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**“SUPPLY CHAIN READINESS TRAINING – AUTOMOTIVE SECTOR”**

Acacia Hotel, Alabang, Philippines | 29 January 2016

# **TOYOTA’S MANUFACTURING SUPPLY CHAIN**

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by

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# Presentation Outline

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1. Overview of Toyota Production Structure
2. Becoming a Toyota Supplier
3. Toyota Supply Chain: Philippine Setting
4. Key Factors for Suppliers

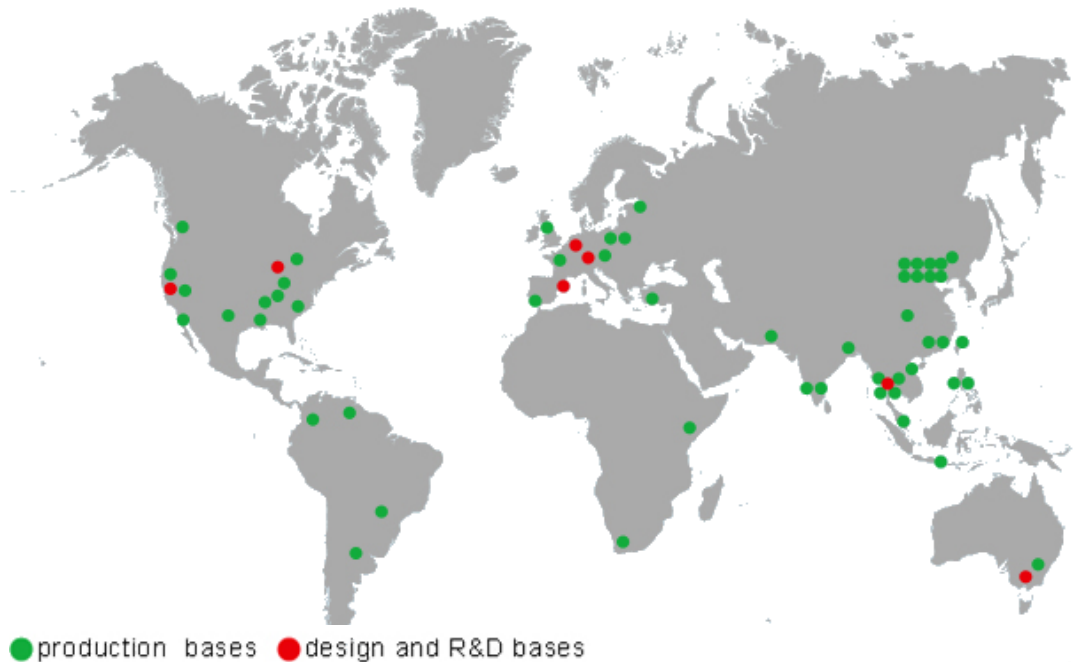
# 1) Toyota Production Structure

Manufacturing supply chain strategy adapts to changing structure of production networks.

- 52 Production Affiliates
- 7 Research & Design bases
- 175 Distributorships

## Considerations

- ✓ Production Expansion
- ✓ Cost Efficiency
- ✓ Investment Efficiency
- ✓ Core Competence Focus
- ✓ Control
- ✓ Flexibility



