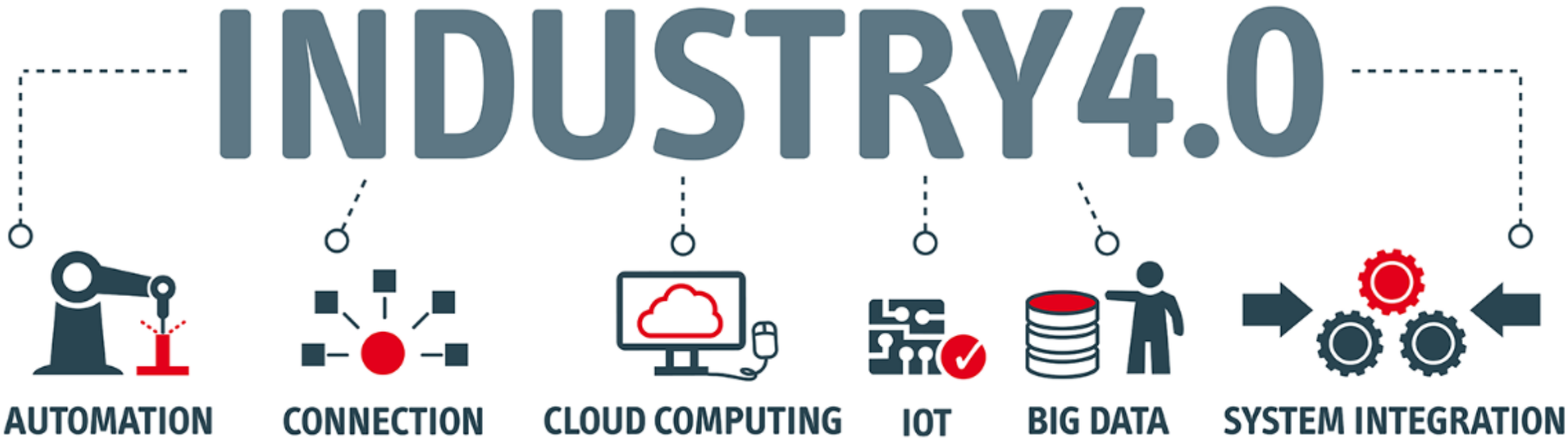


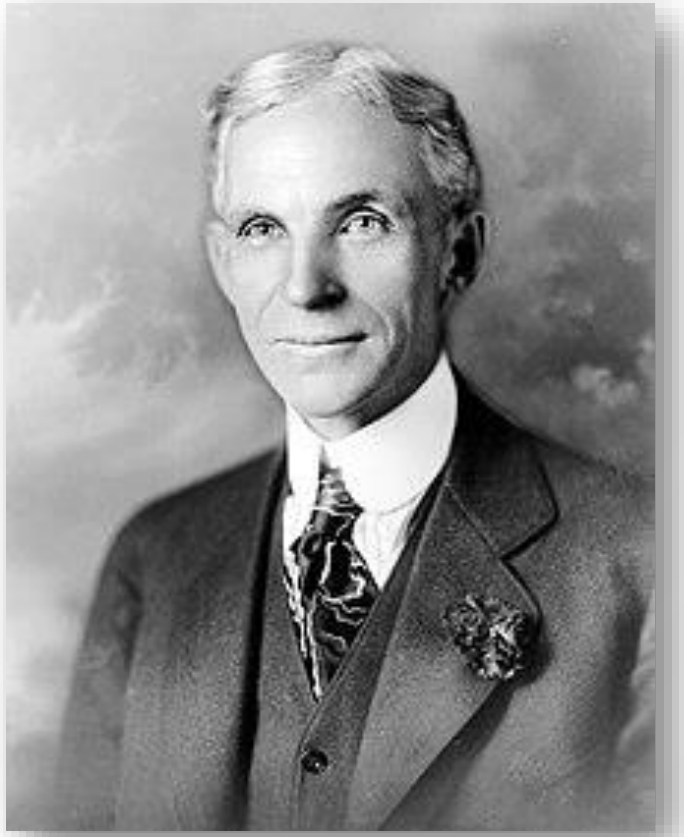
INDUSTRY 4.0
CHANGE OR NOT?

