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Who Should Control Technology Transfer for Trade and Economic Growth?:

Global Economic Integration and Industrial Policy in Emerging Asia

The impact of Thailand Industry 4.0 policy on Technology Transfer

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1

Overview of Thai Economy

2

Overview of Thai Automotive Industry

3

Results of the policy

50th Largest country in the world in

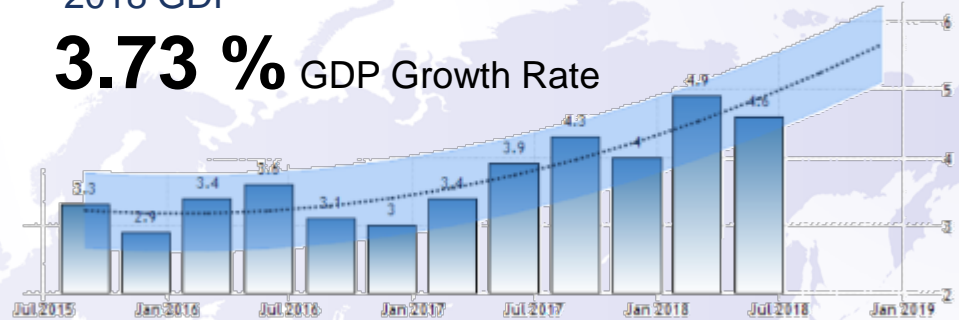


INDUSTRY: Agriculture & Manufacture



THAILAND GDP ANNUAL GROWTH RATE

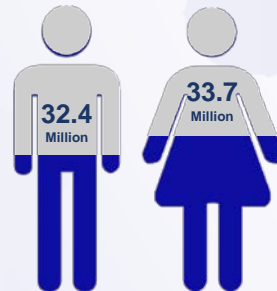
2018 GDP
3.73 % GDP Growth Rate



POPULATION



66
Million



RELIGION : Buddhism Christianity Islam
LANGUAGE : THAI
GOVERNMENT : DEMOCRACY
CURRENCY : Baht (THB)

