Design and Applied Technology
CASE STUDY

Transforming an industry from Original Equipment Manufacturing (OEM) to Original Design Manufacturing (ODM)
Students should be made aware of the relevance of the technology they are studying to the real world. Case studies on technology and design enable students to put their learning into an authentic context.

**Authentic Context:** Students could explore entrepreneurship and enterprise through a case study on the transformation of enterprises in Hong Kong.

**Topics Covered:**

<table>
<thead>
<tr>
<th>Compulsory Part</th>
<th>Strand 3 : Value and Impact</th>
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<tbody>
<tr>
<td>Elective Part</td>
<td>Module 3 : Design Implementation and Material Processing</td>
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Transforming an industry from Original Equipment Manufacture (OEM) to Original Design Manufacture (ODM)
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Introduction

Mainland China has been renowned worldwide as a World Factory in recent years. Most say that it is contributed to the Hong Kong Enterprises who work diligently and laboriously almost 24 hours per day behind the scene.

Since the 80’s, most Hong Kong factories had moved into Delta Pearl River (DPR) region of Mainland China because of lower cost of land, transportation and materials. As cost is reduced, the scale of Hong Kong manufacturers have gained a rapid expansion in term of factory floor area, production capacity, labors and facilities. However, after the successful application of Mainland China to World Trade Organization (WTO) membership, the immense domestic market of mainland China will be opened to international markets. This will certainly benefit those Hong Kong enterprises that had been rooted in DPR for over decades and planned to penetrate the local market there. However, many recent research findings stated that if Hong Kong enterprises keep on their role at the lower end of production chain that focus on the labor intensive, energy consuming mode of production at the low-end of China’s domestic market, the competitiveness of Hong Kong enterprises will diminish gradually in the coming future.

Now you are working in a consultancy firm, you have just assigned a task to study the following areas:

(1) Identify key successful factors for an Original Equipment Manufacturing (OEM) enterprise to develop into an Original Design Manufacturing (ODM) business model and
(2) Identify the barriers that an OEM enterprise must need to overcome before successfully developing into the ODM business nature.
The Story

The diagram below is the banner from a local manufacturer webpage.

**Figure 1  Advertisement of an OEM/ODM company**

Activity 1

According to the content in this advertisement to answer the following questions.

**1) Can you get some ideas of what OEM and ODM are?**
(2) What are the major differences of OEM and ODM?

What is OEM?

OEM is short form for Original Equipment Manufacturing. One company uses a component of another company within its product, or sells the product of another company under its own brand. OEM refers to the company that originally manufactured the product.

![Workflow of OEM Business Model](image-url)
What is ODM?

An **Original Design Manufacturer (ODM)** is a company which manufactures a product which ultimately will be branded by another firm for sale. Such companies allow the ODMs to produce the products without the need to engage in the management and the running of a factory. ODMs have shown a remarkable increase in size in recent years. Many of them have the capacity to handle production for multiple clients.

**ODM** is quite popular in international trade, where a local **ODM** is used to produce goods for a foreign company. This may be the cases where local ownership laws restrict or prohibit direct ownership of the factory by foreigners, but allow a local factory to produce products for a foreign company brand. The products will be produced for either local domestic market or export to the original foreign countries.

Hong Kong manufacturers, especially in Delta Pearl River, have achieved very good results in establishing OEM operations in past decades. However, competition from manufacturers of other Asian countries, such as Vietnam and Indonesia, has been rising. To sharpen our edge and stay ahead of other competitors, many Hong Kong manufacturers are in the high time to think of shifting an OEM operation to ODM and even the brand name production.
New Project Initiation
Overall Project discussion
Define detailed Product Specifications
Solicit Quotation

Research and Design
Design and development of
Prototype at R&D center
Sample full function test

Manufacturing
Batch manufacturing at factory
Production assembly

Quality Control and Assurance
Test by Quality Assurance LAB
Burn-in tests
Full function tests

