

## Research of Smartphone Industry Outsourcing Strategy

<sup>1</sup>Chien-Jung Huang, <sup>2</sup>Jui-Chin Jiang

<sup>1</sup>*Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan*  
(Doctoral Candidate)

<sup>2</sup>*Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan*  
(Associate Professor)

### ABSTRACT

Along with the change in the industrial environment and the rivalry among international marketing, many international enterprises have been numerous outsourcing for non-nucleus technology and non-competitive manufacturing needs in order to focus on its own nucleus competition, cost down and extend enterprises' flexibility in management. Therefore, Original Equipment Manufacturing (OEM) has been booming up. The aspect of this study is from the point of view in smart phone industry to analyze Taiwan's development and evolution of OEM pattern in the ways of analyzing its crossing competition pattern, comparing its differences and proposing transforming strategies for each pattern. This study finds out that in order to survive in the low profit of OEM industries, Taiwan's OEMs require to consolidate nucleus technology ability to ensure competition advantages, promoting engineering service to create additional values and enlarge its scales, and concentration on its original profession.

**Keywords:** outsourcing, smart phone industry, OEM model

### INTRODUCTION

#### Research Background and Motivation

Following the industry has been changed in the environment and the increasingly competitive international market, many enterprises in order to enhance their competitiveness, reduce costs and risks and raise the company's operating flexibly, outsourcing has become an important trend in enterprise organizations operate (Ehie; 2001.) A business or an organization can be more than one supplier of collaboration and use the expertise of suppliers to achieve their operational goals. At the same time, outsourcing is one of the most important management concepts and practices over the past century businesses can reduce costs, but also it can create or maintain competitive advantage (Kumar and Palvia; 2002, Arnold; 2000.) The main reason, that outsourcing demand had gathered, is enterprises in the fierce competitive environment, can be "flexible" and "speed" and other advantages. The Taiwanese companies are standing at manufacture quality advantages, process, flexibility and speed to become a partner of the world-renowned manufacturers 'OEM's. In recent years, this advantage has gradually been imitated by other competitors in the international arena and lost its opportunity, as long as it consolidates the status of the global foundry advantages and the challenges of global logistics management. However, Taiwan's electronics manufacturers have been OEM (Original Equipment Manufacture; OEM) and ODM (Original Design Manufacture; ODM) foundry business model based. Good quality, fast efficient production processes with a high degree of flexibility and other conditions are subjected to brand customers, and this is one of the main reason Taiwanese electronics manufacturers in the industry can come out on top of in the world. Due to price

*\*Address for correspondence:*

[cjken.huang@gmail.com](mailto:cjken.huang@gmail.com)

competition and cost control from the factory commissioned between peers, it often causes a gradual decline in gross margin. In addition to OEM manufacturers lacks the ability of bargain with suppliers and to assess management deficiencies, that occurs the material case shortages or the quality does not meet the requirements, thereby affecting the foundry production schedule and reputation of customers. However, OEM and ODM manufacturers because they are commissioned to manufacture by international companies who entrusted to an international reputation has a set of strict procedures for manufacturing processes, path planning and supply chain management master to acquire the major components (key parts) easier from suppliers and are able to control quality. Compared to its own brand manufacturers (Own Branding Manufacture; OBM), although there is enough autonomy in the product, but it needs to pay more than the foundry at the establishment of acquisition, supplier management and supply chain of materials, especially the desire for product innovation and the Smartphone industry of fast-changing, to establish supply chain management is a major challenge.

### **The Purpose**

The original equipment manufacturing is universal in manufacturing in Taiwan and it is one kind of operating model of contract manufacturing. The original equipment manufacturing business has few advantages for manufacturing brands. First, it is a short cut to enter market. Second, it expands the produce and economical scale. At least, it not only improves self-technology but also study international brands' operation management ability. Generally, the original equipment manufacturing brands and buyers keep possibly business transactions with many different objects at the same time. On the other hand, the original equipment manufacturing brands keep possibly competition relationship in material supply, which cause the situation of competition and cooperation between the original equipment manufacturing factories and brands. However, the smartphone industry emphasizes design, development, expanding in produce and economical scale, cost down for a long time in Taiwan. According to this condition, every original equipment-manufacturing factory exercises the strategy of low price to face the market competition. The advantage of low cost has been replaced by sunrise market gradually in recent years; and the brands vendors sacrifice the original equipment manufacturing factories in order to keep benefit. Therefore, the idea to upgrade the original equipment manufacturing industry is respected. Taiwan original equipment manufacturing factories must consider how to create the strategy and model of global operation management in order to integrate whole resource, which integrate scattered source in supply chain to increase the entirety of effect in order to earn the best benefit for each member in the system of produce and selling.