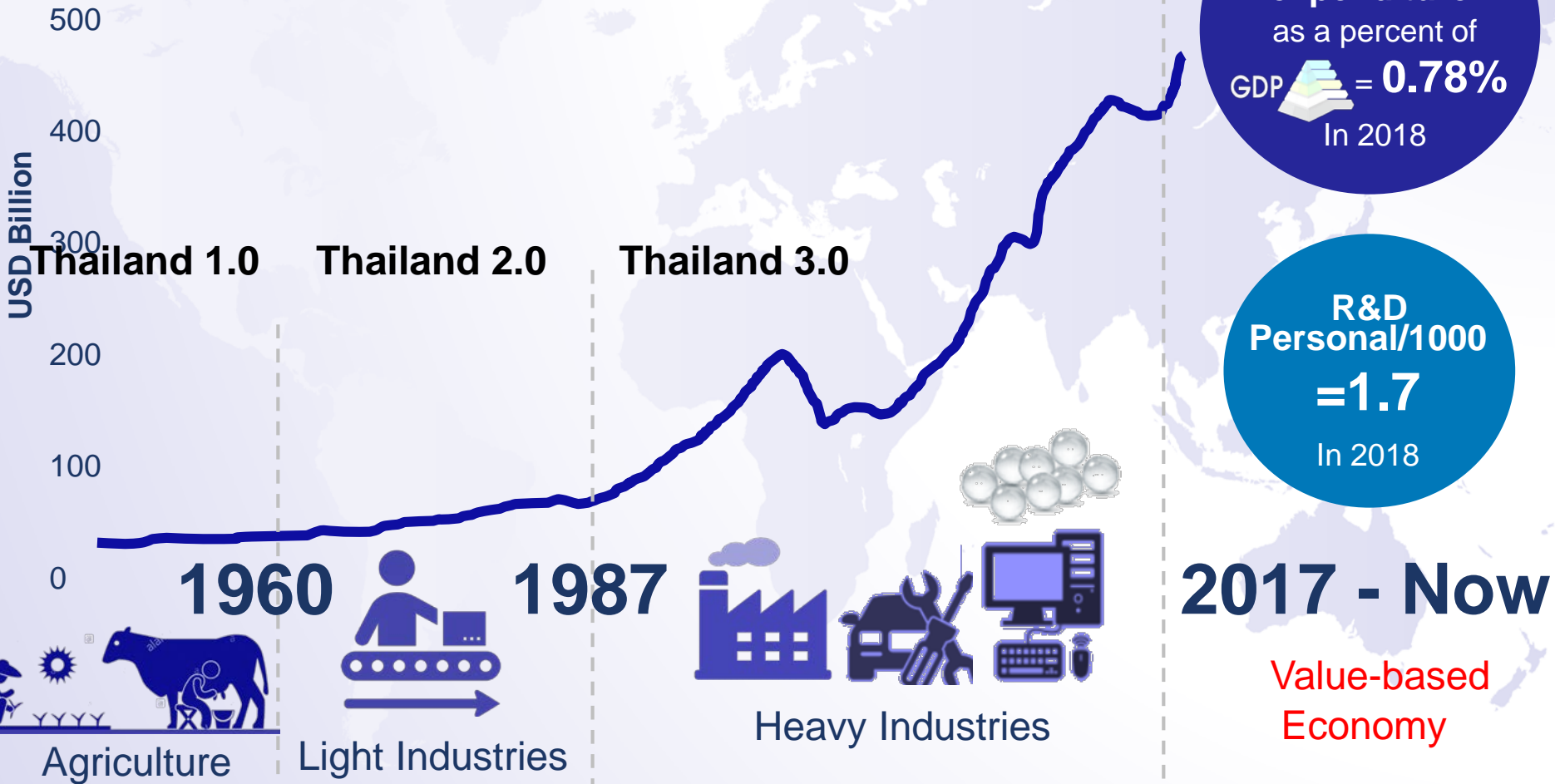
MOBILE PHONE PENETRATION RATE
82% of POPULATION