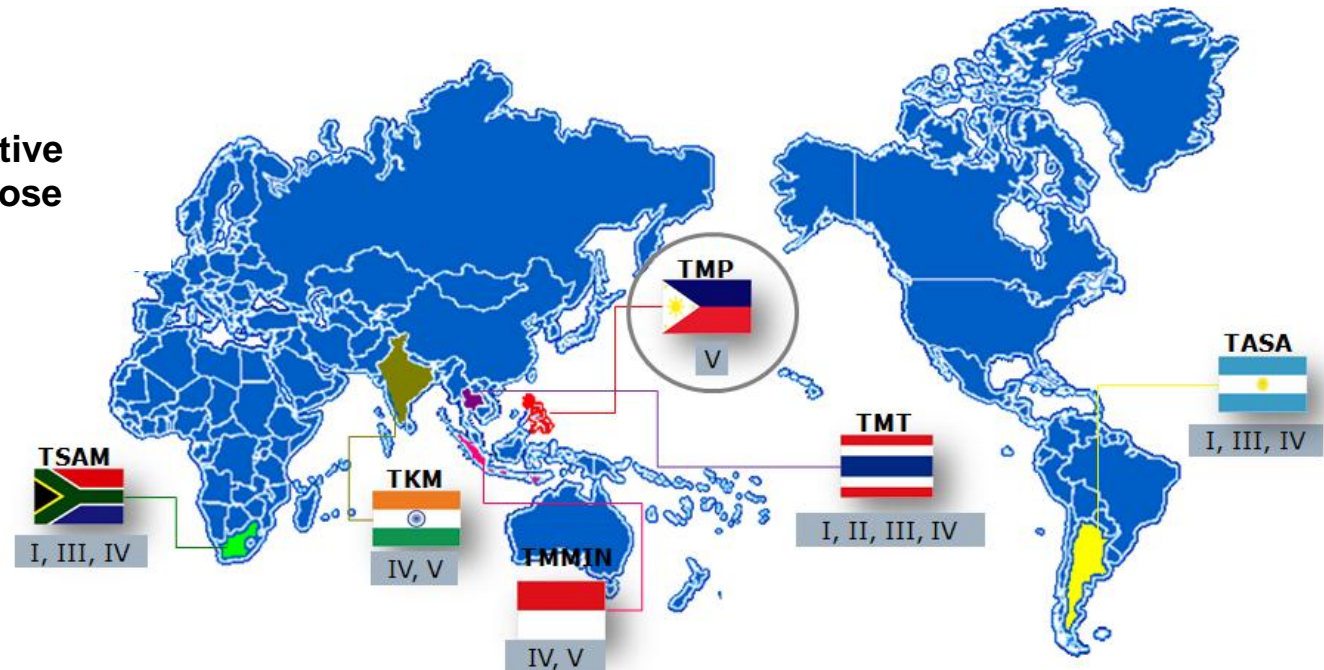
# 1) Toyota Production Structure

Vehicle production characterized by increasing regionalization  
--- matching demand and supply within the same region

<Sample Focus: Innovative International Multi-purpose Vehicle (IMV) >

5 vehicle types,  
1 IMV platform

I, II, III – Hilux  
IV – Fortuner  
V – Innova



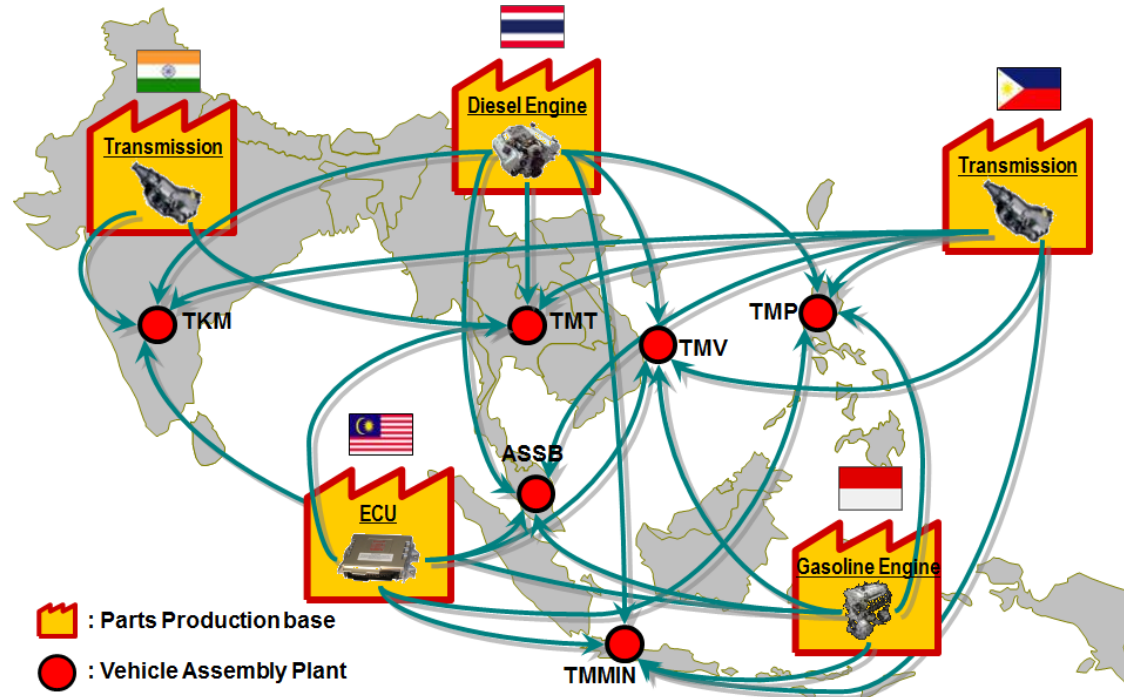
TSAM – Toyota South Africa Motors (Pty) Ltd.  
TKM – Toyota Kirloskar Motor Pvt. Ltd.  
TMMIN – P.T. Toyota Motor Manufacturing Indonesia

TMP – Toyota Motor Philippines Corp.  
TMT – Toyota Motor Thailand Co. Ltd.  
TASA – Toyota Argentina S.A.

# 1) Toyota Production Structure

Evolution of purchasing system --- promotion of “local purchasing”, i.e. produce/ purchase in the country or region of vehicle production

<Sample Focus: Toyota Parts Complementation Scheme in ASEAN>



TKM – Toyota Kirloskar Motor  
TMT – Toyota Motor Thailand  
ASSB – Assembly Services, Sdn. Bhd.