Moreover, the technology is the basic to seek for technology improvement and surmounting positively, which is the nucleus technology to strive for the outsourcing business “Hoecht and Trott ; 2006” Furthermore, it tries to change the original equipment-manufacturing model to accumulate and expand the experience in outsourcing professional service in order to build standard of high technology in the original equipment-manufacturing industry, which creates the most value added for clients and customers in order to make win-win situation for both the original equipment-manufacturing factories and brand vendors.” Jeremy et. al. ; 2008”.

The original equipment-manufacturing model has been changed gradually because brand enterprises reduce the original equipment-manufacturing benefit and the improvement with study in the original equipment-manufacturing nucleus technology in recent years. The model of OEM has been upgraded gradually to ODM, moreover it is changed to JDM which able work and design in coordination with clients. Taiwan original equipment-manufacturing enterprises enter this business from OEM which was easy to start the business; therefore, the original equipment-manufacturing benefit is reduced much in a short because too many competitions. In this situation, some original equipment-

manufacturing factories start the personnel training and develop related core technology in order to not only assist brand enterprises in production design and produce but also reduce the cost of design to increase the advantageous position. Therefore, the ODM model establishes the standard of technology to ensure the produce benefit for original equipment-manufacturing factories. However, there are the risks in high competition and the order cancel by brand enterprises, so JDM come into being the model. The original equipment-manufacturing factories not only assist brand enterprises to design and produce but also bring self- competitive materials and technology design into produce in order to create the win-win situation between original equipment-manufacturing factories and brand enterprises.

This study analyzes the characteristic of smartphone industry and develop trend to discuss the relationship, contribution and importance in the OEM, ODM and JDM. Moreover, this study will discuss more what technology capability and standard are needed in three models in OEM, ODM, and JDM. The purpose of the study is as below;

1. To generalize the development history and relationship in three outsourcing model in OEM, ODM and JDM. This study compares the advantage and disadvantage in these models in order to conclude the strategy for original equipment-manufacturing industry development and the reference of academic research.
2. To analyze the importance and effect of the outsourcing” original equipment manufacturing” model in smartphone industry is beneficial to brand enterprises and original equipment manufacturing factories. It creates win-win situation.
3. To provide important reference and information to consider the outsourcing strategy and management for smartphone brand enterprises. And to provide the main idea for brand enterprises to choose the outsourcing strategy.

## **REFERENCE**

### **The Analysis of Smartphone Industry**

Along with the getting well in the future development of smartphone industry, each vendor participate the smartphone production line positively and the rivalry among marketing. According to smartphone upgrade and change at all the time, the policy of design and development of smartphone, the marketing strategy, the decision of outsourcing will be the key to decide how enterprises enter the smartphone market. Therefore, the enterprises must analyze and estimate careful before make a strategic decision. However, the characteristic of the varied and short production life cycle of the smartphone forces smartphone brand enterprises to consider how make international competitiveness in their productions and execute well in whole supply chain, including outsourcing. Further, it increases the market share rate of production in competitive market. The layout of the outsourcing strategy of the brand enterprises affects all enterprises revenue and the integration of supply chain.

In general, brand enterprises consider that outsourcing is one part of supply chain. The purpose of supply chain is to combine upstream and downstream vendors to form a supply model of chain in order to develop the efficacy of integration” Simchi-Levi et al. ; 2001” However, each industry, even more each enterprise will develop different model of supply chain and outsourcing model when they are in different competitive environment and operation strategy. According to the study of “Gunaskavan et al.2004”, every supply chain is not quite the same. In addition, it will reflect its require of operation model and special performance by it’s the model of supply chain and execute method. In the industry of smartphone, it point at few characteristics as below;

1. The rate of elimination of technology is high, and the process to build is not simple.
2. The rate of competitiveness is high, and the variation of the value of raw materials is huge because the reaction of market is fast.
3. Specialty production model becomes a nucleus competitive capability.

