





# Sub-6GHz Spectrum for Enterprises

3rd India Spectrum Management Conference



# PARADIGM SHIFT IN INDUSTRIAL CONNECTIVITY




<b>3.0</b>   1969-2010s	
Computing / Internet Nuclear Energy Monitoring & controlling	
<b>2.0</b>   1830s-1915	
Assembly Line Coordinated control	
<b>1.0</b>   1760-1840	
Steam Engineering Automating human <u>tasks</u>	

## INDUSTRY 4.0













Digitization / Integration of value chains  
**Optimization, autonomy**

Digitization of product and service offerings  
**New Revenue Streams**

Digital business models and customer access  
**Data analysis & insights**

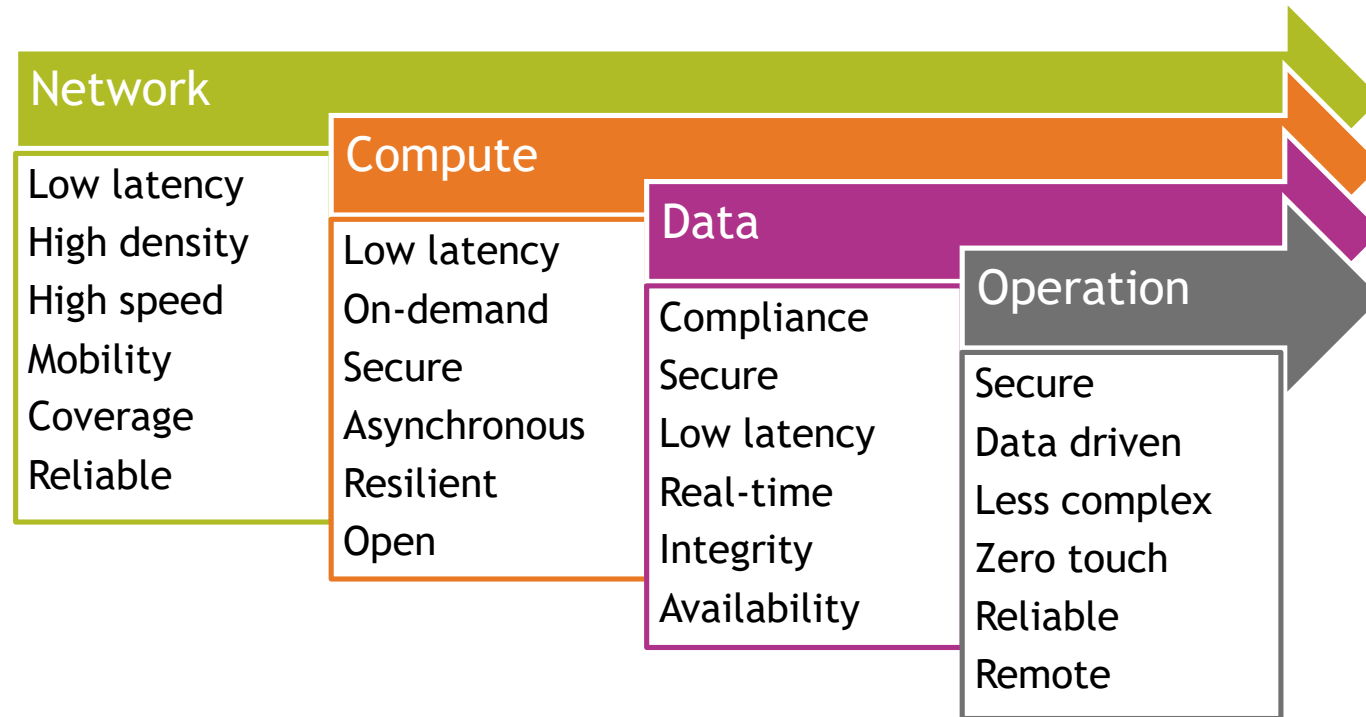


## TECHNOLOGY ENABLERS

 Mobile first	 Sensorization
 IOT Platforms	 Augmented reality
 Location and detection	 Cloud computing
 Image and video analytics	 Predictive model
 Security and fraud detection	 Big data analytics
 Robotics	 Customer facing digital platforms