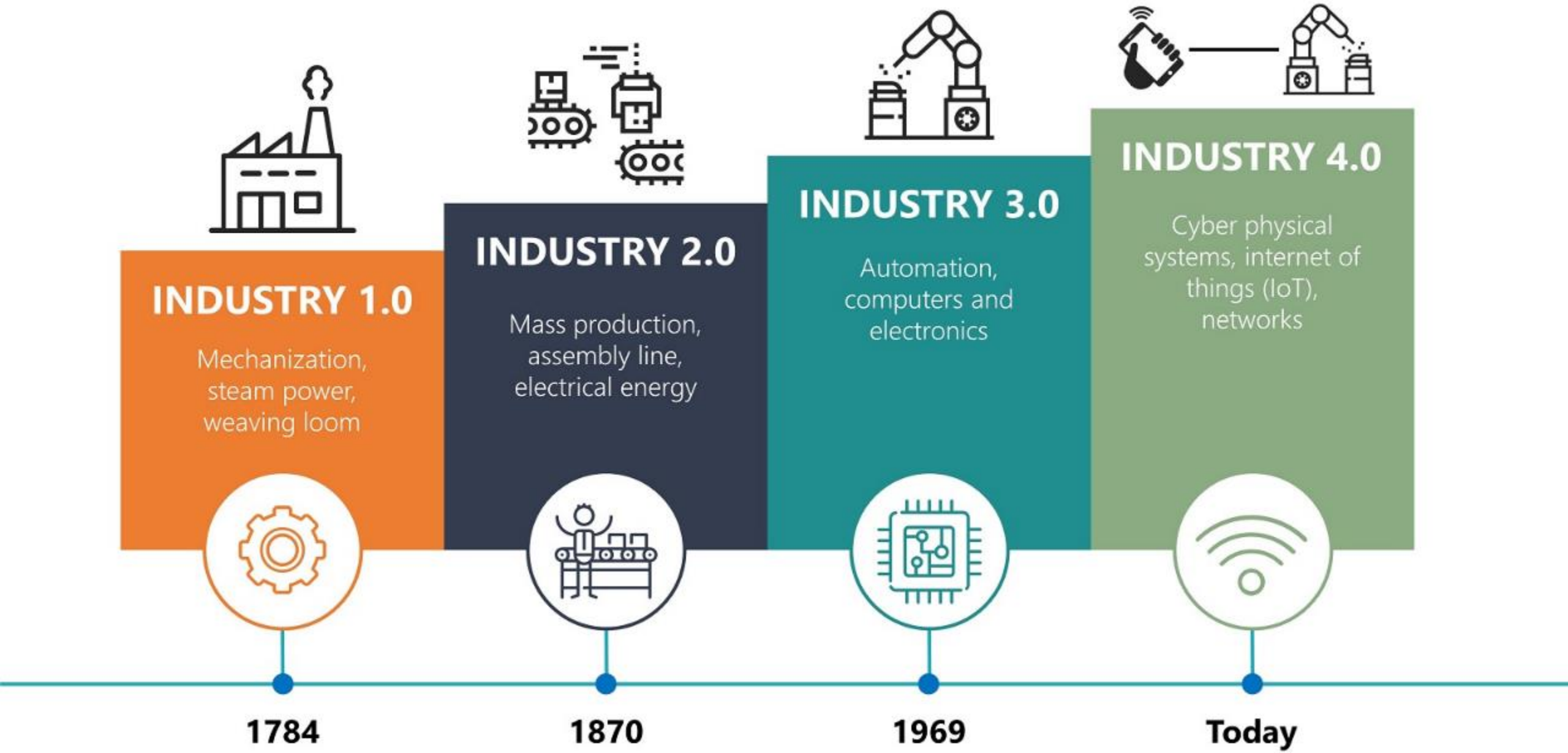
NRMCA CONFERENCE PRESENTATION 27 JULY 2019

PRESENTATION OUTLINE

- Journey of industrial revolution
- What is Industry 4.0?
- Building blocks of Industry 4.0
- Potential implications & way forward
- 360 AppSolutions

