

**Challenges and Rewards of Mechanical Platforming Strategy within Wireless Handset Industry**

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Submitted to the Sloan School of Management and the Department of Electrical Engineering in Partial Fulfillment of the Requirements for the Degrees of

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and  
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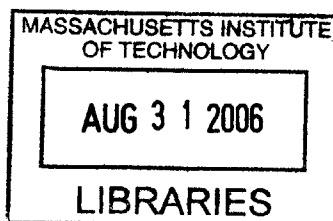
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**BARKEK**

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### **Abstract**

The internship project studied Motorola competitors' products and identified their mechanical platform strategy. Recommendations were developed for Motorola to improve product development and/or portfolio planning, in terms of hitting key performance parameters for design differentiation, field failure rates, supply chain scale and efficiencies, etc.

Motorola is improving its product differentiation in the highly competitive and fast-clockspeed wireless handset industry. This project was primarily aimed at understanding competitors' approaches to mechanical platforming and the relationship to product differentiation and quality. This study can also help to clarify Motorola internal definition of platform and of innovation, and facilitate better communication within different groups. The competitive analysis focused on Samsung and Nokia.

The study relied mostly on informal interviews with engineers and managers to gain understanding of Motorola internal process and practices. The majority of the competitive information came from internal benchmarking teardowns, 3<sup>rd</sup>-party teardown reports, and public information on FCC website.

Recommendations include that Motorola should leverage on its own "winning design". For example, Razor's industrial design could be used as mechanical platform for future product development. Furthermore, with similar industrial design, incremental changes/innovation becomes important. Samsung proved that even with similar industrial design, product lines still can be perceived as innovative and fresh with just topological changes.

The goal of this thesis was to analyze the benefits and challenges in wireless handset industry to plan and implement a platforming strategy. There are many elements in a wireless handset product that can be platformed, and this thesis is only focused on the mechanical aspect. Through the case study of Samsung and Nokia, numerous benefits such as cost savings, improved product reliability and faster time to market, are all illustrated. Various challenges and risks in planning and implementing such a strategy are also discussed.

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## Introduction

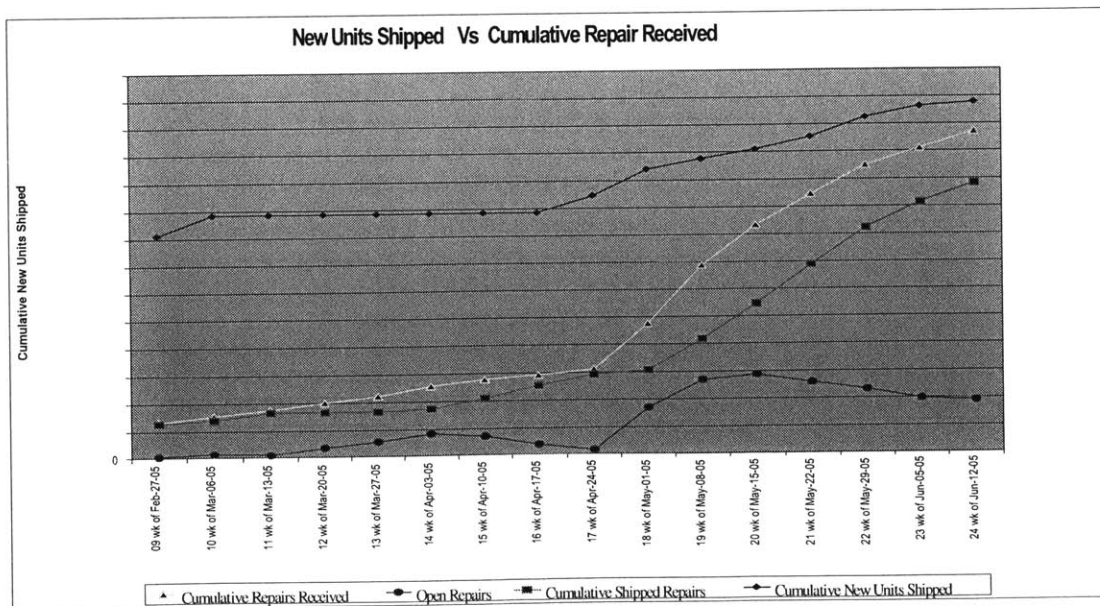
During the past several years, the wireless handset industry has become increasingly competitive. As the related technology advances within the industry, consumer is demanding more and more out of wireless phone product, and the industry is moving towards faster clockspeed. Besides the traditional cost concern, wireless handset manufacturers, such as Motorola, Samsung and Nokia, nowadays are focusing their competition on product innovation, product reliability and time to market. Most of the discussion in this thesis will be on how companies' platforming strategies could affect their ability to compete in these key areas, and what are some of the challenges and rewards of these strategies.