Therefore, the performance management is much important in changeable smartphone industry. Outsourcing Vendors not only focus on self-technology capability, but also need to adjust appropriately in order to co-operate with brand enterprises. Brand enterprises manage and plan outsourcing vendors by meeting enterprises' strategy and the production characteristic, and match self-technology capability in order to create win-win situation.

### **The Essence of International Original Equipment Manufacturing**

Along with the close in the high economical growing time, industrial environment is changed. The industry limited source need to be used effectively, especially for smartphone industry within short production life cycle and the variation in industry environment. Outsourcing becomes an important index for enterprises. More and more enterprises deal with outsourcing in non- nucleus business; they reduce manpower and keep nucleus professional ability to create the highest operation achievements. According to the adviser, “Mckinsey”, enterprises can change game rule to catch the tempo and innovation by well outsourcing in order to rise the enterprises value in the age of knowledge and economical time. Enterprises also can increase the source-using, tempo and added competitive advantage by valuable actives to make outsourcing to stay out of traditional idea. It is a strategy to let outsourcing vendors have non-competitive works, and keep division of profession in mind in order to encourage outsourcing vendors to do their professional specialty.

Therefore outsourcing management needs to search the technology flexibility and interdependent relationship.” Nohd and Banwet ; 2009” Outsourcing not only need to control and manage the cost, and increase the capability of innovation, but also improve the quality of production design into the positive side. “Lars et al. ; 2009”

Now the industry of the original equipment manufacturing in Taiwan is the leader in the world that is the original equipment-manufacturing model in flexibility and innovation

#### **1. OEM (Original Equipment Manufacture)**

The preliminary idea of original equipment manufacturing model has brought up by brand enterprises, and then change to productive blueprint. Next, the manufacture try few trial-produce; if the quality of production is stable and marketing valuation has been done, finally, original equipment manufacturing start to produce. Generally, in produce system, the duty of the original equipment-manufacturing factory is to purchase raw materials by client's productive blueprint, build the production planning to produce, then ship to customer on time.

#### **2. ODM (Original Design Manufacture)**

The design idea of original equipment manufacturing model has brought up by brand enterprises, and then discusses the possibility of design with original equipment manufacturing factory. Therefore, the original equipment manufacturing factory start to design and build the production by discussed design idea and self- technology capability. The difference between ODM and OEM is, ODM execute and complete all produce activities from design to produce. In addition, ODM is stronger in the design capability and technology capability, moreover, ODM have more decision-making power to brand enterprises.

### 3. JDM (Joint Design Manufacture)

The original equipment-manufacturing factories not only co-operate with brand enterprises and main clients to design and develop nucleus produce, but also provide complete solutions and projects. In fact, the original equipment-manufacturing factories participate in the process of to design and develop produce with clients. After they complete the design together, the original equipment-manufacturing factories start to try few trial-produce and test, and then clients can modify produce function and structure by test result. The characteristic of JDM understands what clients need in order to advise clients’ materials selection and produce process from the start when client meditate.

### THE EVOLUTION OF ORIGINAL EQUIPMENT MANUFACTURING MODEL

The original equipment-manufacturing model is the basic of the development of Taiwan industry. However, along with the change in the imitating of the competitive countries and quick extend in similar operation model such as EMS and CEM; the original equipment manufacturing is changed between cooperation model and operation model. Brand enterprises rely on original equipment manufacturer factories more than before because of the capacity improvement of original equipment manufacturing factories. And original equipment manufacturing suffer the pressure from brand enterprises and competitive environment, and then OEM model in lower value added transfer to ODM model in higher value added; finally transfer to JDM model in more competitive ability by the integration in whole supply chain. Even so, the improvement of technology, production capacity and creativity is the only method to keep competitive in the competitive environment of the original equipment manufacturing industry. Especially in the competitive environment of smartphone industry, the original equipment manufacturing factories cannot grow up by strong production capacity under the pressure between the cost and profit if the original equipment manufacturing factories only keep OEM order. Therefore, original equipment manufacturing factories must emphasize self-capability in research and development to transfer to ODM model in order to participate in the production design and increase the production decision-making power, moreover transfer to JDM model. And then JDM model is not only able to join the brand enterprises’ nucleus production design and development, but also express the opinions about the materials selection and producing process. Further, it can expand the customer service and maintain service in order to increase the original equipment manufacturing factories’ value added and competitiveness.”Fig. 1”