Rapidly Digitizing existing processes, moving towards the 5<sup>th</sup> Gen  
Leading to Connectivity integrated Sensing and Artificial Intelligence

# TECHNOLOGY REQUIREMENTS FOR INDUSTRY 4.0

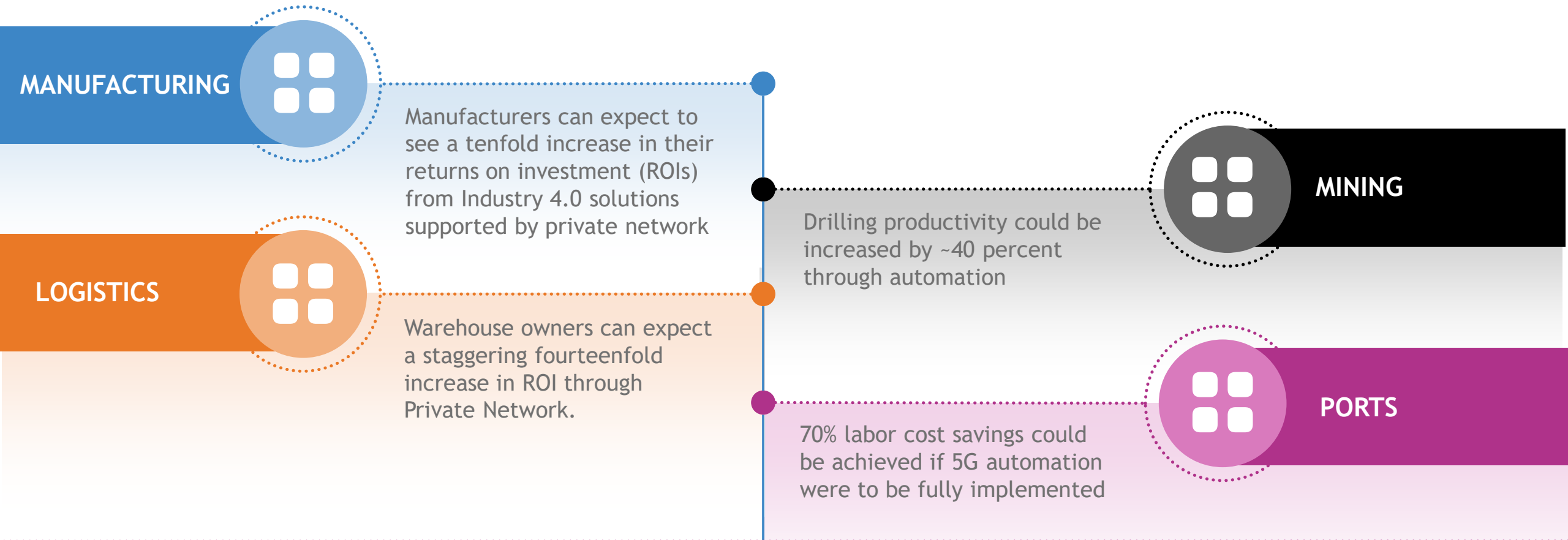


We need a combination of a network, computing infrastructure and a data platform, run using an Agile operations methodology, to host any application that enables digitalization towards Industry 4.0

