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Remanufacturing Activities in Malaysia and an ASEAN Economic Framework for Its Growth

Submitted by: Universiti Teknologi Malaysia (UTM)



**Workshop on Perspectives on
Remanufacturing
Surabaya, Indonesia
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RE-MANUFACTURING ACTIVITIES IN MALAYSIA & AN ASEAN ECONOMIC FRAMEWORK FOR ITS GROWTH

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To define and identify the remanufacturing activities in Malaysia.

To identify and classify remanufacturing products in Malaysia by sector or sub-sectors of manufacturing industry

Barriers to growth of remanufacturing in Malaysia

A proposal for an Asean-wide framework for encouraging remanufacturing



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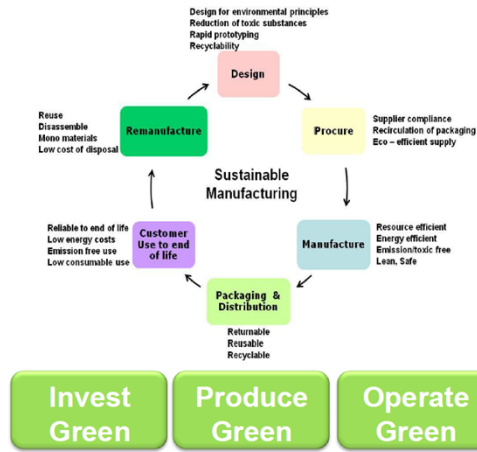
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Future Manufacturing



- Green
- Sustainable
- Environmentally responsible
- Environmentally conscious
- Environmentally benign
- Clean



(Frost & Sullivan 2012)

