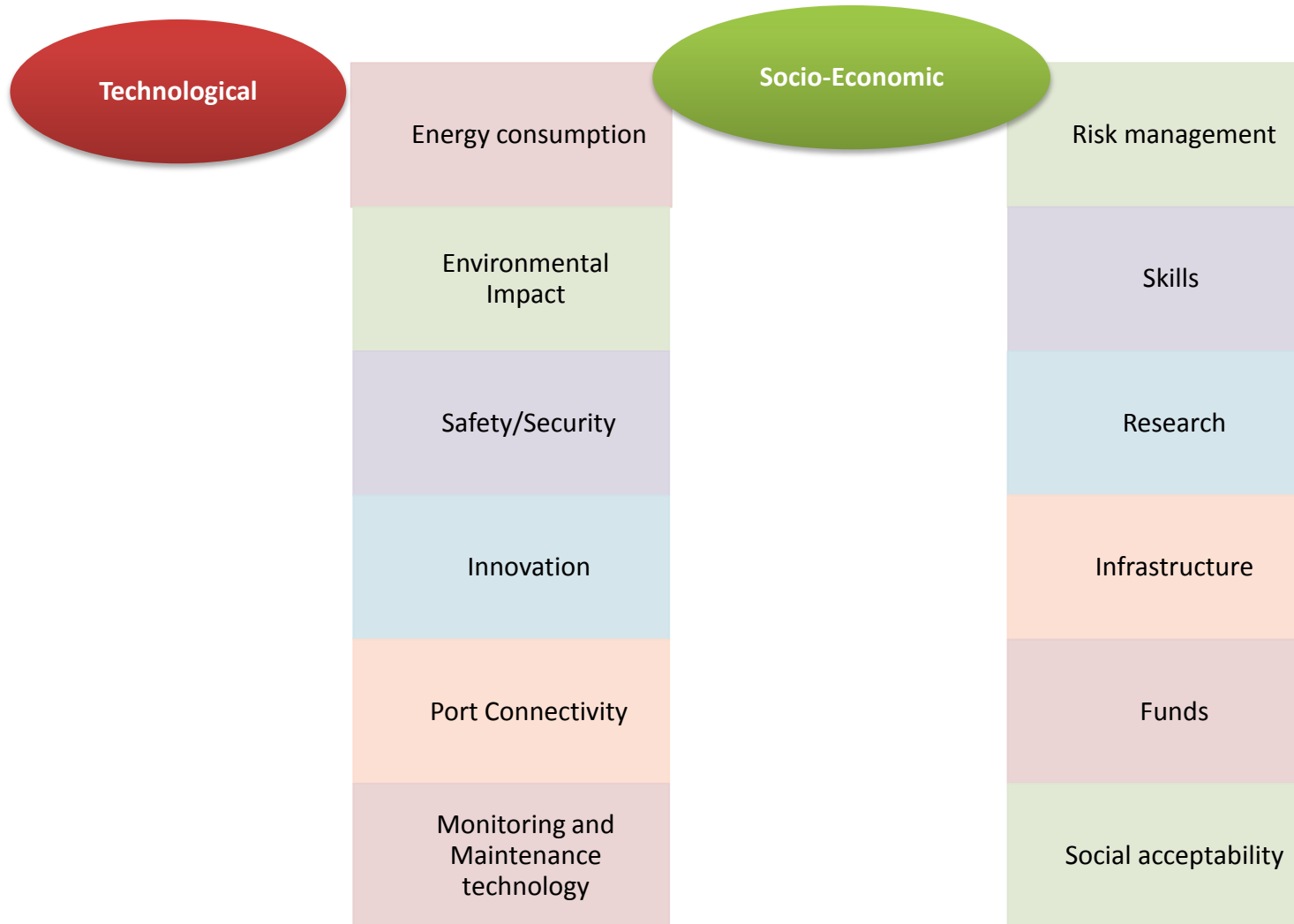
Global Competitiveness Index

	Rank (out of 144)	Score (1–7)
<b>GCI 2014–2015</b> .....	<b>119</b> .....	<b>3.6</b>
GCI 2013–2014 (out of 148).....	118.....	3.6
GCI 2012–2013 (out of 144).....	107.....	3.7
GCI 2011–2012 (out of 142).....	94.....	3.9
<b>Basic requirements (40.0%)</b> .....	<b>121</b> .....	<b>3.7</b>
Institutions.....	100.....	3.4
Infrastructure.....	100.....	3.2
Macroeconomic environment.....	141.....	3.0
Health and primary education.....	97.....	5.4
<b>Efficiency enhancers (50.0%)</b> .....	<b>106</b> .....	<b>3.6</b>
Higher education and training.....	111.....	3.3
Goods market efficiency.....	118.....	4.0
Labor market efficiency.....	140.....	3.1
Financial market development.....	125.....	3.2
Technological readiness.....	95.....	3.2
Market size.....	29.....	4.8
<b>Innovation and sophistication factors (10.0%)</b> .....	<b>113</b> .....	<b>3.2</b>
Business sophistication.....	95.....	3.7
Innovation.....	124.....	2.7