TMP – Toyota Motor Philippines  
TMV – Toyota Motor Vietnam  
TMMIN – Toyota Motor Manufacturing Indonesia

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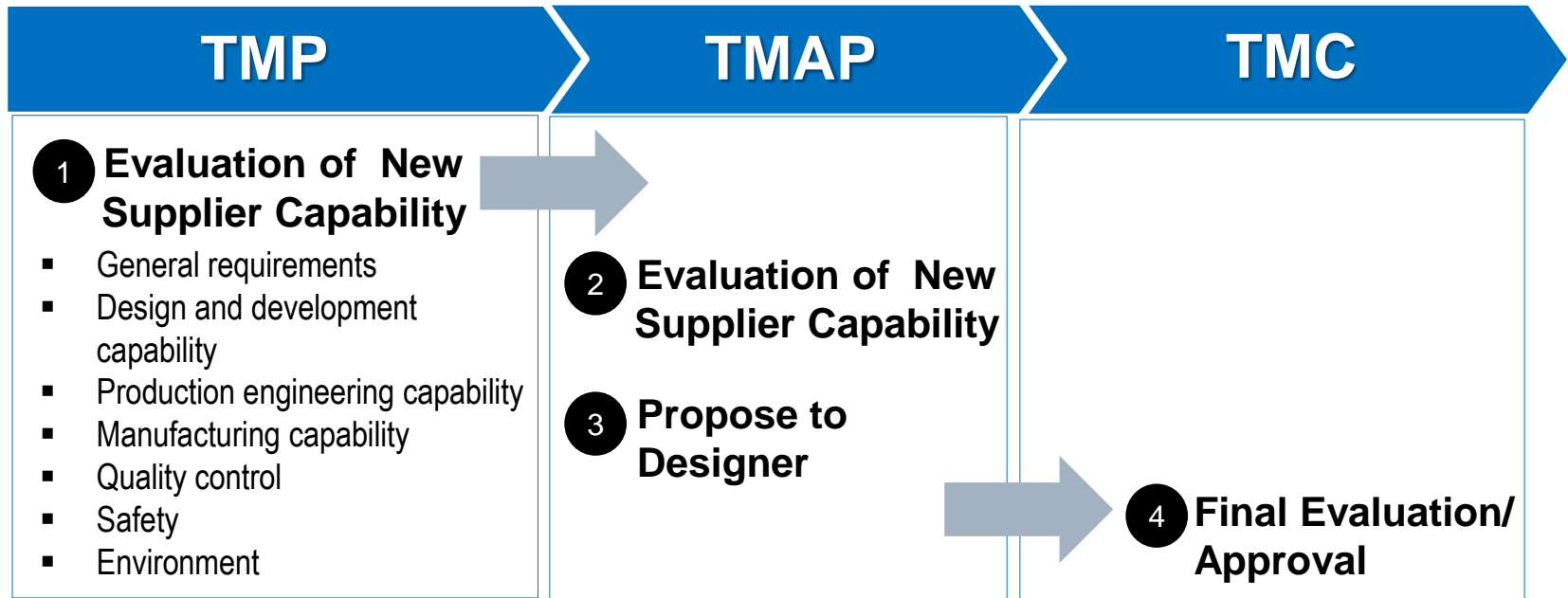
# 2) Becoming a Toyota Supplier

Purchasing at Toyota takes place in accordance with the following basic policies:

<b>1</b>	<b>Fair competition based on open-door policy</b>	Open to any and all suppliers <b>regardless of nationality, size, or whether they have done business with Toyota before</b>
<b>2</b>	<b>Mutual benefit based on mutual trust</b>	Long-term relationships based on <b>mutual trust</b> fostered by <b>close and wide-ranging communication with suppliers</b>
<b>3</b>	<b>Contributing to local economy through localization</b>	<b>Economic and industrial contribution</b> in regions with Toyota market presence <b>through purchasing</b> of parts, materials, tools, equipment and others <b>from local suppliers</b>

# 2) Becoming a Toyota Supplier

## Supplier technical evaluation process



- ✓ Suppliers are chosen on the basis of business considerations.
- ✓ Toyota evaluates the overall strengths of prospective suppliers.