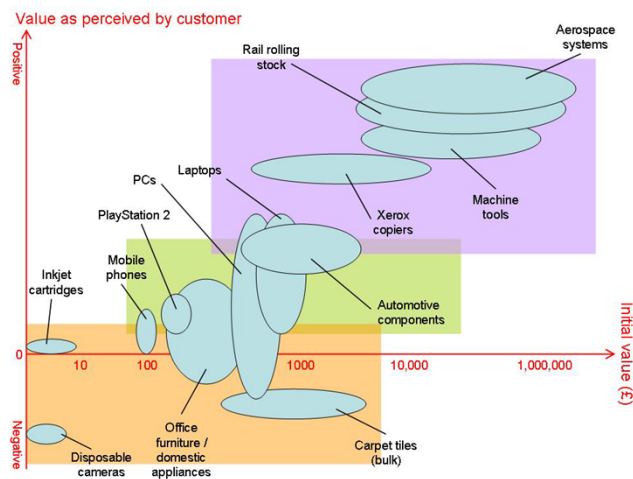


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Manufactured Products



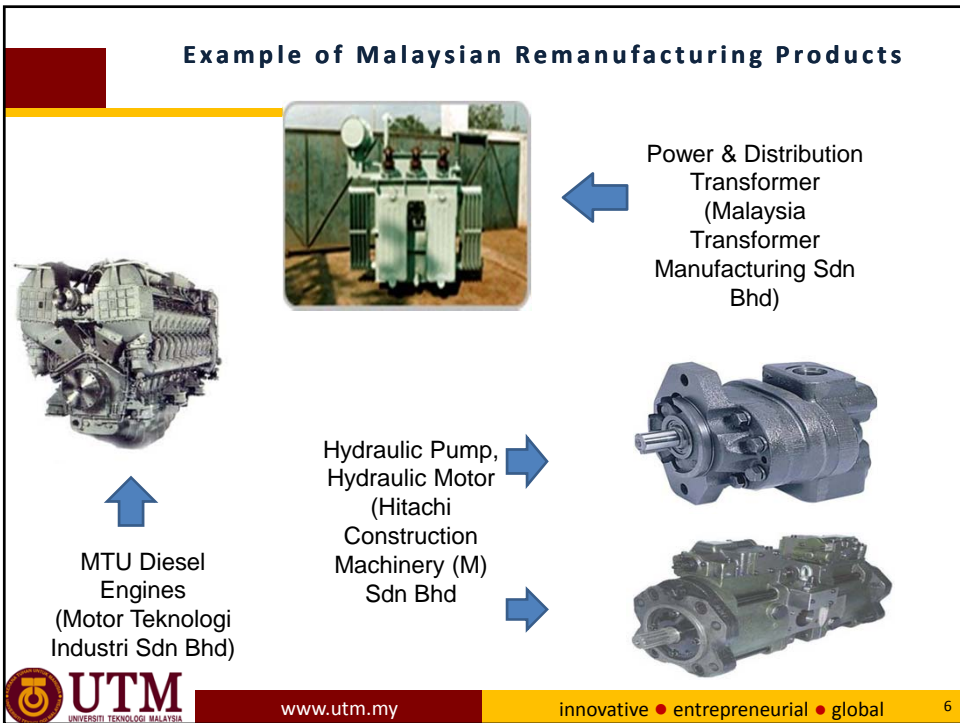
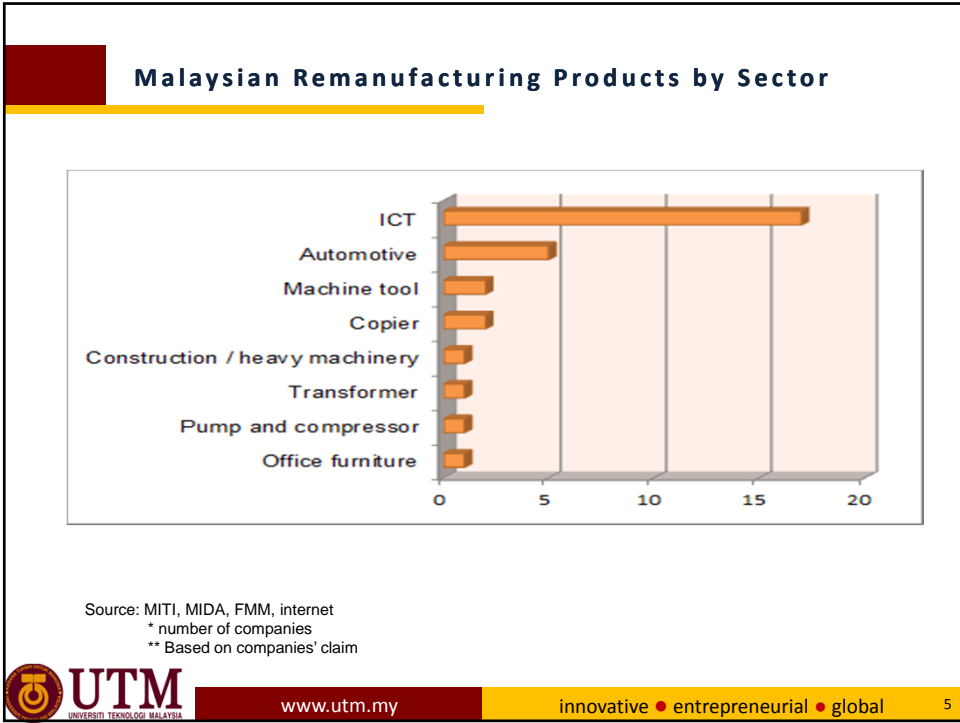
Source: Whitehouse, 2012



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Remanufacturing: Parts, Components, Whole Products


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Profile of Selected Remanufacturing: Product & Process

Name of Company and Reman Product	Business Model	Processes	Product Criteria	Market	Remark
Company: Motor Teknologi Industri Sdn Bhd Product: Highway and off highway diesel engines	Third Party Reman & Refurbishment (Army & Police trucks, cylinder head, crank shaft, cam shaft and crank case) Paid up capital RM7 million Revenue: RM9 million (2009) RM4.8 million (2010) Staff strength: 50	-Inspection -Disassembly -Cleaning -Repair/ replace of cores -Repainting -Testing	-Performance: as good as new product -Price: 40% cheaper than brand new -Expected life span: same as new Warranty: 1 year	Domestic & International	**Fulfill remanufacturing product criteria **Reman centre for regional Motor and Turbine Union (MTU) Diesel Engine


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Source: Interview

Profile of Selected Remanufacturing: Product & Process

Name of Company and Reman Product	Business Model	Processes	Product Criteria	Market	Remark
Company: Malaysia Transformer Manufacturing SdnBhd Product: Power and Distribution Transformer	Mixed (80% OEM & 20% Reman) Paid up capital RM40 million, authorized capital is RM100 million Revenue: RM190 million (2010) RM222million (2011) Staff strength of 337 people	-Inspection -Disassembly -Cleaning/Drying -Repair/ replace of cores -Repainting -Testing ** also do upgrading based on current technology (if needed) -generally labour intensive	-Performance: as good as new product -Price: 60% cheaper than brand new -Expected life span: 15-25 years as compare to 25 years for brand new product -Warranty : 18 months (same as brand new)	-Domestic: mainly for TNB -International: Europe, China, Korea, India. -based on order/bidding (not a mass production)	-cannot repair the casing of others brand due to IPR issue except their own brand **Fulfill remanufacturing product criteria