9hrs -internet
3hrs -Social Media

Evolution of Thai Economies

Thailand GDP



Thailand 4.0

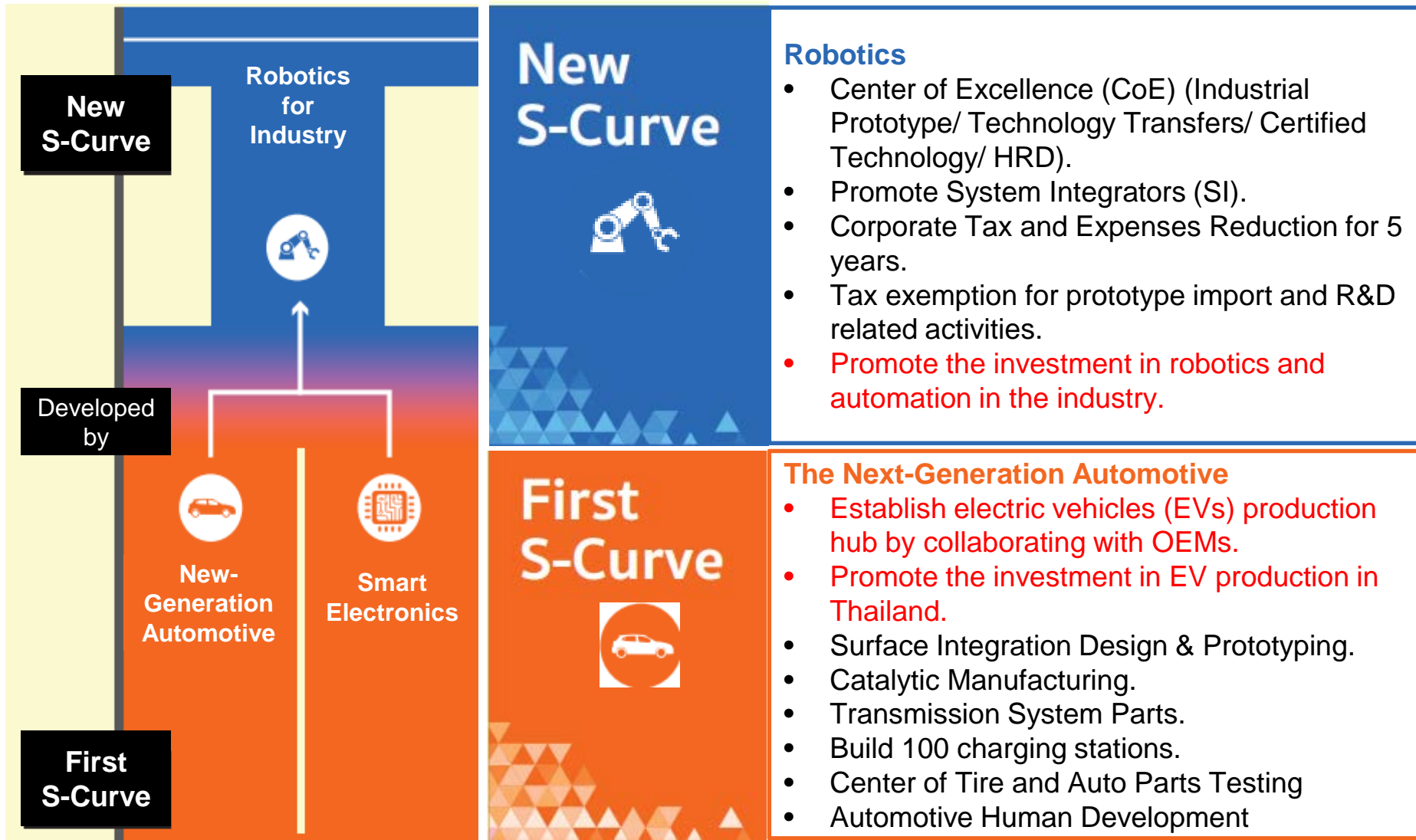
R&D expenditure as a percent of GDP = **0.78%**
In 2018