Stage of development



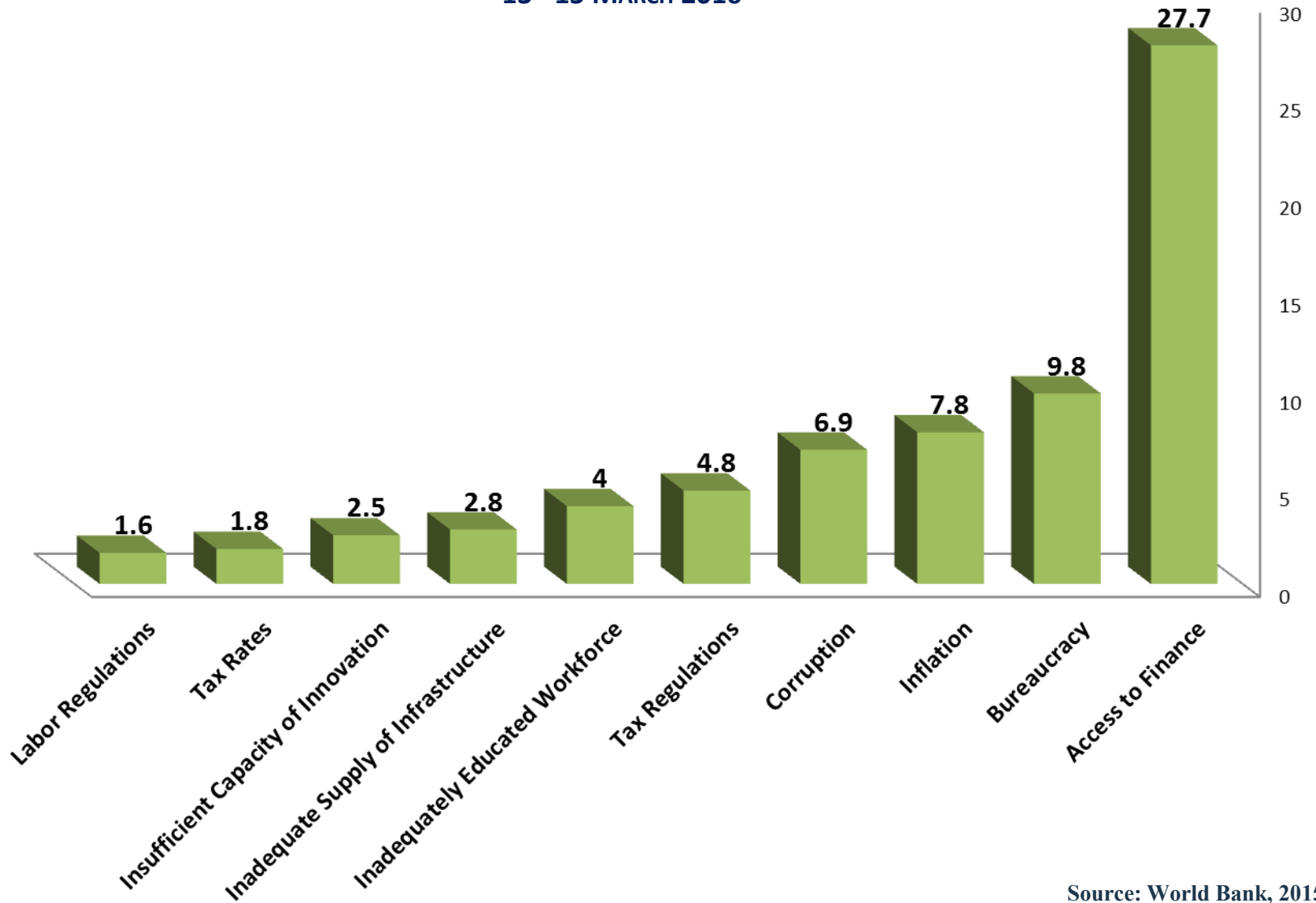
# Obstacles facing the Transformation into Smart Seaports



# THE INTERNATIONAL MARITIME TRANSPORT & LOGISTICS CONFERENCE (MARLOG 5)

## TOWARD SMART PORTS

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Source: World Bank, 2015

### Challenges Facing doing Business in Egypt 2014-2015

## Network Readiness Index of Egypt- 2015

Index	Rank (148)
Web network readiness	90
E-business environment	123
E-superstructure	99
Network usage	90
Social and economic impacts	84
Availability of Latest Technology	127

# 6. SMART PORTS AND THE 2050 VISIONS

Build ships with latest innovation and quality and accommodate high capacity.

Future Uses	Current Uses	New Uses
Worldwide	<b>Vision 1</b> Optimizing costs	<b>Vision 2</b> New standardized market niches
A local-level industrial ecosystem	<b>Vision 3</b> High-tech specialization	<b>Vision 4</b> Complexity and customization

Ships' owners will demand their ships to perform new uses

Utilizing the renewable energies for the ships' designs

Moving towards global integration

Source: ADEME, 2015



## 7. Conclusion

- There is a need to develop a logistics roadmap to identify the future priority ports.
- Determining important criteria in relative to the smart ports.
- The most important challenges need to be identified.
- Emphasising on a move towards an integrated intermodal transport systems, reducing emissions, implementation of track & trace solutions, and focusing on more automation and integration of data.

## 8. Recommendations

1. Promoting quality jobs and working conditions.
2. Encourage investment in technology.
3. Secure transport.
4. Apply a 'One-stop-shop' concept.
5. Spread over the tracking and tracing technologies.
6. Adopt the legislation themes in the maritime industry.
7. Enhancing the capacity and quality of the infrastructure.
8. Improving the environmental and waste management systems.
9. Adopting the corridor management strategies.
10. Developing and implementation of Sustainable Energy Action Plans.

# LOGISTICS ROADMAP FOR SMART SEAPORTS



**Thank You for Listening**

**The floor is open for questions**

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