# 2) Becoming a Toyota Supplier

## Toyota's expectations from suppliers in the provision of products and services

### Safety

**Safe environment** for people to carry out manufacturing without worry

### Quality

**Consistent high quality** to maintain the excellent reputation of Toyota and enjoy the trust from customers

### Delivery and Production

**Flexible, error-free execution** in preparation for production and delivery in a timely manner

### Cost

**Most competitive cost** through innovative production technologies

### Technological Capability

**Grasp and address customer and social expectations in technologies** for environmental protection, safety and comfort

# 2) Becoming a Toyota Supplier

**Toyota's expectations from suppliers in the process of developing products and services**

## Legal Compliance

- Compliance with applicable laws and regulations
- Protection of intellectual property
- Implementation of anti-corruption measures

## Human Rights/ Labor

- Non-discrimination with regards to all aspects of employment
- Compliance with labor laws and regulations
- Provision of safe and healthy working environment

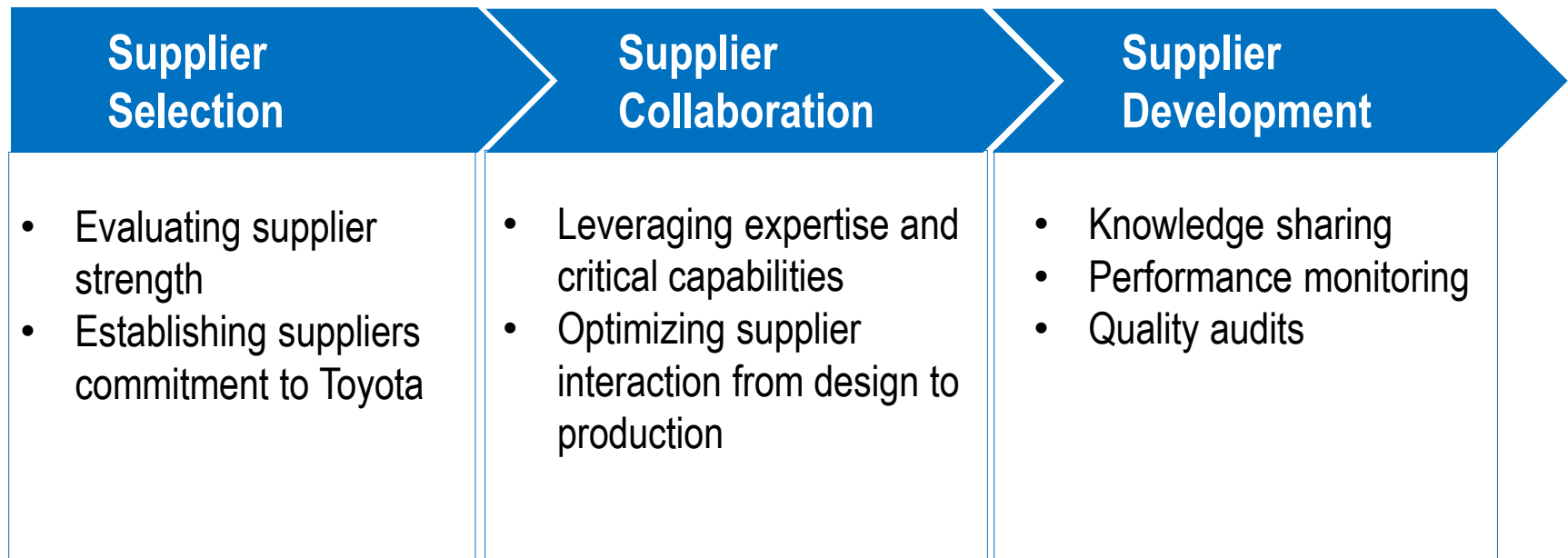
## Local/Global Community

- Promote environmental preservation activities and improve environmental performance
- Responsible material procurement
- Social contribution

Ref: Toyota Supplier CSR Guidelines (Dec 2012)

# 2) Becoming a Toyota Supplier

## Toyota's fundamental approach in supplier relations



# Presentation Outline

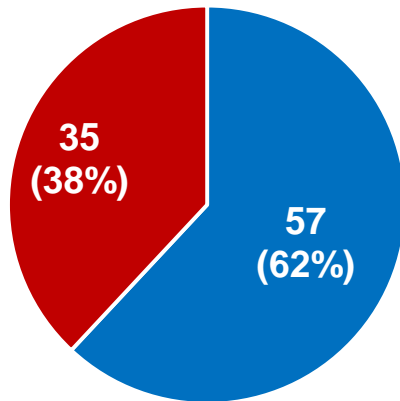
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# 3) Toyota Philippines Supply Chain

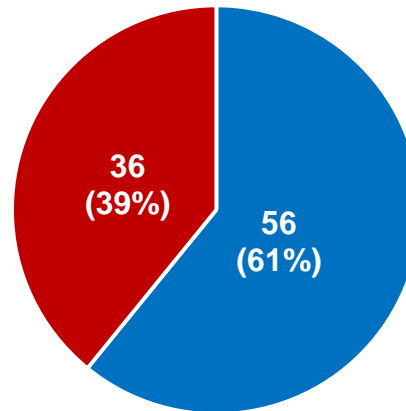
## Toyota Philippines Supplier Profile

<By Total Assets>



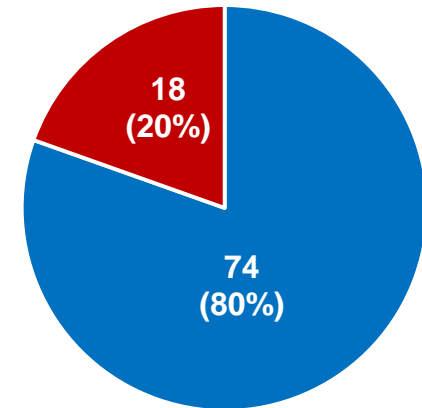
- SMEs (Up to Php 100M)
- Large (More than Php 100M)