R&D Personal/1000 = **1.7**
In 2018

2017 - Now

Value-based Economy

Industry Movement to Industry 4.0 Plan

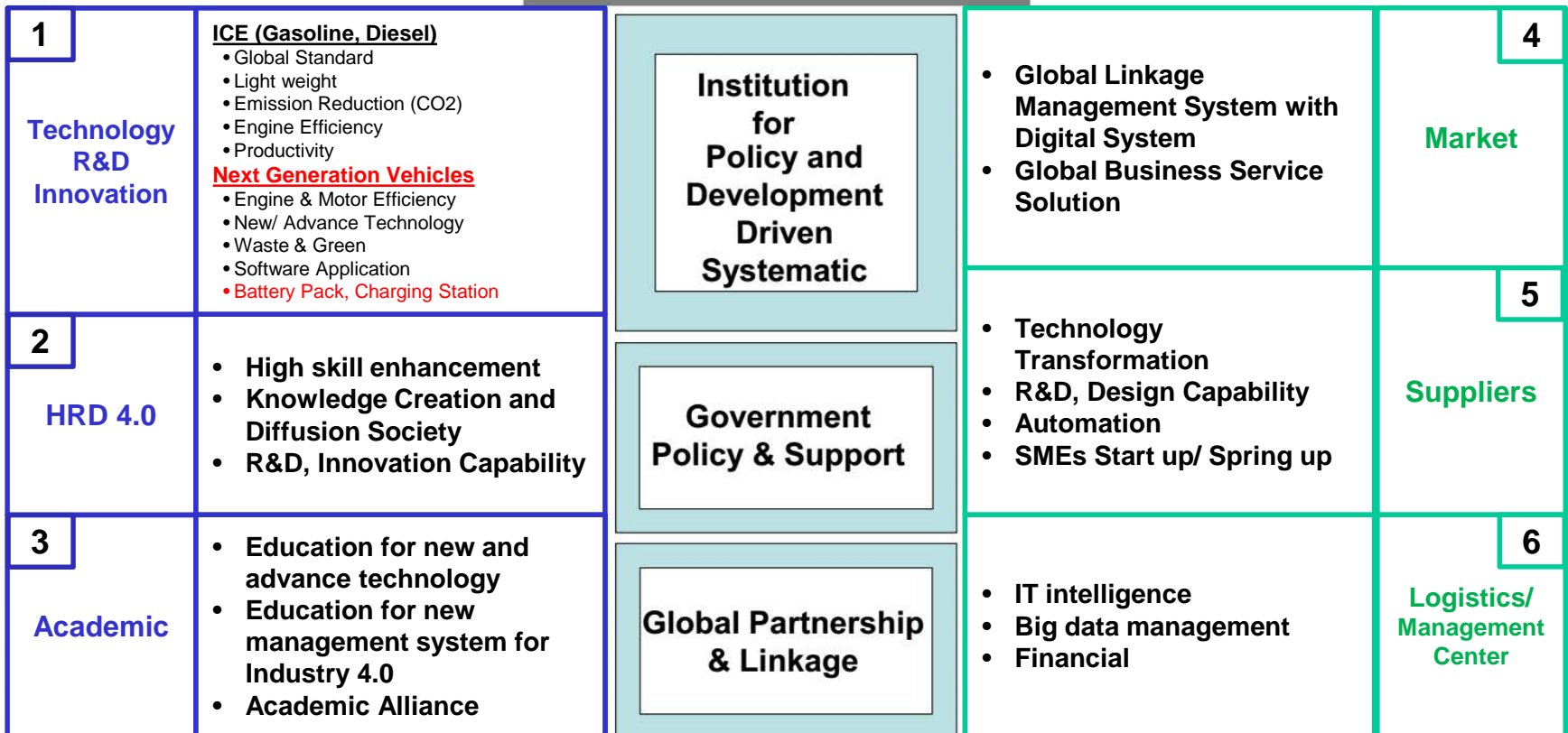


Source: New engine of growth, 1 Feb 2017, Office of Industrial Economics

Thailand Automotive Industry Development Master Plan 2017-2021 and Vision 2027