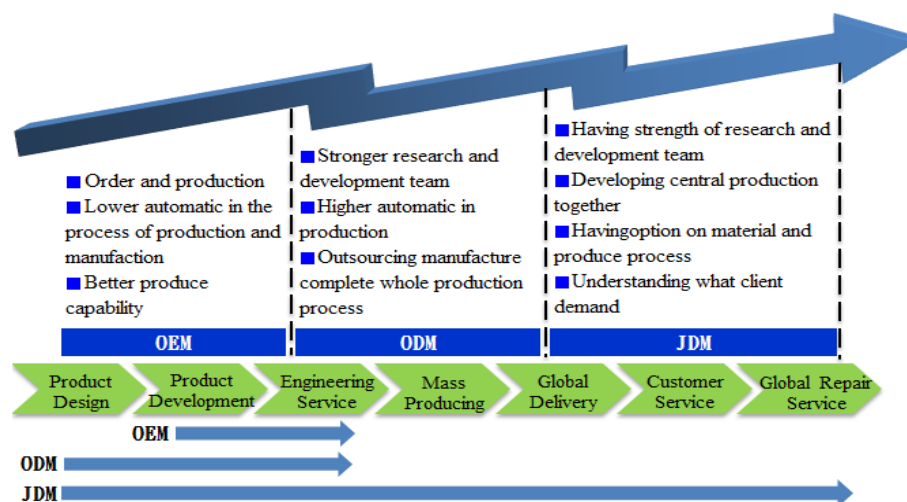


Figure1. The development of original equipment manufacturing model and producing model

By the original equipment-manufacturing model of ODM and OEM, the productive activities only achieve brands’ shipping goal; brands would execute by themselves or entrust professional service

vendors to enforce the last technology service at customer side. However, the capability of execution of original equipment manufacturing model usually depends on the level of original equipment-manufacturing factories’ technology capability. It is able to offer complete service for brand vendors and the customers who are at the last part in productive activities. The technology capability of original equipment manufacturing of JDM model is not only able to help to design and develop now production with brand vendors, but also find the solution method and avoid same problem again by self-technology capability in the short time. Furthermore, the original equipment manufacturing of JDM model has not only the competitive advantage but also the capability to integrate the ability of related good vendors that create more value added for brand vendors by self- nucleus technology capability in order to increase self- competitiveness in the industry. Therefore, helping brand vendors’ production to design, global shipping out and after-service all include in the service of JDM model that OEM and ODM models cannot compare.

### THE COMPARISON OF OEM, ODM AND JDM

OEMs and brands perhaps maintain their relationship with other enterprises at the same time, which become a situation between competition and cooperation. Customer marker guild original equipment manufacturing factories, which not only provide professional outsourcing service in advanced production technology with competitive structure of cost, but also have the ability of deliver on time and flexible. By this opportunity of Original Equipment Manufacturing with international brands, the original equipment manufacturing factories may train and improve self-lacking main capability. To a certain extent in the model in OEM and ODM which focus on the flexible and problem-solving ability. However, even though the position of production chain between OEM, ODM and JDM is not quite the same, technology in these three models is similar, and the situation to replace each other is normal. Therefore, how to improve self- technology ability, creativity and the technology level in OEM market will be a big challenge for all OEM factories. In a word, it will be the OEM standard, which OEM factories strive. According to the technology viewpoint, cost consideration, market distinction and the production ability, this study focus on the OEM model in present smartphone industry in order to analyze, compare and make a conclusion as below;