<By Employment Size>



- SMEs (10~200 employees)
- Large (>200 Employees)

<By Market Orientation>



- Domestic (TMP)
- Export (Direct & Indirect)

- Approximately 60% of Toyota PH local supplier base are SMEs.
- Only 18 Toyota PH local suppliers are exporting; 2 of which are SMEs.

Note: Indirect exporters cover only suppliers exporting thru TMP

# 3) Toyota Philippines Supply Chain

**TMP shares its successful strategies with suppliers through the Toyota Suppliers Club (TSC).**



**Toyota Suppliers Club**

- Established in 2000 with 50 member-companies
- In 2015, 92 members with 34,500 employees
- Investment: Php 1 Billion [13 export suppliers]
- Export sales of US\$820 Million in 2015 [14 export suppliers]

## <TSC Activities>

Improving efficiency and productivity throughout the local Toyota value stream:

- Toyota production System (TPS) activities
- Kaizen and QC Tools seminars
- Cost and Quality seminars
- Safety seminars
- Learning sessions on human resource development and industrial relations

# 3) Toyota Philippines Supply Chain

## Effects of knowledge-sharing at Toyota: Creating joint value



### <TPS Examples: Plastic Injection Parts>

1

### Kaizen Sheet

INJECTION MOLDING

Process : **Injected parts stock**  
 Kaizen Theme : **Reduction of stock lead time**



Before	After
<div style="border: 2px solid blue; padding: 5px;"> <p style="background-color: yellow; border-radius: 15px; padding: 5px; display: inline-block;">Model A – 900 sets Model B – 1000 sets</p> </div>  <p style="background-color: yellow; border: 1px solid black; padding: 2px; display: inline-block; margin-top: 5px;">3 layers</p>	<div style="border: 2px solid blue; padding: 5px;"> <p style="background-color: yellow; padding: 5px;">1. Use K/B and Pattern Post with Quantity of 560 pcs. / run. 2. Set Min/Max with 2 days safety stocks.</p> </div>  <p style="background-color: yellow; border: 1px solid black; padding: 2px; display: inline-block; margin-top: 5px;">2 layers</p>
<p><b>Problem :</b> Too high inventory.</p>	<p><b>Kaizen :</b> Reduction of inventory through Kanban implementation.</p>
<p><b>Result:</b> Stock leadtime reduced from <b>15 days to 6 days</b>                  Bumper stacking height reduced from 3 layers to 2 layers.</p>	

2

### Kaizen Sheet

FINISHING

Process : **Trimming, flaming, and washing**  
 Kaizen Theme: **increased in Operational Availability**

Before	After
 <p style="background-color: yellow; border: 1px solid black; padding: 2px; display: inline-block; margin-top: 5px;">WORK IN PROCESS = 15 pieces 1125 seconds</p>	 <p style="background-color: yellow; border: 1px solid black; padding: 2px; display: inline-block; margin-top: 5px;">WORK IN PROCESS = 9 pieces 675 seconds</p>
<p><b>Problem :</b> Part rejection due to scratches that needs reworking</p> <p style="background-color: yellow; border: 1px solid black; padding: 2px; font-size: 8px; margin-top: 5px;">WIP table accomodate four (4) pieces of process bumper 'which collides with each other</p>	<p><b>Kaizen :</b> Provide smaller wip table to accommodate single piece of bumper</p>
<p><b>Result:</b> Reworked process was eliminated, increased by 0.7 Operational Availability and process lead-time reduced by 450 sec.</p>	

# 3) Toyota Philippines Supply Chain

## Effects of knowledge-sharing at Toyota: Creating joint value

### <TPS Examples: Press Parts>

1

#### SHIPPING

Kaizen Theme: LEAD TIME REDUCTION

BEFORE



LONG SHIPPING LEAD TIME DUE TO NO PROPER LOCATION AND NO STANDARD TRANSFER OF PARTS TO PANORAMA.

MERIT: REDUCE SHIPPING LEAD TIME BY 50% ( From 0.2 to 0.1 Day ).