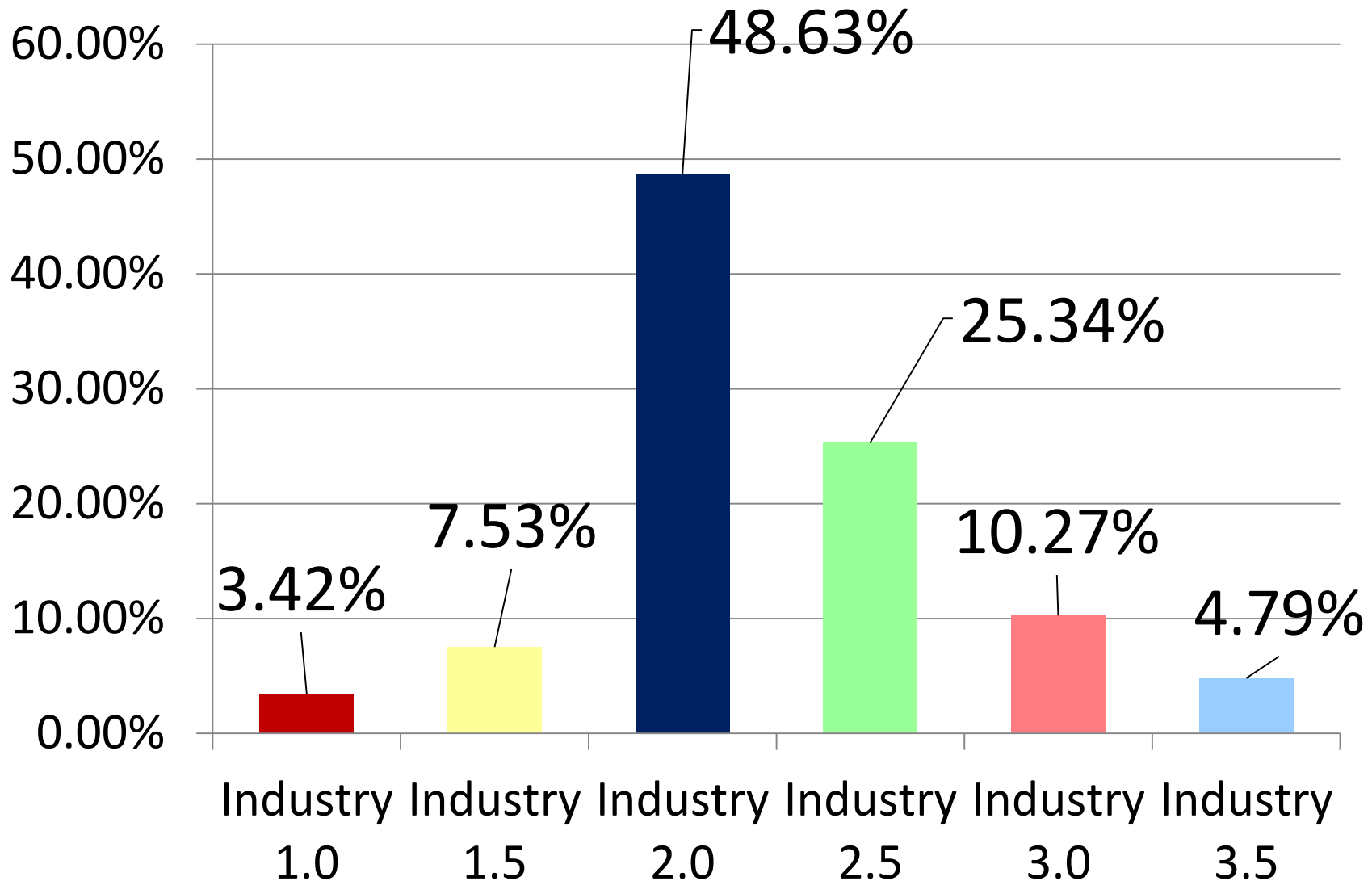
“Thailand is a Global Green Automotive R&D base which create high value added base economy”

Thailand 4.0 Industry 4.0 Next Generation Vehicles



Source: Rachanida Nitipathanapirak, Automotive Industry Situation and Master Plan, Thailand Automotive Institute 6

