Application of Computer Integrated Manufacturing (CIM) systems in automotive industry, Malaysian experience (case study in the car sector)

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Introduction

History of Malaysia’s automotive industry

Current status of motor vehicle industry

CIM applications in automotive industry (car sector)

Contributing factors to the development of the industry

Conclusions
INTRODUCTION

Automotive industry
The key and strategic industry for Malaysia

To boost the industrialization process

VISION 2020
LOCATION

PROTON-TG. MALIM

PERODUA-RAWANG

PROTON-SHAH ALAM
CURRENT STATUS

4 national passenger and commercial vehicle manufacturers

10 assemblers

500,000 units per annum

3 composite body sports car manufacturers

590 components manufacturers
To promote competitive and viable automotive sector, in particular national car manufacturers

To become a regional hub for manufacturing, assembly and distribution for automotive vehicles

To enhance value added and local capabilities in the automotive sector

To promote export-oriented Malaysian manufacturers as well as component and parts vendors

To promote competitive and broad-based Bumiputera participation in vehicle manufacturing, distribution and importation as well as in component and parts manufacturing
HISTORY OF MALAYSIA’S AUTOMOTIVE INDUSTRY

1963
Colombo plan expert encouraged the establishment of the automotive industry

1964
Government encouraged the assembly of automobiles and vehicle component manufacturing

1967
Volvo assembly by Sweedish Motor Assemblies, Mazda and Peugeot by Asia Automobile Industries and Nissan by Tan Chong

1980
15 assemblers assembled vehicles for European and Japanese

1985
First national car was launched - SAGA

1992
Perusahaan Otomobil Kedua Sdn. Bhd was established

90%
### INDUSTRIAL MASTER PLAN (IMP)
**1986 – 1995**

**Three broad objectives:**

- **Ensure rapid expansion of the economy through acceleration of manufacturing sector growth.**
- **Promote efficient and optimum utilization of natural resources through value-added manufacturing activities.**
- **Lay foundation for the development of indigenous technological capabilities.**

Proton spearheaded the Automotive Industrialization Process.

### INDUSTRIAL MASTER PLAN (IMP)
**1966 – 2005**

**Moving beyond manufacturing operations to include:**

- **Indigenous R&D and technology**
- **Design capabilities**
- **Integrated supporting industries**
- **International marketing**
- **Development of own brand**
- **World class, world sale**

“Manufacturing ++”

Proton currently leading in Automotive R&D and Engineering Design.
PROGRESS OF IMP 1 AND 2

INDUSTRIAL MASTER PLAN (IMP) 1986 - 1995

Manufacturing
- Jigs Manufacturing
- Dies Manufacturing
- Stamping Dies Maintenance
- Engine Component Machining
- Car Assembly Operations
- Engine Assembly

INDUSTRIAL MASTER PLAN 2 (IMP2) 1996 - 2005

Research and Development
- Global Research & Engineering Competency
- Virtual Product Design Manufacturing
- Prototype RPT
- Crash Labs
- Styling
- Modeling
- Test Track
- CAE
- Acquire Lotus
- Engine Cells

TECHNOLOGY CIM IN AUTOMOTIVE (PERODUA)
CONTRIBUTING FACTORS ON CIM APPLICATION

Lead-time improvement
- Improved lead time improved
- Planning delivery schedule
- Increased productivity
- Decrease in direct labour

Improvement in product development
- Customize products to customer needs
- Rapid product mix change
- Design change ability
- Less costs in product design
- Minimum time to market

Improvement in shop floor operation
- Reduce manufacturing lead time
- Machine set up time
- Scrap/ rework
- WIP & finished good inventory etc.
## SURVEY DATA

<table>
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<th>Subject</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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1. Unchanged
2. A little change
3. Some increase
4. Increased to a great extent
5. A very great increase