AFTER



IMPLEMENTATION OF STAGING CONTROL BOARD AND STANDARD LOCATION OF PARTS

2

#### PRODUCTION ( MODEL LINE )

Kaizen Theme: PRODUCTIVITY IMPROVEMENT

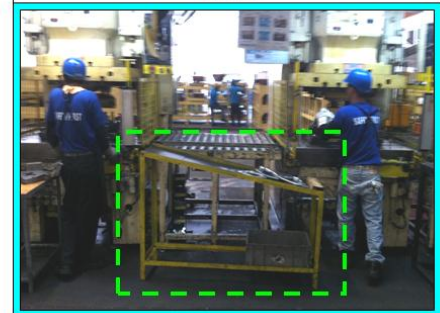
BEFORE



LONG CYCLE TIME DUE TO BATCH PRODUCTION ( Transfer of Parts )

MERIT: REDUCE CYCLE TIME ( From 11 to 8.8 sec/pc ) per Process. INCREASE PRODUCTIVITY BY 13.4%. ( From 359 to 407 GSPH )

AFTER






PROVISION OF SLIDE CHUTTER ( Continuous flow of Parts )

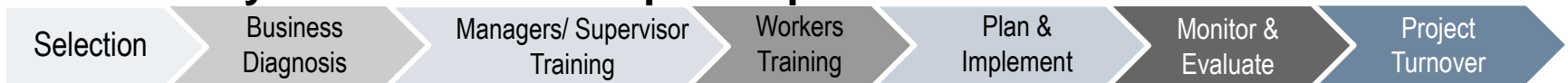


# 3) Toyota Philippines Supply Chain

Enhancing the value chain of parts makers through collaborative partnership with Government

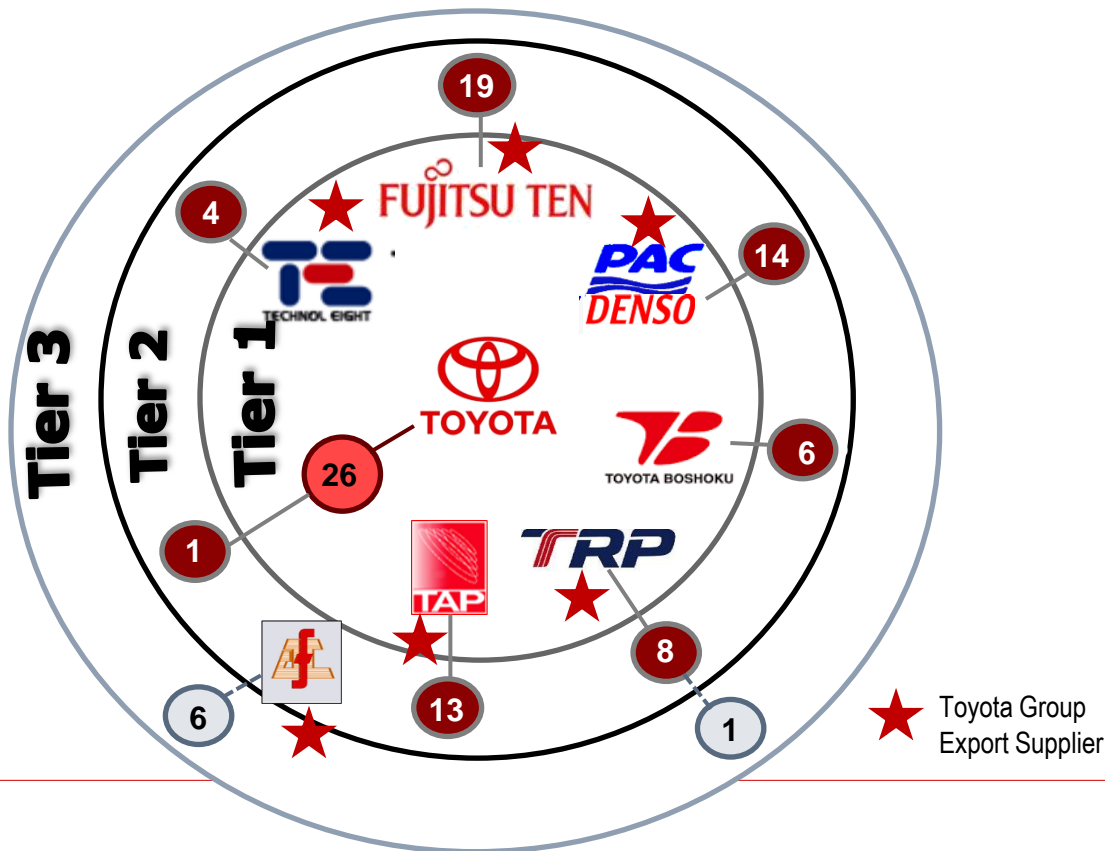
PARTNERS	FOCUS IMPROVEMENTS	KEY RESULT AREAS
 ECOP/Institute for Productivity and Competitiveness  DTI/Center for Industrial Competitiveness  DOST/Technology Applications Promotion Institute	<ul style="list-style-type: none"> <li>▪ Operations Management             <ul style="list-style-type: none"> <li>• 5S or Good Housekeeping</li> <li>• Production Process Flow</li> <li>• Plant Layout</li> </ul> </li> <li>▪ Human Resource Development</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce cost of doing business</li> <li>▪ Improve quality</li> <li>▪ Support Customer-Supplier relationship</li> <li>▪ Enhance Employer-Employee relationship</li> <li>▪ Increase flexibility</li> <li>▪ Punctual delivery</li> </ul>

## <EBESE-Toyota Cluster development process>



# 3) Toyota Philippines Supply Chain

From 2005~2013, total of 98 suppliers have benefited from the EBESSE-Toyota Cluster Development Program.