Self-Assessment Survey of Thai Manufacturing



Source: F.T.I. self-assessment obtained from 145 entrepreneurs 2017

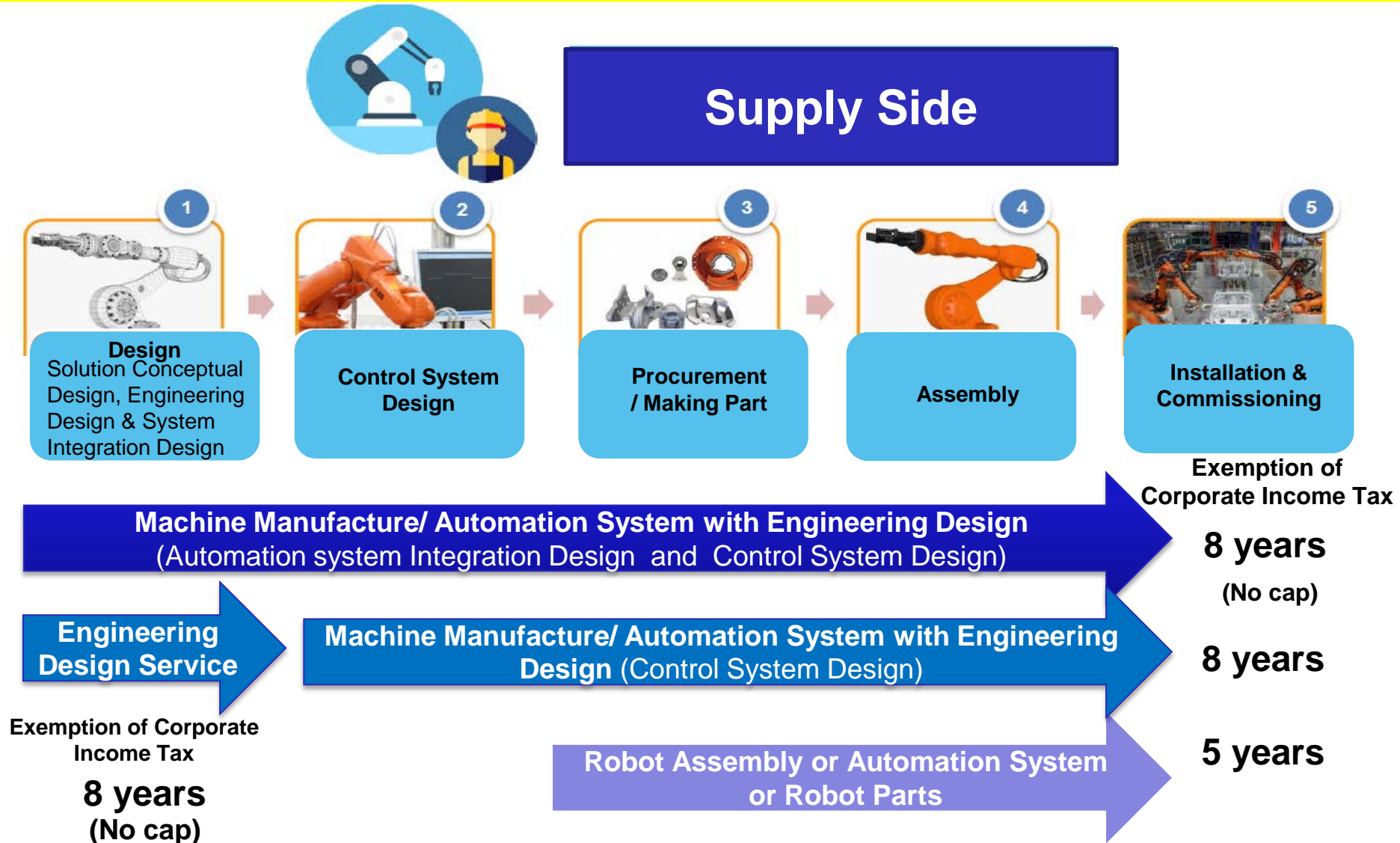
BOI Policy Incentive for Technology Transfer

Merit-Based Incentives - Competitiveness Enhancement Measures (Optional)

Types of eligible investments/expenditures	Additional Cap (% investment capital /expenditure incurred)	% of qualified investments/ expenditures to combined revenue for the first three years	Additional CIT exemption
	New		
1. R&D: In-house, outsourced in Thailand or joint R&D with overseas institutes	300%		
2. Donations to technology and human resource development funds, educational institutes, specialized training centers, R&D institutes or governmental agencies in the S&T field	100%	1% or ≥ 200 MB.	1 year
3. IP acquisition/licensing fees for commercializing technology developed in Thailand	200%	2% or ≥ 400 MB.	2 years
4. Advanced technology training, including digital training such as IoT	200%		
5. Development of local suppliers with at a least 51% Thai shareholding in advanced technology training and technical assistance	200%	3% or ≥ 600 MB.	3 years
6. Product & packaging design: In-house or outsourced in Thailand	200%		