It is evident that product innovation has become one of the key focuses of the competition within the wireless handset industry. People begin to pay more attention to style and physical appearance of the phone, many chase novel form factors. As wireless handset component technology advances, so many new designs, features, and components can be incorporated into new product, wireless handset today becomes much more than just a phone. In many region of the world, a high-end wireless phone becomes the symbol of the social status of owner, and in many Asian countries, high-end customers are changing their phones to new fancy models every six months. Consequently, many wireless handset manufacturers are pressing their development team for innovative designs, and dream about their new model to be the "buzz" product of the year.

Product reliability begins to impact profitability significantly as the product on-market life is getting shorter. These days the average product life of a wireless handset in North America market is around 12 months. It becomes increasing difficult to gather field failure data and improve product reliability performance in this short period of time.

Figure 1 illustrates a scenario in which the manufacturer launches a new product with a relatively high field failure rate. As we can see from the volume plot of new units shipped and cumulative returns shown in the figure, the Cumulative Return (yellow line), which is the sum of the Open Repairs (Red line) and the Cumulative Shipped Repairs (Purple line), will be substantial during the product life. It is not uncommon, under today's market pressure, that a company launches a new product with reliability issues, and ends up losing a significant portion of the profit on warranty and repair cost.

Certainly besides the field return/warranty cost, the damage to company's image and reputation is equally significant. If its product is consistently having reliability problems, the manufacturer could risk losing its bid for carrier subsidy and in-store recommendations, and ultimately lose market share.



**Figure 1: Field Failure Rate Impact to Cumulative Return Volume**

Time to market is also a key area wireless handset manufacturers compete in. It is so critical for a company to launch new product on schedule, since the penalty for being late to market is huge. In many case, if a company is two months late than the competing product entering the market, the loss of sales can be so substantial that there is little profit to make for its product release. Also during the year, the sales of wireless handset product is disproportionately high around holiday season, manufacturers will have to deliver under that deadline to achieve desired sales target. In addition, shorter development cycle and faster to market will give the company some strategic advantages that will be discussed in Section Two.

So now the question is how will companies' platforming strategy affect the competition? First of all, the general theory is that through the use of platforms a firm can leverage its investments and develop a family of products with minimal cost and time. For wireless handset product, there are so many aspects of the product that can be platformed. The data and findings in this thesis have a mechanical aspect focus. In terms of market segment, wireless handset manufacturers like Samsung, Motorola and Nokia compete in a variety of market segments, such as daily communication, imaging, productivity, entertainment, and self expression segments. Part/design reuse and shared component commonality across these segments can be the main focus of the platforming efforts in those companies. To better compete in this industry, the challenges and rewards of the platforming strategy need to be seriously considered. The discussion will be expanded into five sections:



We will begin with a brief review of related concepts and definitions on platforming. The motivation of platforming will be discussed, and the definitions of platform will be given. Also, how these definitions applied in wireless industry will be mentioned.

In Section Two, the relationship between product innovation and platforming is explored through the case of Samsung. Samsung is particularly an interesting case since the company is able to create an “innovative company” image among consumers, and at the same time deliver new product at a fast pace and maintain a respectable field failure rate. Some data and findings are presented for Samsung product. The discussion will focus on how its platforming effort fit in the company’s overall strategy, and help it to arise from the competition. In the end, some interesting questions can be asked: is Samsung really innovative? Does platforming initiative jeopardize delivering product innovation?

In Section Three, we begin with a simple comparison of the approaches by two manufacturers to platform SIM card holder. The comparison leads to a broader discussion on how companies should determine the appropriate focus for their platforming strategy. Two methods will be introduced, followed by a combined analysis. The methodology is an excellent starting point for the platforming focus analysis, although it does have its limitations.

In Section Four, the organizational challenges of implementing a platforming strategy are discussed. From strategic, cultural and political lenses, the challenges are all quite significant. The support from senior management is needed for such platforming initiative to be successful in overcoming these organizational obstacles.