Service and Support
Logistic services
After-sales support

Purchase Order

Figure 3 Workflow ODM Model
Nowadays, most students may have their own mobile phones. The popular brand names are NOKIA, Samsung and Sony Ericsson. However, do you know that the batteries used by each cell phones are usually not made by the mobile phone companies themselves? The manufacturing of batteries are so specialized that they need specific technology and production facilities, which involves a huge sum of capital investment. The mobile phone companies will only focus on their own product designs and market. They will not invest in production of batteries, as it will not directly affect their sales and not their specialty. Therefore, mobile phone companies will provide product specifications and outsource battery that is appropriate to their mobile phones from a dedicated or a pool of battery manufacturers. The mobile phone companies will require the battery manufacturer to print their trademarks onto the batteries and make them becomes part of their products for sales. The battery here is an OEM product. The factory produces the battery conforming to the client requirements is doing an OEM business.

In practices, the battery manufacturer can also be an ODM business. They can develop a new item and solicit the mobile phone companies to adopt their new battery products.
The battery manufacturer can be an Own Brand Manufacture if they sell their batteries directly to the market with their own trademark.

Figure 5 Common OEM products of Memory Cards

Beside mobile phone battery, memory cards are also OEM items commonly available in the market. The manufacturer produces all ranges of memory cards according to different user requirements, such as the memory capacity, reliability and packaging design. The memory cards will be printed with the brand names of different clients for sales. Once the products are shipped out, the role of the OEM will be completed.
Activity 2

The diagram below is the statistic results made by the Hong Kong Productivity Council in 2007 about the nature of business in Hong Kong manufacturer.

![Distribution of Hong Kong Manufactures Business Models](image)

**Figure 6** Distribution of Hong Kong Manufactures Business Models

(1) Can you give any daily examples of OEM and ODM products?

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(2) *What is “Own Brand” manufacturer? Can you suggest one example for illustration?*

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(3) *What conclusions can you make from the data in the diagram?*

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Activity 3

The diagram below is a survey result about the reasons for transforming an OEM to ODM business.

**Figure 5 Reasons of adopting ODM Business Model**

1. Why ODM can be more proactive in selling?
2. Why ODM can have higher profit margins?

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3. Why ODM will have less competition compared with OEM?

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4. Why ODM can have more potential customers worldwide?

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5. Why ODM can have higher sale volume than OEM?

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6. Why ODM can entry into new market?

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Factors to be considered from OEM to ODM

Product positioning, promotion, marketing channel and strategy are the most important factors for the transformation of an OEM to ODM. However, to most industrial entrepreneurs, all these factors are usually not their strengths and scope of business. Therefore, they are really in need of external advices and consultancy when they start to think of developing their ODM business.

Undoubtedly, OEM companies usually have leading production and engineering capabilities. However, when considering transformation of OEM to ODM, they have to enhance their marketing and product strategies. Developing these marketing and product strategies can be a very complicated matter to most OEM manufacturers, as they usually do not have experience and sense of fashionable trends.

In the past, they only focus on technical and engineering aspects of how to produce a product according to the clients’ specifications. Their major concern is to keep the cost to minimum whilst the quality of products can be met. The product can either sell or not in the foreign or local market is totally not their concern. However, if the company is changed to an ODM, they will need to take care of the following operation:

1. Business Planning (e.g. marketing strategy, product portfolio, technology roadmap, design trends, ‘make or buy’ decisions and Human Resources planning);
2. Sales Planning (e.g. market identification, which products? when to market? Sales targets, product features, product planning, quality
and design);

3. Product Planning (e.g. product features, pricing, decide to go to ODM or OEM);

4. Design and prepare Product Launch Program

The future development of ODM is told to be so promising and deterministic but why many companies are still hesitating in developing into this business model? There are some barriers hindering the OEM companies at this moment. For most OEM manufacturers, “Don’t know the market needs” was the major barrier for OEM to become ODM. In addition, “Cannot afford high design investment costs” and “High market risk” also make the transformation hindered. OEM producers are used to make contact with only a few major overseas customers. They do not have marketing and sales network to sell their own products or concepts if they have transformed to ODM.