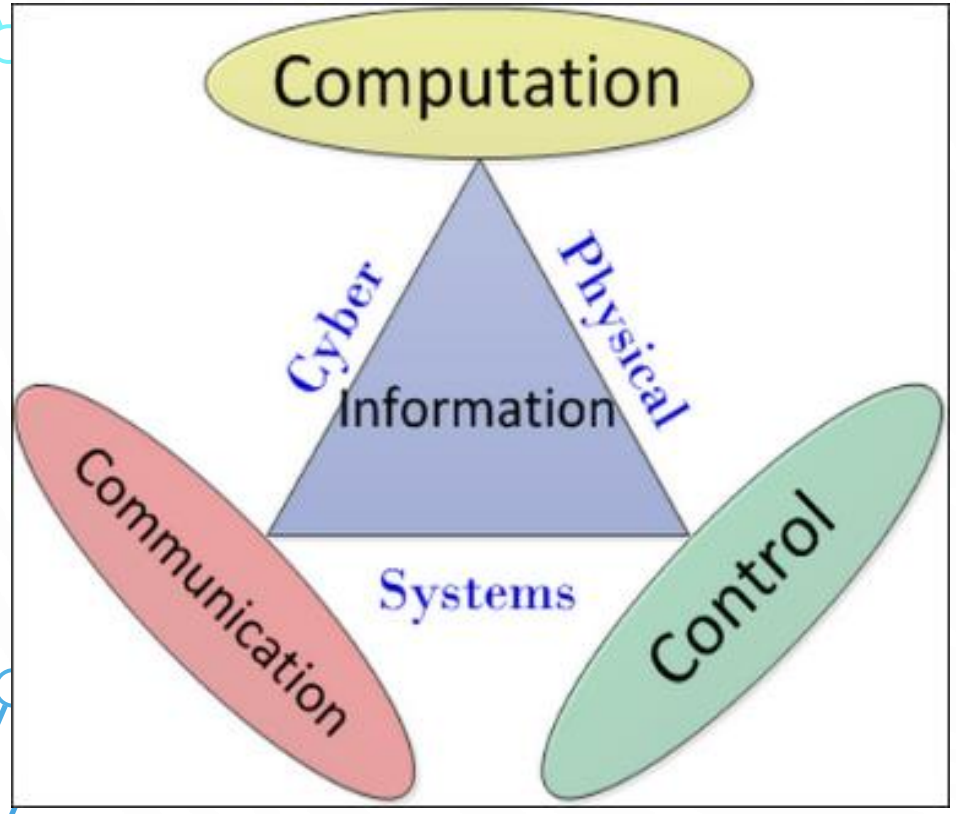
HENRY FORD STORY




INDUSTRY 1.0
Mechanization, steam power, weaving loom
INDUSTRY 2.0
Mass production, assembly line, electrical energy
INDUSTRY 3.0
Automation, computers and electronics
INDUSTRY 4.0
Cyber physical systems, internet of things (IoT), networks
1784
1870
1969
Today

PHASES OF EARLIER 3 INDUSTRIAL REVOLUTIONS

1. 1760 to 1840 - Ushered in Mechanical production; railways and steam engine
2. 1870 to 1940 - Mass production; electricity and assembly line
3. 1960 to 2010 - Computers; semi conductors, main frame computing, personal devices, internet



Industry 4.0 is the evolution to cyber-physical systems, representing the fourth industrial revolution on the road to an end-to-end value chain with Industrial IoT and decentralized intelligence in manufacturing, production, logistics and the industry.

INDUSTRY 4.0
SIX DESIGN PRINCIPLES

Interoperability

Cyber-physical systems, humans and Smart Factories to connect and communicate with each other via the Internet of Things (IoT) and the Internet of Services (IoS)

Virtualization

Virtual copy of the Smart Factory created by linking sensor data (from monitoring physical processes) with virtual plant models and simulation models

Decentralization

Ability of cyber-physical systems within Smart Factories to make decisions on their own