Finally, in Section Five, the risks of over-platforming are illustrated through the case study of Nokia. Nokia case is very important one since it had achieved tremendous early success through its aggressive platforming strategy. Yet when the market condition changed, it began to lose market share rapidly and struggled to respond due to the rigidity the platforming effort created. The case certainly reminds everyone that although the benefits of platforming are substantial, it is better not to be overdone.

## Section 1: Concepts and Frameworks

It will be very helpful to bring out at first a conceptual framework that can then be used to structure subsequent discussion. For this reason, this section begins with an overview of some key concepts and arguments. First, the definition for product platforms is discussed, then the market segment grid concept is brought out, and the motivation of platforming is mentioned in the end.

### Platform Definition

In this part, we take a close look at the definition for product platforms. How is product platform usually defined? Michael McGrath gave the following definition in his book *Product Strategy for High-Technology Companies*:

A product platform is not a product. It is a collection of the common elements, especially the underlying core technology, implemented across a range of products.<sup>1</sup>

Ulrich and Eppinger offered the below definition of a platform in their book *Product Design and Development*:

The collection of assets, including component designs, shared by these products is called a product platform. Planning the product platform involves managing a basic trade-off between distinctiveness and commonality.<sup>2</sup>

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<sup>1</sup> McGrath (1995, p. 39).

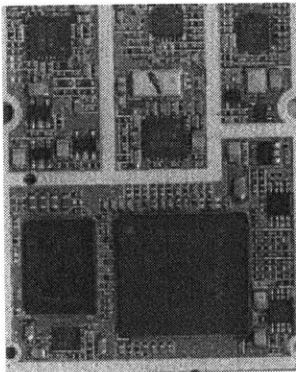
<sup>2</sup> Ulrich, Eppinger, (2004, p. 180).

One main focus of platforming is achieving part commonality and design reuse. Commonality is defined as the following in Timothy Simpson's Product Family Design Class:

Commonality is the possession of common features or attributes in either the product or the manufacturing process for a set of products.<sup>3</sup>

In the case a wireless handset product, platforms can be created on several different dimensions, since with hundreds of components it is such a complex product. Basically, there are three main aspects of platforming around wireless handset product: chipset, software and mechanics.

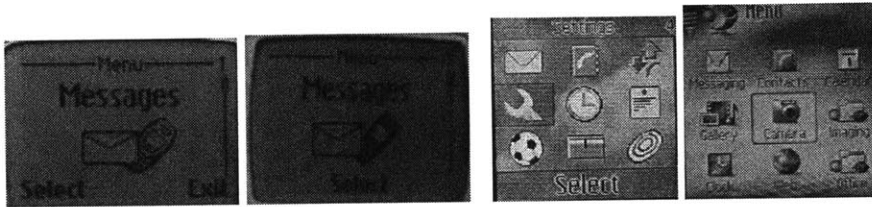
Chipset can be platformed since many products shared the several important and common ICs. A certain chipset combination of baseband IC, power management IC, graphs IC, etc. can be created as a platform to produce derivative products with different mechanics for different price points. For example, products with different industrial designs may share the same combination of important ICs shown in Figure 2.



**Figure 2: Chipset Platforming**

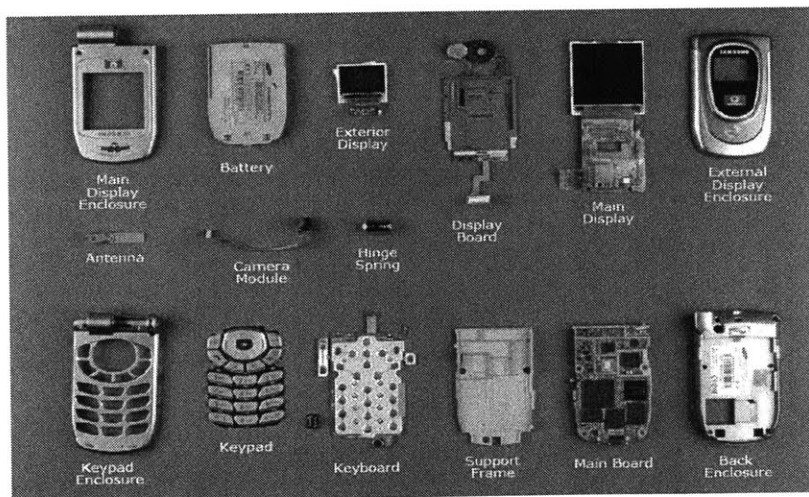
Software platforming is most common among wireless handset manufacturers. They have many products sharing the same or similar user interface. For instance, two

sets of very similar user interfaces Nokia has used in different products are shown in Figure 3. As a matter of fact, they also platform stack software and most of the application software. Same software is often in products at different price ranges in different market segments.