For the preparation of final presentation, students are expected to conduct a SWOT (Strength, Weakness, Opportunity and Treat) analysis for both the OEM and ODM.
Activity 4 SWOT analysis (OEM)

Task:
Conduct a primary study for the Strength, Weakness, Opportunity and Threat analysis of OEM business model.

Strength of OEM

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Weakness of OEM

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____________________________________________________________________
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Opportunity of OEM

Threat of OEM
Activity 5 SWOT analysis (ODM)

Task:
conduct a primary study for the Strength, Weakness, Opportunity and Threat analysis of ODM business model.

Strength of ODM

Weakness of ODM
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Opportunity of ODM

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Threat of ODM

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Activity 6  Group Discussion and Presentation

Task:
Discuss and prepare a group presentation about

(1) Key success factors for OEM to become ODM; and

(2) Barriers for OEM to be overcome to become ODM.

Guidelines:

Introduction
State the background of Hong Kong industry in this decade and the business model of most Hong Kong manufacturers.

What are the threats of OEM? And Why?
What happens to the existing OEM enterprises? List their challenges they are facing with.

What are the advantages of ODM?
List the advantages of ODM and give one or more successful examples for elaboration.

How to become an ODM enterprise?
List the factors to be considered when transforming into an ODM industry.
We encourage collaborative learning throughout this case study; therefore peer assessment and evaluation on their learning were suggested. It is recommended that you take a minute to evaluate and reflect on your own leaning after each lesson. A simple checklist rubric is provided. You will also take responsibility to assess the performance of other groups during the final presentation with the scored rubrics.

**Self / Peer assessment (checklist)**

This assessment rubric can be used to keep your learning progress and schedule. Put “Yes” or “No” after each lesson. Teacher can easily check whether you can meet the lesson objectives.

<table>
<thead>
<tr>
<th><strong>Student Name:</strong> ___________________</th>
<th><strong>Team:</strong> ___________________</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus of Assessment: Teamwork</strong></td>
<td><strong>Date:</strong> <strong>/</strong>/_________</td>
</tr>
<tr>
<td><strong>Criteria</strong></td>
<td><strong>Self</strong></td>
</tr>
<tr>
<td>1. I understand the lesson objectives.</td>
<td>Yes / No</td>
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<tr>
<td>2. I work with team members cooperatively.</td>
<td>Yes / No</td>
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<tr>
<td>3. I give my views responsibly.</td>
<td>Yes / No</td>
</tr>
<tr>
<td>4. I respect and listen to other members’ ideas.</td>
<td>Yes / No</td>
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<tr>
<td>5. I can draw conclusion after this lesson.</td>
<td>Yes / No</td>
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<tr>
<td>6. I am satisfied with my learning today.</td>
<td>Yes / No</td>
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## Assessment rubrics (Presentation)

Students can use these rubrics for peer assessment of the final presentation. Teacher needs to explain and discuss these criteria with the students.

<table>
<thead>
<tr>
<th>Peer Assessment for Final presentation</th>
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<tbody>
<tr>
<td><strong>Team:</strong></td>
<td>Date:</td>
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<tr>
<td><strong>Assessors:</strong></td>
<td>Class:</td>
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<tr>
<td><strong>Focus</strong></td>
<td><strong>Scores</strong></td>
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<tr>
<td>Knowledge</td>
<td>1 1 2 3 4 5</td>
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<td>2 1 2 3 4 5</td>
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<td>4 1 2 3 4 5</td>
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<td>5 1 2 3 4 5</td>
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<td>Attitude</td>
<td>6 1 2 3 4 5</td>
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<td>9 1 2 3 4 5</td>
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<td>10 1 2 3 4 5</td>
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<tr>
<td>Presentation</td>
<td>11 1 2 3 4 5</td>
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<td>12 1 2 3 4 5</td>
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<td>13 1 2 3 4 5</td>
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<td>14 1 2 3 4 5</td>
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<td>15 1 2 3 4 5</td>
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</tbody>
</table>

**Total Scores**

* Performance descriptors: 1 is incomplete; 5 is fair; 7 is good; 8 is very good; 9 is outstanding
References

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