## 98 Suppliers

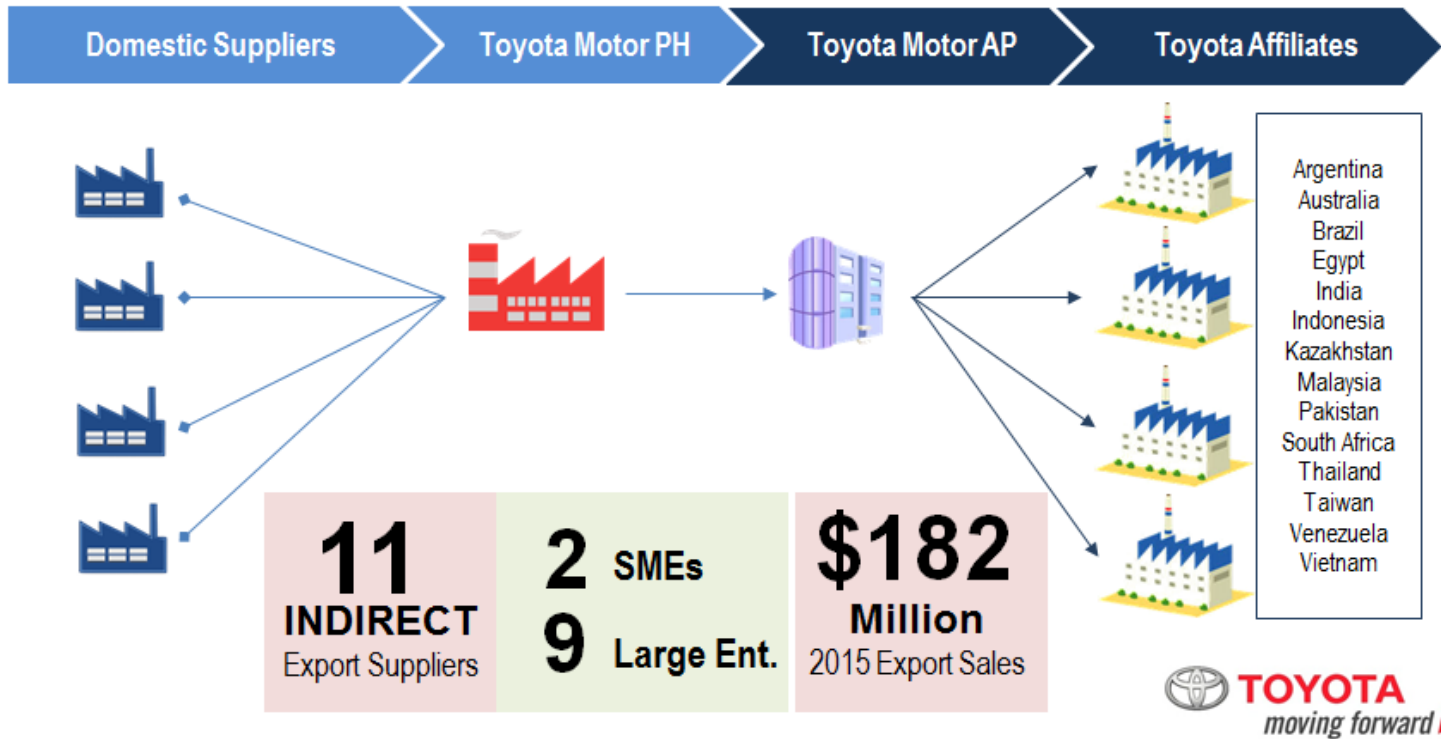
Tier 1	26 (27%)
Tier 2	65 (66%)
Tier 3	7 ( 7%)

### <Program Benefits>

Significant impact on quality, productivity improvement, efficiency, cost competitiveness and waste reduction