Real-Time Capability

The capability to collect and analyze data and provide the insights immediately

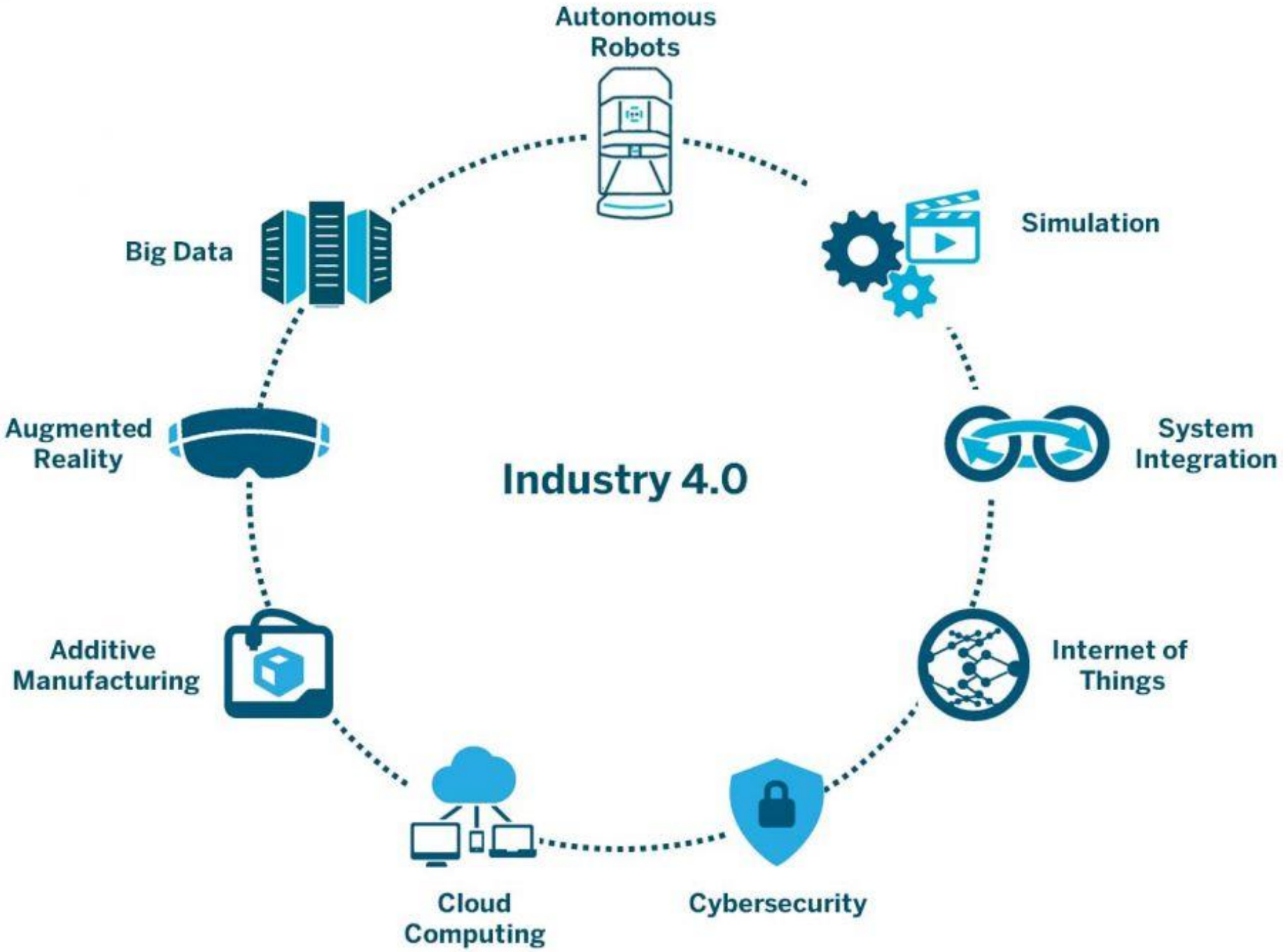
Service Orientation:

Offering of services (of cyber-physical systems, humans and Smart Factories) via the Internet of Services

Modularity:

Flexible adaptation of Smart Factories for changing requirements of individual modules