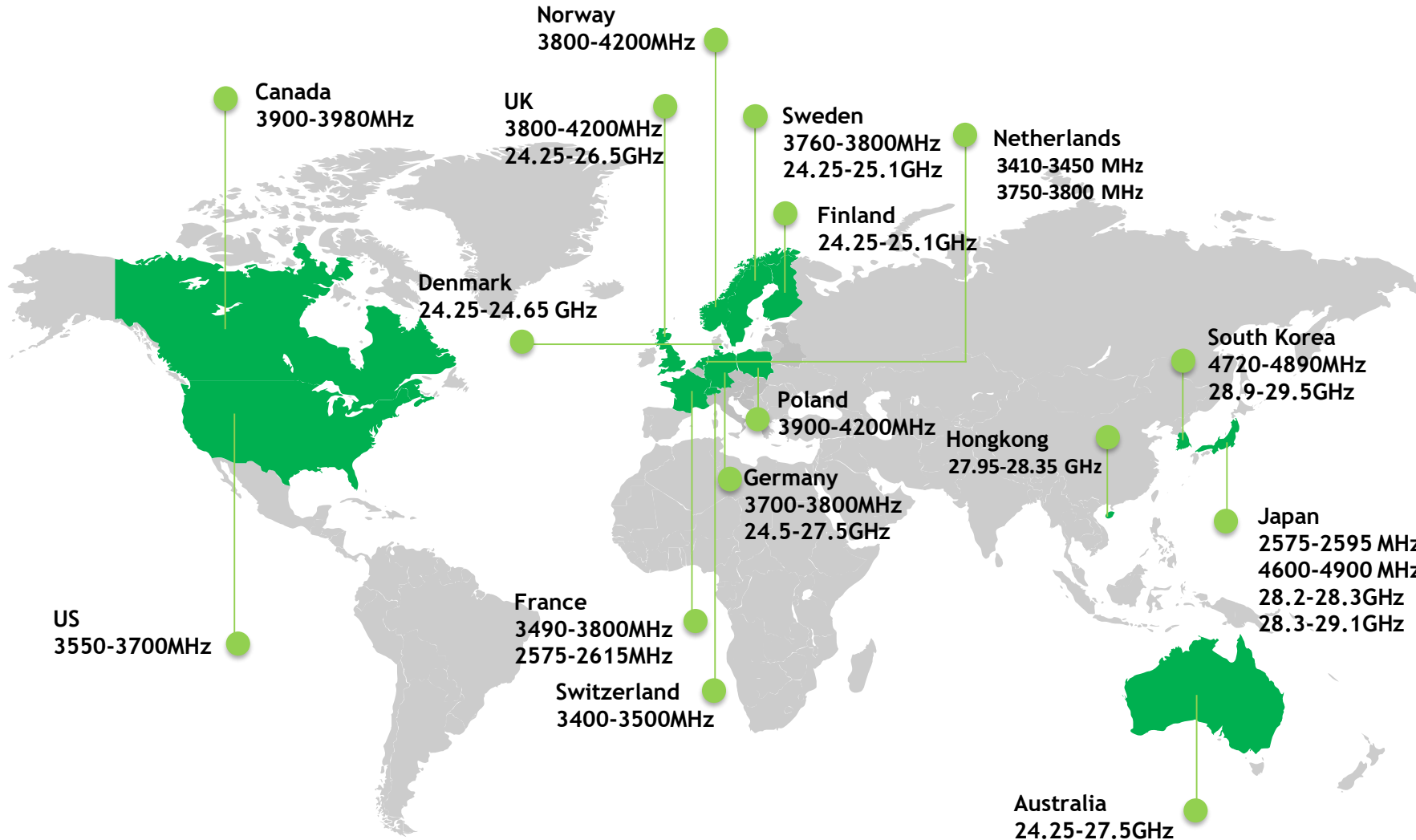
# INDUSTRIAL IMPACT OF SPECTRUM AVAILABILITY

Of the 15 largest sectors, manufacturing, transportation and mining are the top 3 sectors for private network references.

While 5G testing and lab-as-a-service occupy a major share, factories, seaports and public venues exhibit the highest growth