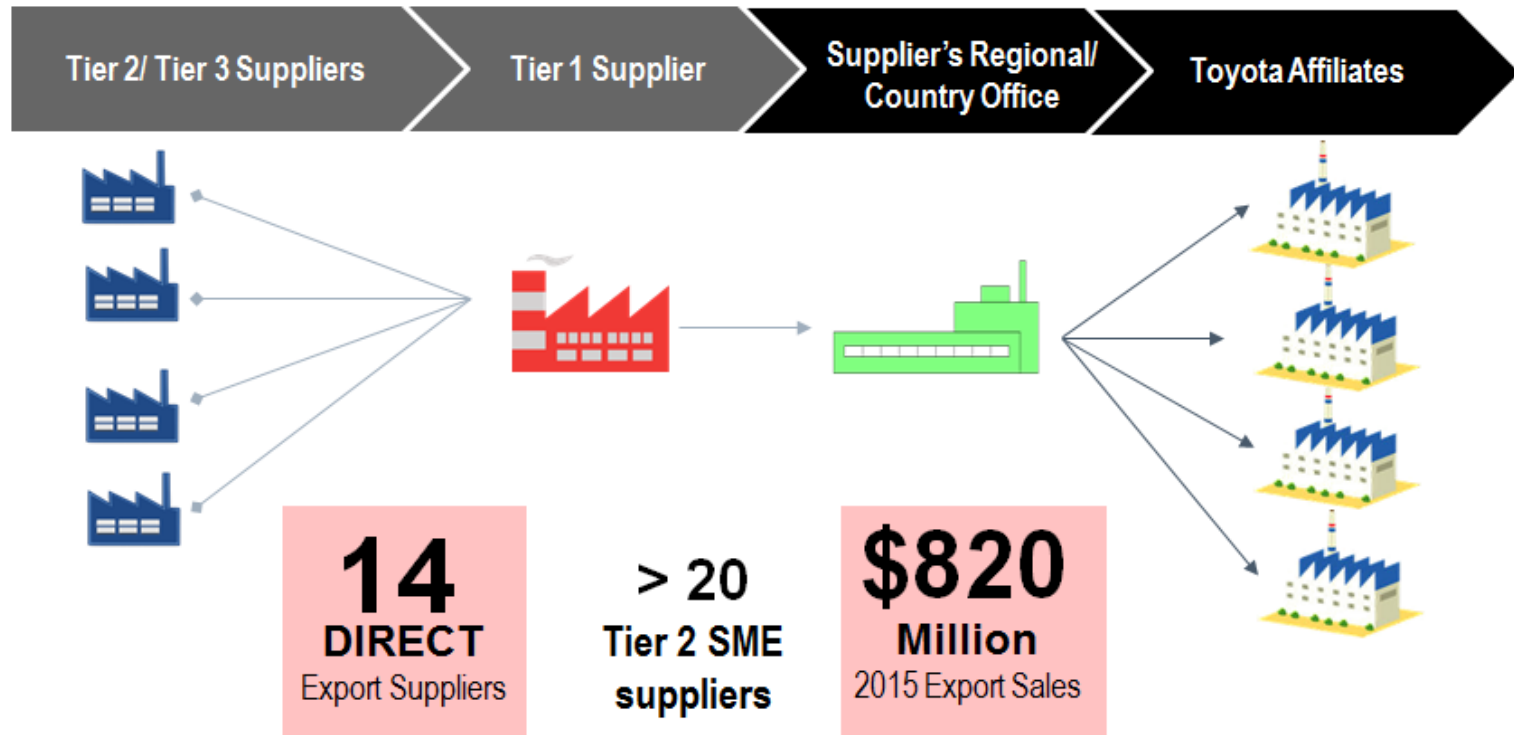
# 3) Toyota Philippines Supply Chain

Advantages of being a Toyota Supplier: Global/ regional integration through the Toyota complementation scheme



# 3) Toyota Philippines Supply Chain

Advantages of being a Toyota Supplier: Integration by indirect exports through Toyota Tier 1 Export Manufacturers



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# 4) Key Factors for Toyota Suppliers

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**Suppliers must identify themselves as part of an interdependent economic network.**

- ✓ Cooperate with OEM initiatives to improve supplier performance
- ✓ Putting value in Toyota-Supplier relations

**Supply chain management is about utilizing the competitive advantage of global/ regional sourcing**

- ✓ Ability to cope with OEM requirements in terms of productivity, quality, engineering, cost efficiency and delivery

**Increasing globalization and regionalization are redesigning production and supply networks**

- ✓ Ability to cope with supply chain transformation
- ✓ Understand the continuous need to upgrade competencies

# 4) Key Factors for PH Suppliers

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## Common factors affecting PH SME parts makers competitiveness

- Lack of design capability
- Lack of research and development
- Lack of testing facilities
- No available local raw materials

## Some considerations for suppliers/ policymakers

- **Develop research & development, design and testing capability of SMEs**
  - Pre-requisites to becoming direct OEM supplier or Tier 1 supplier.
- **Suppliers should exploit technology and innovation to gain competitive advantage.**
  - When technological capacity is low and resources are limited for in-house R&D, firms should use other channels to acquire technology (e.g. Joint Venture, Technical Agreements)
- **Establishment of shared service facilities (including testing facilities) for auto parts**

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