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Source: Interview
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Profile of Selected Remanufacturing: Product & Process

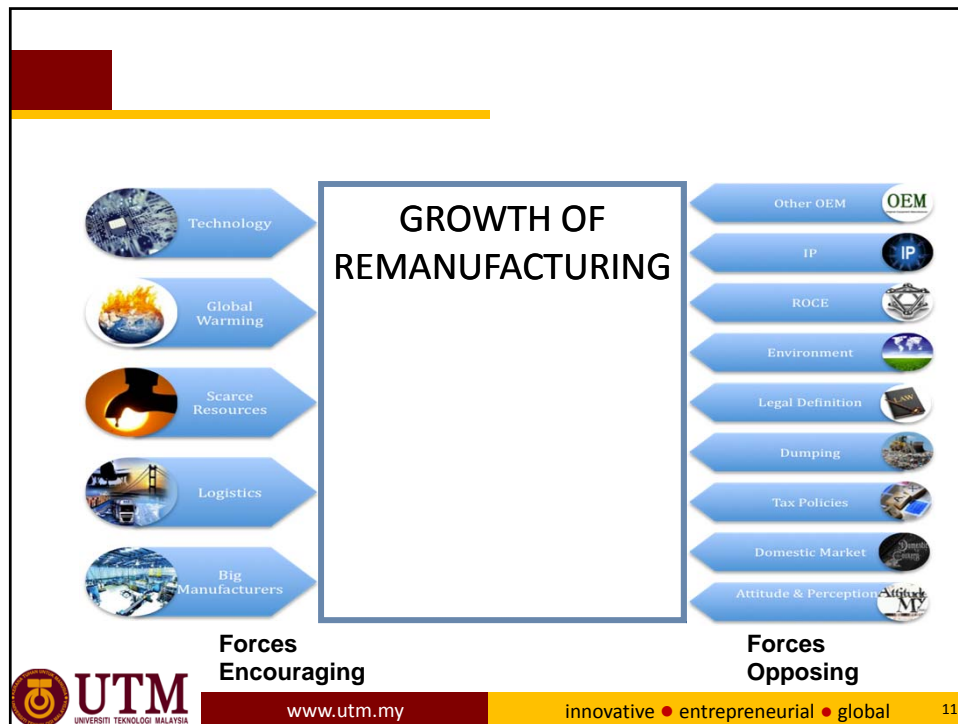
Name of Company and Reman Product	Business Model	Processes	Product Criteria	Market	Remark
Company: Hitachi Construction Machinery (M) Sdn Bhd. Product: Hydraulic pumps and motors	OEM Remanufacturing company paid up capital s RM26 million Revenue: RM243 million (2010) RM255 million (2011) Staff: 207 all over Malaysia and Singapore	-Inspection -Disassembly -Cleaning -Replacement of cores -Reassembly -Testing	-Performance: as good as new product (same as OEM specification) -Price: 40-60% cheaper than brand new -Life span: Same as brand new -Warranty: Same as brand new	Domestic & International (Europe)	Stiff competition with other OEM brand such as Komatsu (Japan), Caterpillar (US), Soosan (Korea) and Li Gong (China) **Fulfill remanufacturing product criteria ** Implement credit note for the core exchange



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Source: Interview
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Summary of state of Reman in Malaysia

- Reman is a slow growth industry in Malaysia
- Reman Eco-system is fragile
- Low economies of scale
- Government role to stimulate Reman is crucial

Stepping up to a bigger picture




ASEAN as a Centre of Growth and Production Hub

Table1: World's GDP Growth by Region (Chareonwongsak 2012)

Country Group	2007	2008	2009	2010	2011	2012*	2013*	2014*	2015*	2016*	2017*
World	5.4	2.8	-0.6	5.3	3.9	3.5	4.1	4.4	4.5	4.6	4.7
Major advanced economies (G7)	2.2	-0.4	-4	3	1.4	1.5	1.9	2.3	2.5	2.6	2.5
European Union	3.4	0.5	-4.2	2	1.6	0	1.3	1.9	2	2.1	2.1
Developing Asia	11.4	7.8	7.1	9.7	7.8	7.3	7.9	7.9	7.9	7.9	7.9
ASEAN-5	6.3	4.8	1.7	7	4.5	5.4	6.2	5.9	6	6	6.1
Latin America and the Caribbean	5.8	4.2	-1.6	6.2	4.5	3.7	4.1	4.1	4	4	4
Middle East and North Africa	5.6	4.7	2.7	4.9	3.5	4.2	3.7	3.9	4.2	4.4	4.4
Sub-Saharan Africa	7.1	5.6	2.8	5.3	5.1	5.4	5.3	5.5	5.6	5.5	5.5

Source: World Economic Outlook Database (IMF), April 2012.