BOI Policy Incentive for Investment

Investment Promotion of Advanced Technology and Automatic Control System



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Result of the policy

Overview of Thai Automotive Industry



1.19
Million Units
were exports
value of 189.9
million USD.



24
Automotive
Producers

- 17 Vehicle Producers
- 7 Motorcycle Producers
- 2,000 Automotive parts Producers



12th
largest
commercial
vehicle producer
in the world in
2017



3 Million
Units per year

- To manufacture 3,500,000 units in 2020

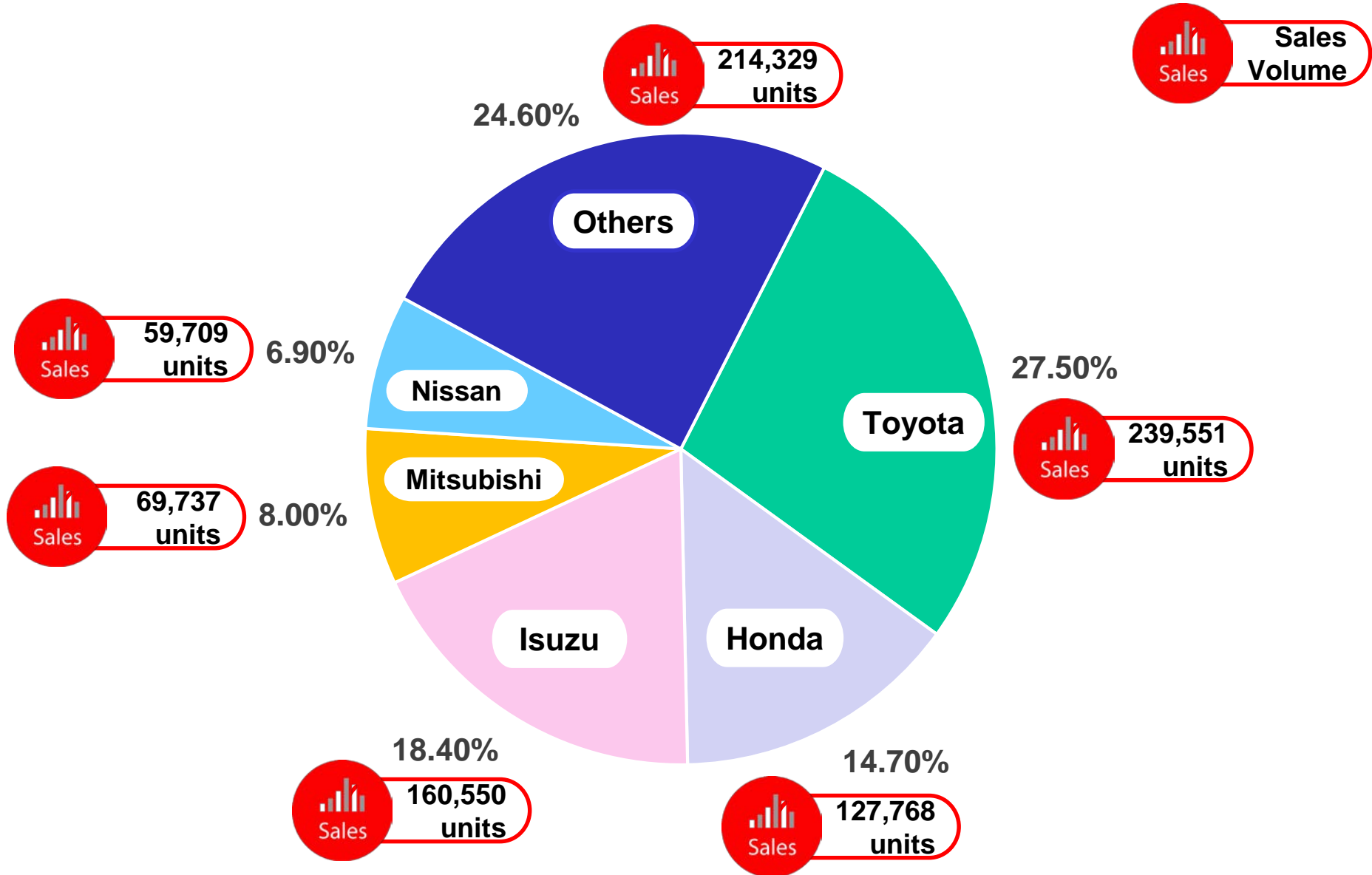


Next Generation Automotive
Research Center

2%
Contribute to
country's GDP



Market Share in Thailand – 2017



Sectoral Innovation System in Automotive Industry



Government Organization



Private-Sector Industrial Association & Technology Promotion Agency



Source: Adopted from Intarakumnerd and Gedsri (2014).

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Result of the policy

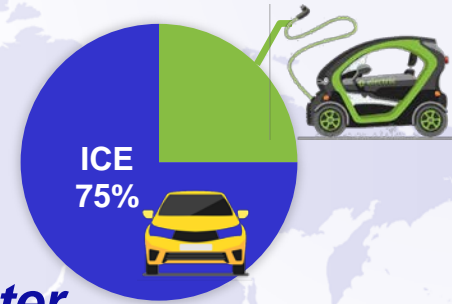
Future of Thai Automotive Industry

Key Highlight

EV HUB 
30.9M(USD)

ATTRIC
 Chachoengsao Province
 1,976,000 m²

EV 25%



Next Generation Automotive Research Center

2018

2019

2020 – 2024

2036



UN R117

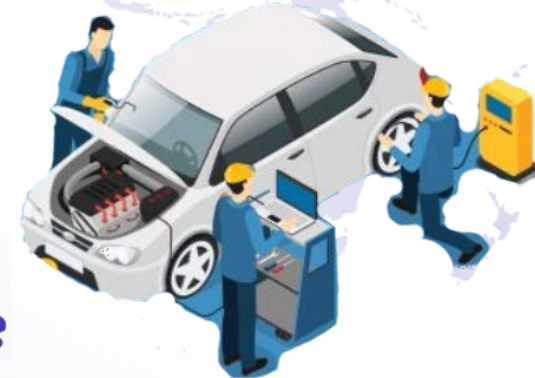


Road Map

**Next Generation
 Automotive
 Research Center**



EV HUB