**Table2.** The comparison list of the modes of smartphone OEM industry

	OEM	ODM	JDM
location	Able to choose the location with low cost in labor and near market because of low benefit	The location is flexible to choose and low cost in labor is better option.	Able to choose the location where is convenient in conveyance because of global shipment and technology service
The original equipment manufacturing marketing segmentation	Lower standard to enter; the level of market segmentation is not obvious.	Some materials are controlled; the level of market segmentation increase because of the technology support.	Higher standard to enter; the level of market segmentation is obvious because of multicultural technology triangulation
The standard of technology	Lower standard to enter because of simple produce	Need to invest in more technology and manpower in order to maintain the capability to exploit	to design in coordination with clients and increase design standard by self-material patent
The extent of triangulation	Produce mainly; short of multicultural triangulation capability	Lower triangulation level; need to integrate internal technology and produce process capability	Higher multicultural triangulation level in marketing information and technology capability
Cost and benefit	OEMs gain lower benefit because brands reduce	It is not easy to control the cost and benefit	It is able to control the cost and benefit because much

	the cost.	because not much choice in material	choice in material and produce.
The extent of participation and produce design	low	high	high
The extent of investment and produce process technology	low	high	medium
The extent of support and technology service	low	medium	high
production segmentation	Low-level mobile phone	Medium and high level mobile phone	High level mobile phone
Operation model	produce	Design, development and produce	Design, development, produce and technology service

Base on the comparison list as above, in the OEM model, it takes charge of mass production and management in production life cycle, which emphasizes the business type in produce efficiency. Usually there is no production creation and the technology ability of customer service in OEM model. Especially it will be the operation type of low profit if brands reduce the cost. The OEM under the chain of the original equipment manufacturing is easy to be replaced. Therefore, OEM needs to think over how to improve self- technology capacity, and consolidate nucleus competitive technology to increase the operation ability to reduce the cost in order to win from high completion in low profit.

In the ODM model, even though its extent to join product design and the technology of production process is more than ODM, ODM is still limited in several original components and main technology supporting by brands. In addition, ODM has to invest more technology labors to maintain the capability of production exploitation with internal design and the produce capability in order to increase the technology level and competitiveness. However, there is no the capacity of supporting technology in the last part of production chain. The most competitive concern is the lacking of global maintain and the technology capacity in customer service.

JDM is different model between OEM and ODM. JDM could bale to integration multiple supporting technology capacity; cooperate with brands to design the product. JDM could able to control the cost and profit effectively and have more decision-making power in the material with design, selection and production model. Especially in JDM model, there is higher supporting technology in the last part chain production more than other original equipment manufacturer models; for example, global shipment, customer service, and the after-sales service of global maintain. Therefore, JDM model could able to push in to marketing faster and reduce the exploitation cost; furthermore, it could improve customer finial satisfaction and acceptable value by after-sales service in order to create more value added for brands together.

### THE STRATEGIES OF ORIGINAL EQUIPMENT MANUFACTURING MODEL OPERATION AND TRANSITION

The strategies of original equipment manufacturing model operation and transition is a main point in the process of OEM model transition, which determine the proceeded, and conversion. It would improve develop ability of technology and transfer to ODM if OEM manufacture focus on and plan the strategy of OEM transition. Moreover, it would increase the multiple integration ability, market guiding ability and transfer to JDM if ODM manufacture focus on and plan the strategy of OEM transition. ”Fig. 2”

This study focuses on three different models in OEM, ODM and JDM. According to the strategies of original equipment-manufacturing operation and transition to analyze each model process in the competitive environment at present, we not only get the inferences of required as operation ability, technology ability but also provide the improving technology competence if the original equipment

manufacturing model transfer to different model. According to illustration 2, which clarify each original equipment-manufacturing model’s strategy and required nucleus technology capability; also explain each original equipment-manufacturing model’s strategy with its required strategies of transition and operation.