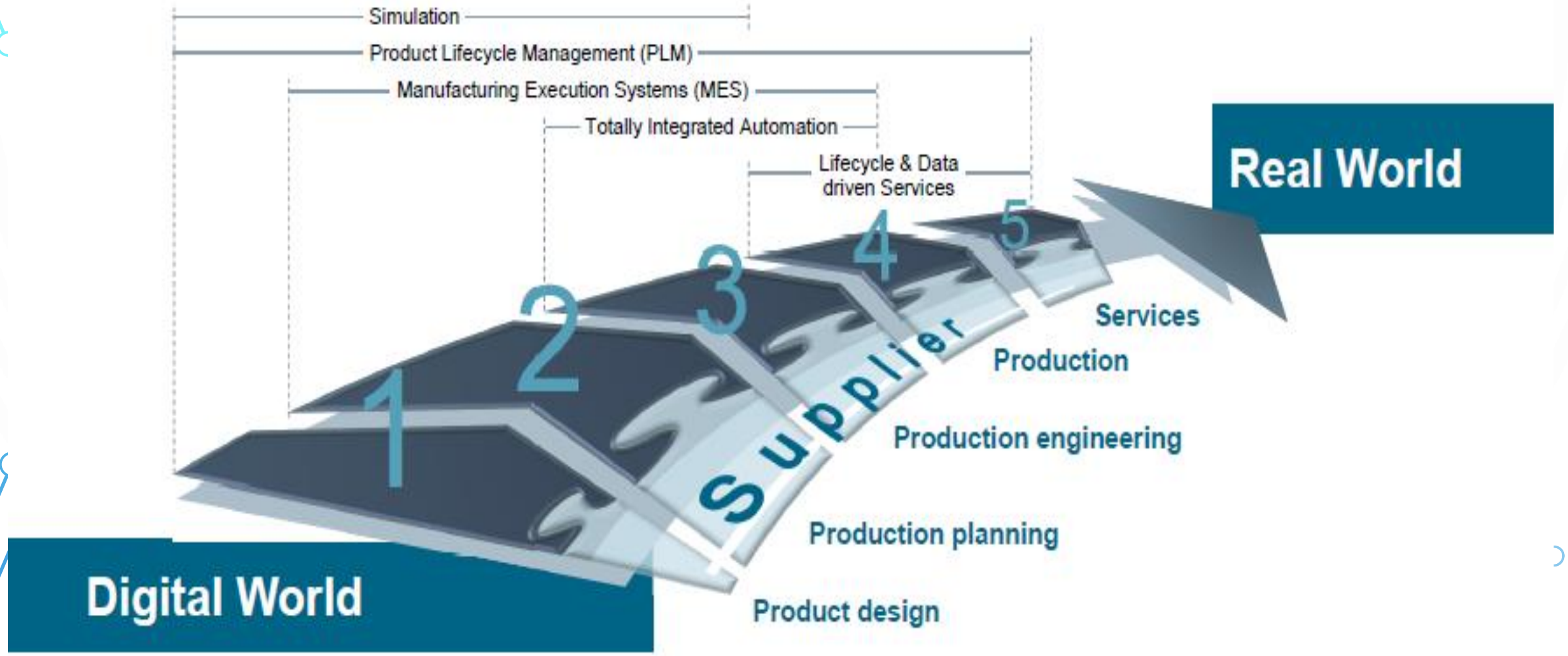
BUILDING BLOCKS OF INDUSTRY 4.0



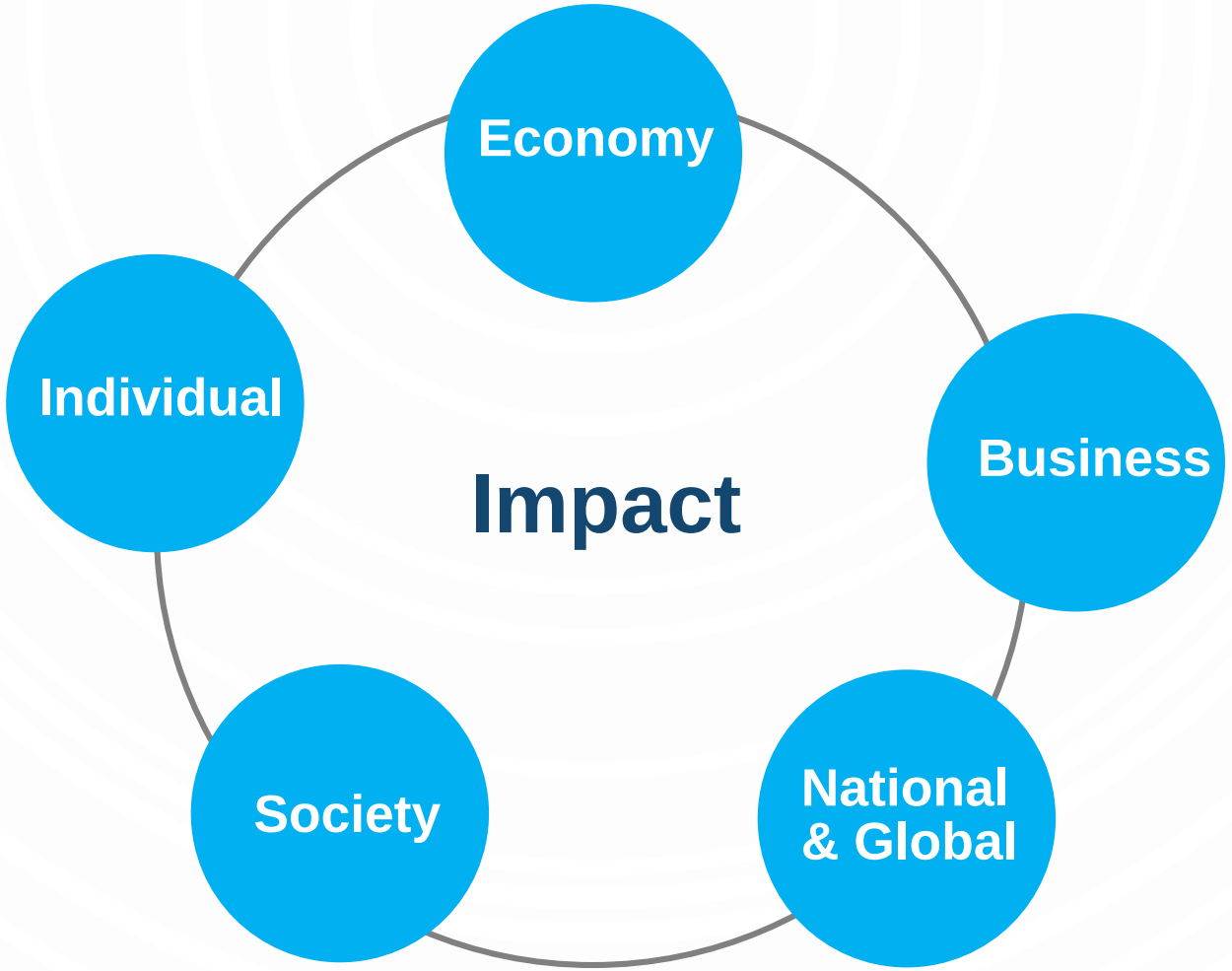
IMPACTING ALL ASPECT OF VALUE CHAIN

DIGITAL ENTERPRISE

ENTIRE VALUE CHAIN IS DIGITIZED AND INTEGRATED



POTENTIAL IMPACT



POTENTIAL IMPACT

Economy	Business	National & Global	Society	Individual
• Growth • Ageing • Productivity • Employment • Labor substitution • The nature of Work	• Customer expectations • Data enhanced products • Collaborative innovation • New operating	• Governments • Countries, regions & cities • International security	• Inequality • Community	• Identity, morality & ethics • Human connection

Industry4WRD

The Vision

Malaysia's vision for the manufacturing sector in the next 10 years

- Strategic partner for smart manufacturing & related services in Asia Pacific
- Primary destination for high-tech industry
- Total solutions provider for advanced technology

The National Goals

Specific goals to guide and measure the progress of transformation

- Labour Productivity Growth
- Manufacturing Contribution to Economy
- Innovation Capacity
- High-skilled Jobs

The Shift Factors

A set of shift factors that need to be optimised in a balanced manner

The Enablers

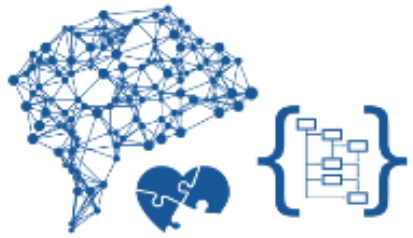
Specific enablers that determine the strategies, policies and action plans

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity



Source: Future of Jobs Report, World Economic Forum

POTENTIAL AREAS OF CHANGES:

4 Main Drivers

Internet of Things (IoT)	Cloud Computing	Data Analytic Engine	System Integration
Gathering data from machinery & equipment	Storing big data on centralized system	Understand & predict future trends	Allowing multiple systems to communicate & integrate processes

Systems like CRM (Customer Relationship Management), PLM (Product Lifecycle Management), ERP (Enterprise Resource Planning) and MES (Manufacturing Execution Systems) must be integrated and good at interoperating – Only after this is achieved will you be ready to introduce I4.0 technologies.

POTENTIAL IMPLICATIONS

- Robot Assisted production
- Predictive Maintenance
- Additive manufacturing of complex parts
- Machines as a service
- Big data drive quality control
- Production line simulation
- Smart supply network

To Change or Not To Change?

"That is the question"

Change is inevitable,

WHAT and **WHEN** do you want to change?

360 AppSolutions

Business Software and App Developer

App and software development house striving to improve quality of life through innovating and integrating business processes

Automate **I**ntegrate **M**ake over

AppSolutions… Building Solutions!