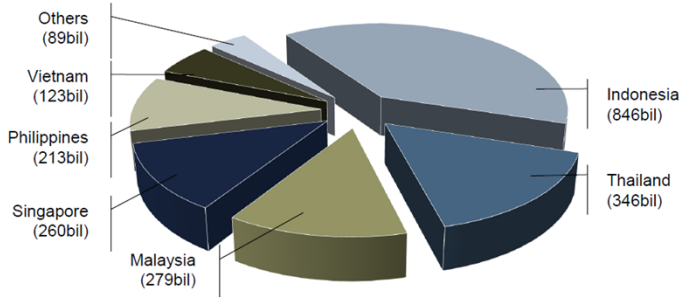


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ASEAN: a 2 trillion economy



Gross Domestic Products of SEA Economies, 2011 (in US\$)

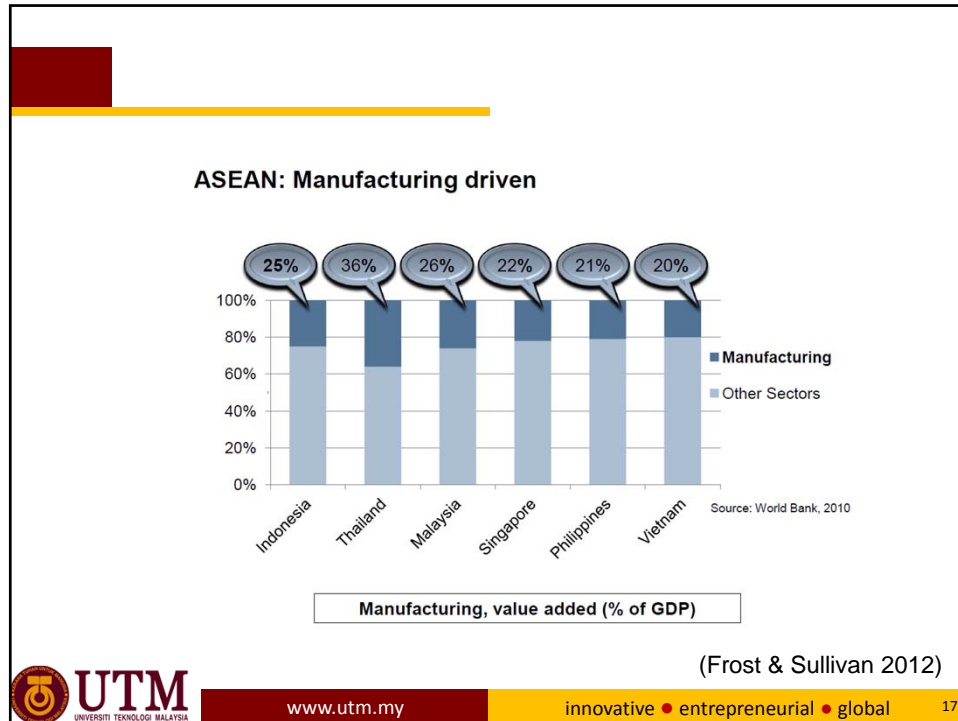
(Frost & Sullivan 2012)