Current Investment in Electric Vehicle

World 10M units



EV

- 0.9M units • ASEAN
- 0.6M units • Thailand



2018



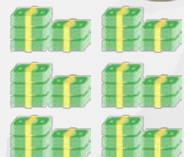
12M USD



2019



61M USD



Electric Vehicle

25 Million	1.2 Million
EV cars in the world in 2035 30% Market Share	EV Cars in Thailand in 2036 7% Market Share



SUPPORTING INDUSTRIES

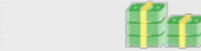


Mercedes-Benz

2018-2019



115M USD



BEV
Battery Electric Vehicle

2018-2020



PHEV
Plug-in Hybrid
Electric Vehicles



TOYOTA

2018



619M USD



Capacity



70K units



70K units

R&D and Technology Transfer

BWM Group Thailand collaborate with Center for Low Carbon Vehicles, KMUTT for researching in EV car sharing behavior.

14 December 2017



R&D and Technology Transfer

BWM Group Thailand donated BMW 330e M Sport (plug-in hybrid) to Smart Mobility Research Center, Chulalongkorn University.

19 April 2018



Engineering Design Training

Lean Automation System Integrators (LASIs)

DENSO + Department of Industrial Promotion (DIP) + METI + JETRO

5 Japanese firms + 6 Thai University + System Integrators



- **Thai manufacturers are more passive on industry 4.0 due to the engineering capability**
- **Thai government uses the policy to encourage specific knowledge for Technology Transfer**



THANK YOU

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