360 Concrete

A total concrete delivery management system for your business that encompasses the entire process from ordering to delivery.

360 Concrete

GPS Monitoring
Live movement of trucks & mileage

E-DO Verification
DO verified immediately & no missing DO

Live Order Progress
Update on orders immediately

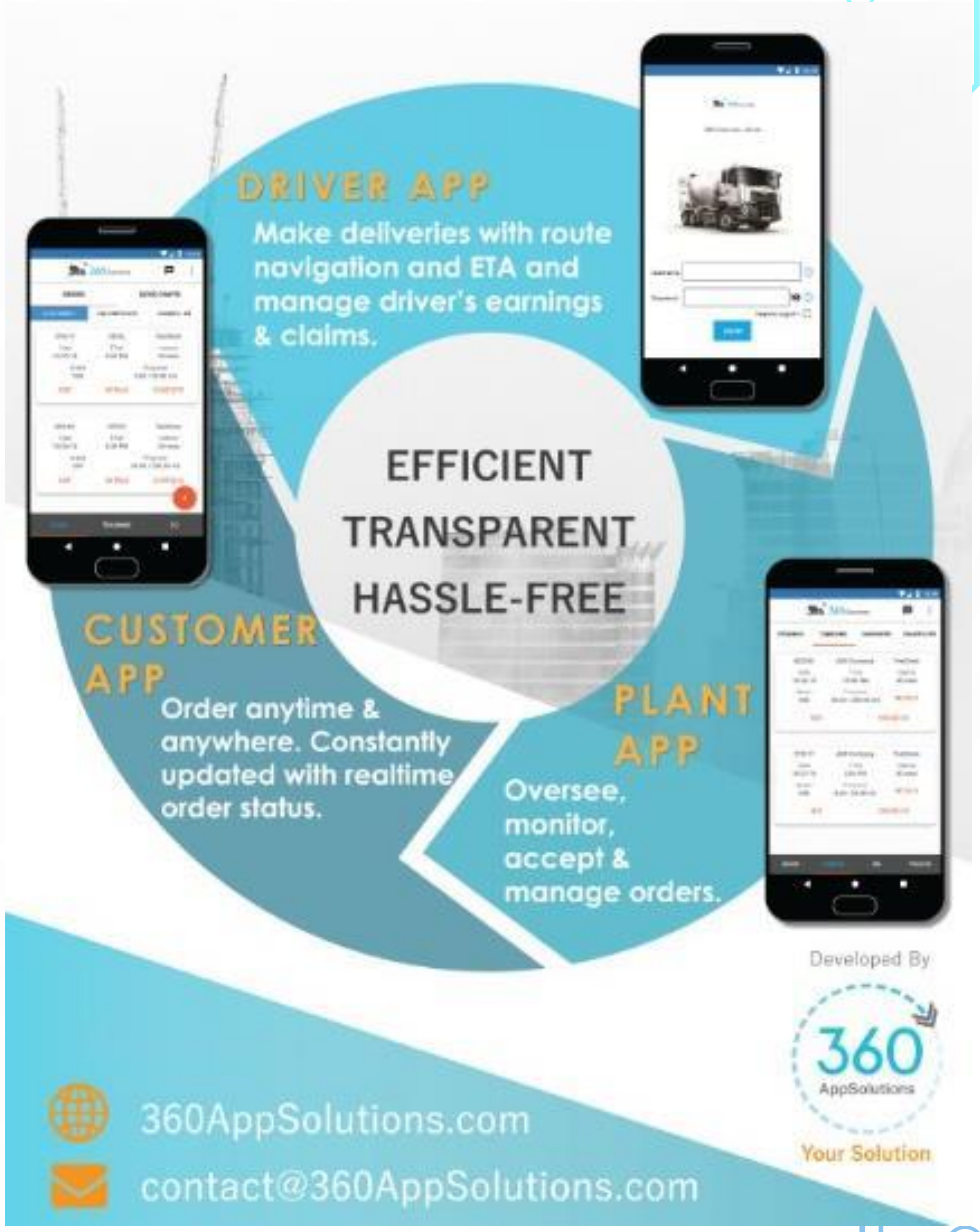
Online Ordering
Order anytime & anywhere from the app

Mixer Drums Monitoring
Track all discharge of concrete

QC Test Cube
Immediate updates of cube testing results

IoT Compatible
IoT sensors for monitoring of digital indicators

Big Data
All transaction is captured for use of data mining



THANK YOU