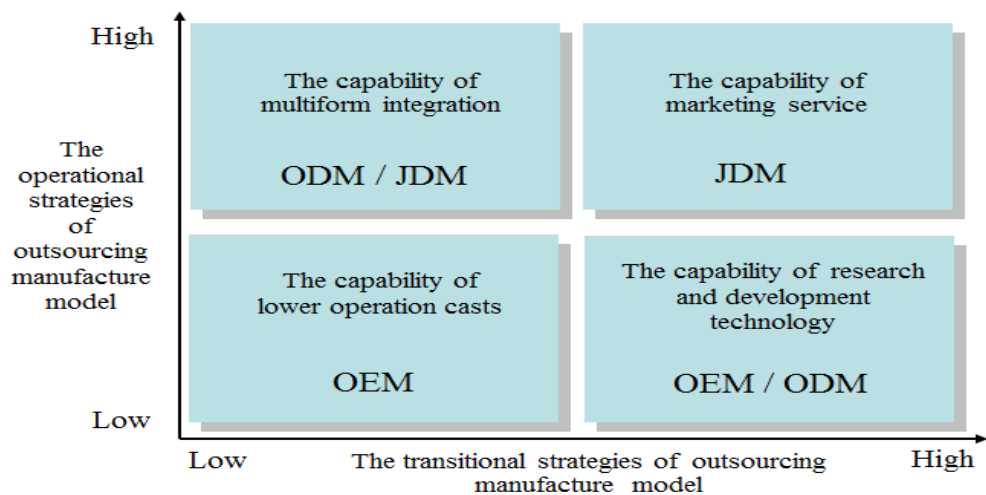


Figure2. The transitional strategies of outsourcing manufacture

### OEM Model

OEM model is the original equipment-manufacturing factory of low original equipment-manufacturing transition strategy and low original equipment-manufacturing operation strategy. While in this period, OEM factories need to have the ability to reduce operation cost, exercise the characteristic of elastic production, improve production capacity and quality, and reduce unnecessary cost in production process in order to deal the shuck from brands with the low cost and the low profit competitive environment. The OEM enterprise value is increasing production capacity, helping clients to reduce the cost, moreover assist brands to establish contact and mange supply chain in order to raise the value added for clients. Furthermore, OEM factory would consider the transition strategy, cultivate more talented people to improve technology ability in order to create more earn profits opportunity.

### ODM Model

ODM model is the original equipment-manufacturing factory of high original equipment manufacturing transition strategy and low original equipment manufacturing operation strategy. While in this period, even though ODM factories have good technology ability to assist clients to design and develop new product, ODM factories still rely on brands’ required about product of the develop concept, specifications and the excise ability. Moreover, ODM is insufficient in understanding product sale market and the effective activities chain in service and the investment of related particular assets. Therefore, ODM need to focus on study in nucleus competitive technology to create more value added in order to increase the ability to negotiate price with brands. Moreover, ODM manufacture would ensure the competitive edge in the original equipment-manufacturing industry if it can strengthen final production chain and service.

### JDM Model

JDM model is the original equipment-manufacturing factory of high original equipment-manufacturing transition strategy and high original equipment-manufacturing operation strategy. While in this period, JDM show out the design capacity in multiple integration ability, cooperate with brands to design new product and put in sole technology in order to combine original equipment-



manufacturing manufacture and brands to create win-win situation. Besides, JDM execute global manufacture, global market system, and global customer service system to achieve a goal in production and service of fast shipping and service in order to form an overall integrated production value chain. JDM manufacture base on market guild is unusual in multiple operation models, and promote the industry development.

## **CONCLUSION**

This study focuses on three original equipment manufacturer models with “OEM”, “ODM” and “JDM” in order to find out the advantages and defect of these models and its future development by analyzing the essence of original equipment manufacturing, competitive environment and required nucleus competitive technology. Moreover, we can get the inferences by studying the strategies of completely original equipment manufacturing factories mode transition and enterprise operation, the characteristic of the smart phone industry and the outsourcing in international mobile phone manufacturer.

1. Engineering service is the main key to create the original equipment manufacturing value. To provide good engineering service in order to satisfy clients' need is creating customers' value added whatever original equipment manufacturing models.
2. The planning original equipment manufacturing strategy bases on the study of the nucleus technology that can protect the competitive edge of original equipment manufacturing industry by consolidate and improve the ability of the nucleus technology continuously.
3. To achieve the purpose of original equipment manufacturing mode transition bases on the key nucleus technology with strategies plan of transition enterprise operation and multiple integration ability to focus on the nucleus value.
4. To enlarge its scales and concentration on its original profession is the only way to survive in the low profit of original equipment manufacturing industries in the low cost and the low profit competitive environment.

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### AUTHORS' BIOGRAPHY



**Chien-Jung Huang**, Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan (Doctoral Candidate).



**Jui-Chin Jiang**, Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan (Associate Professor).