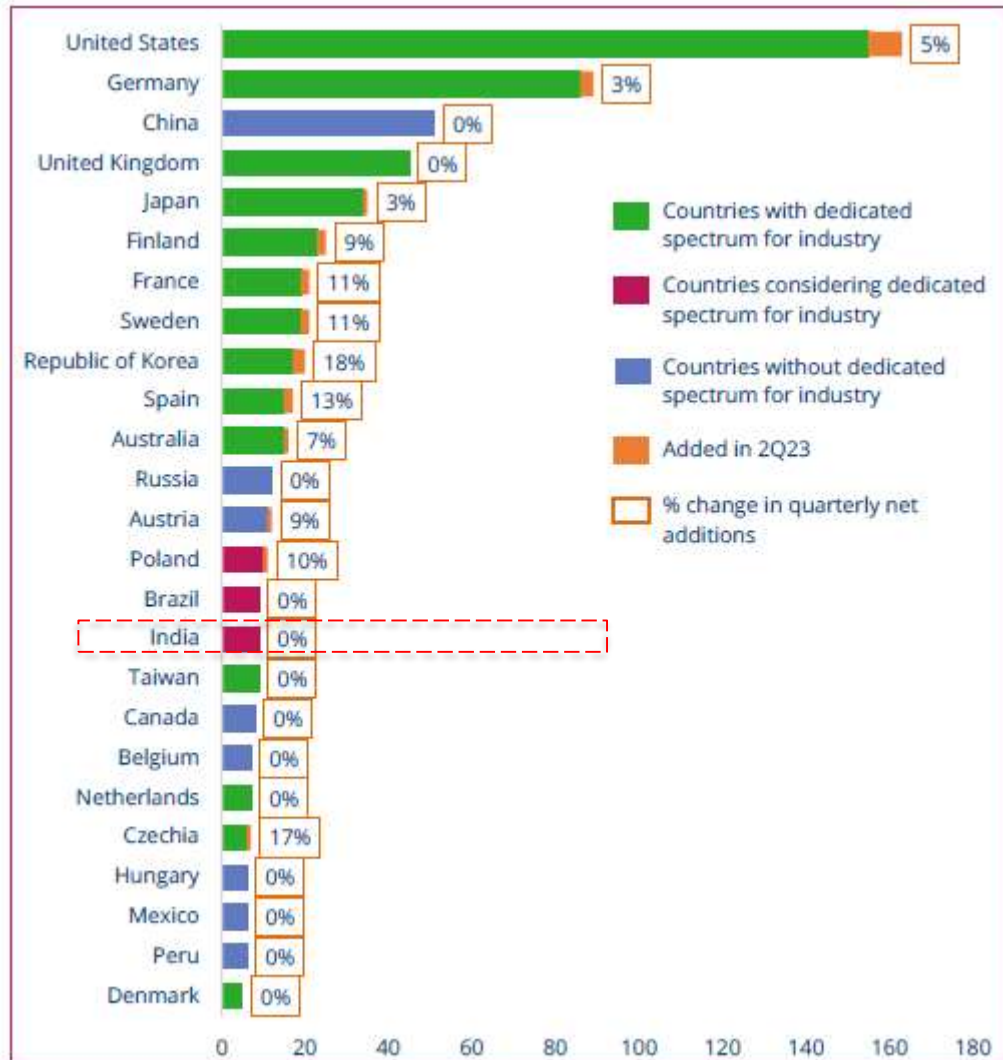
# COUNTRIES WITH DEDICATED SPECTRUM FOR INDUSTRIES



Top 4/6 top economies set aside a dedicated spectrum

16 countries in total set aside a dedicated spectrum

# GLOBAL DEPLOYMENT



- India ranked quite low in enterprise 5G adoption
- Countries with dedicated spectrum are early adopters of industry 4.0 use cases e.g. US, Germany, UK and Japan
- Spectrum unavailability contributes to much slower adoption of 5G for enterprises e.g. India, Brazil etc.
- Countries with government backing for 5G through grants for enterprise deployments and govt.- led 5G trials has promoted 5G adoption in Asia-Pacific e.g. China, South Korea, Australia, Singapore etc.

# WHAT WE EXPECT FROM POLICY MAKERS



## SHARED SPECTRUM

- Independence for enterprises
- Reduced costs
- Affordable private networks

## BEST PRACTICES

- Cross-country
- Cross-sector
- New innovations



## COEXISTENCE

- Optimum use of airwaves
- Encouragement for spectrum buyers

## DEDICATED SPECTRUM

- Faster 5G adoption among enterprises
- Improved quality and reduced operational cost through industry 4.0 solutions



# THANK YOU



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