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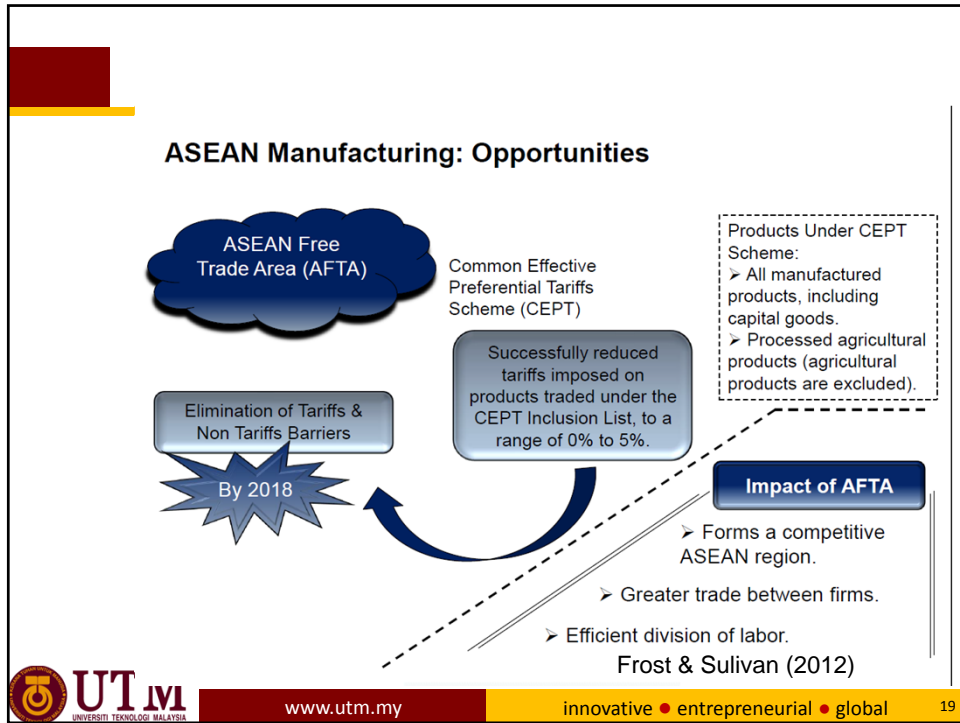


ASEAN economies potential

- **Indonesia.** 16th-largest economy in the world, [McKinsey's analysis](#) shows it has the potential to be the seventh biggest by 2030. Indonesia's manufacturing sector is experiencing the most growth in FDI
- **The Philippines.** The Philippines has a large labor supply and domestic market big enough to sustain robust domestic demand. Remanufacturing is established there
- **Vietnam.** Vietnam has the advantage of lowest wages in Asean & large labor supply. Vietnam is able to benefit from proximity to China.
- **Thailand.** An established manufacturing hub for Japanese investors & country's population skill levels are high.
- **Malaysia.** Malaysia has a skillfull and highly educated workforce. Looking into higher value added products (Economic Transformation Programme).
- **Singapore.** Regional logistic hub, strong R&D base and stable govt are the main attractions.

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Examples of ASEAN Companies involved in remanufacturing

COUNTRY	COMPANIES/CENTRES
Singapore	<ol style="list-style-type: none"> Advanced Remanufacturing & Technology Centre (ARTC)- Boeing, Rolls Royce, Siemens, ABB, Carl Zeiss, FUCHS Lubricants Caterpillar Inc- Highway Trucks, Mining equipment, engines, engines, transmissions
Philippines	<ol style="list-style-type: none"> Sobida Motor Corporations- light, medium and heavy commercial vehicles Ptec – remanufactured Alternators & Starters
Malaysia	<ol style="list-style-type: none"> Malaysia Transformer Industries- transformers MTI- Trucks, cylinder heads, Hitachi Construction Machinery Sdn Bhd – motors & pumps
Indonesia	<ol style="list-style-type: none"> PT Komatsu Remanufacturing Asia Kalimantan- Highway trucks SKF Bearings PT Sehat Abadi – Treadmill, Fitness equipment
Thailand	<ol style="list-style-type: none"> Ditto -printer cartridges, Johnson Controls – compressors and chillers
Vietnam	<ol style="list-style-type: none"> ZF Freidrichafen- Axles, Transmissions, Steering systems EPCO- Injection moulding, blow moulding and Die casting machines Sunbird Office Mard Co Ltd– laser toner remanufacturing

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Comments

- Remanufacturing is being carried out in almost every ASEAN economy
- Many industries are low end- toner cartridge recycling
- Others are high value-added.
- Lack of common purpose and policies on remanufacturing failing to take advantage of regional scale benefits of remanufacturing



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Remanufacturing Growth Spurs

1. Remove trade barriers for movement of used/remanufactured products across borders
2. Setting-up of core Collection centres on regional basis and improving supply chain logistics for cores
3. Introduce policies to encourage OEM and 3rd Party collaboration on remanufacturing in ASEAN economies
4. Establish system to verify and certify remanufactured products for user acceptance operations
5. Collaborative R&D amongst ASEAN universities and COEs to develop new technologies to enable environmentally friendly and cost competitive remanufacturing



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Conclusions

- Remanufacturing can be a growth industry in the ASEAN region due to its potential scale
- Common trade and tax policies need to be formulated to enhance and facilitate its growth
- Asean needs to be unified as one to achieve a bigger supply base especially for collection and management of cores

THANK YOU
ANY QUESTIONS?