**Figure 3: Software Platforming/ Similar User Interface**

Mechanical aspect of the product refers to the use of certain material, component and design. The focus of mechanical platforming is on part commonality and design reuses. The platforming examples include connector component reuses, hinge design reuses, and industrial design reuses, and many other elements shown in Figure 4.



**Figure 4: Mechanical Platforming**

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<sup>3</sup> Simpson, W. Timothy (ME579)

Meyer and Lehnerd introduced the concept of a “market segmentation grid” to provide a framework for evaluating platform strategies.<sup>4</sup> Major market segments are listed horizontally whereas the vertical axis is used to distinguish price and performance characteristics.

<b>&gt; \$350 Price point</b>				
<b>\$100 - \$350 Price point</b>				
<b>&lt; \$100 Price point</b>				
	<b>Daily Communication</b>	<b>Entertainment</b>	<b>Imaging</b>	<b>Productivity</b>

**Figure 5: Market Segmentation Grid for Wireless Phones**

Figure 5 is a simple market segmentation for the wireless handset market. The vertical axis listed the three different price ranges, and the four segments are shown horizontally. The grid captures the essence of the market segments and can also be used to illustrate the concepts of horizontal and vertical platform strategies. A vertical platform strategy attempts to span a range of price points within a given segment, while horizontal platform strategies, on the other hand, explores the commonality across different segments at a given price range.

## **Platform Motivation**

We can now turn to the motivation of platforms after having reviewed the definition for product platforms. A platform strategy provides an alternative to the more

<sup>4</sup> Meyer, Lehnerd, (1997, p.53)

traditional strategy of developing new products one product at a time. The motivation for product platform comes from various reasons, ranging from development costs, to manufacturing costs, to field failure support and warranty costs.

Perhaps the most basic argument for platforms is that they enable a firm to leverage its development costs. Product platforms that can accommodate new component technologies and variations make it possible for companies to economically create derivative products. Through the use of product platforms, derivative products are not only developed at fractions of the cost of developing the base platform, they are also developed in fractions of the time required to develop the base platform. For example, in the case of the Sony Walkman, “Sony carefully controlled the costs of new models by building all of their models around key modules and platforms.”<sup>5</sup>

Besides reducing development costs and time, platforms can also reduce manufacturing costs and time. A platforming initiative by product development team can dramatically reduce manufacturing costs and provide significant economies of scale in the procurement of components, since many of these are shared across product lines. When products are developed one at a time, different teams tend to use different materials/components for the similar purpose, for example, many different types of connectors and SIM card holders are used. But when products are developed in coherent families, part commonality is increased and cost savings are achieved.

In summary, the motivation and definition of platforms are briefly discussed in the section. The general theory of platforming is promoting component and part commonality and design reuses, which is intended to help a company save on manufacture cost and

time. In addition, the fixed cost of platform development can be leveraged so that derivative products are developed cheaply in shorter development cycles. In future sections, we will see platforming also could impact product reliability, and how a company may decide which items to be included in the platform and which are not.

From this section, it seems the general spirit of platforming is not in line with that of product innovation. However, some of the findings may surprise you in Section Two, where we will discuss how platforming helps companies arise from the competition.

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<sup>5</sup> Sanderson, Uzumeri, (1995, p.780)



## **Section 2: Platforming Strategy and Product Innovation**

In the previous section we considered some platforming definitions and motivations. The general claim is that through design reuse and part commonality, substantial development time/cost and manufacturing cost can be saved. Now we turn to the relationship between platforming strategy and product innovation.

Product innovation has become the focus point of the competition for mid to high end wireless handset product. Low-end product manufacturers may have different priorities in their product requirement, such as lowest cost and exceptional reliability. However, companies like Samsung and Motorola, whose product compete mainly in the mid to high end, are paying more attention to style, aesthetics, and innovative features, besides the general concern of cost and quality. So creating the customer's perception of innovative company and innovative product is one of the major goals of the product development team.

The first part of this section attempts to answer why certain companies create a better innovative perception among consumers than others. It leads to some more important questions: how does platforming strategy fit in the competition on product innovation? Do promoting platforming initiatives necessarily jeopardize product innovation? Later part of this section will try to address those questions based on the research findings, mainly focusing on mechanical platforming.

## **Why Samsung Is Perceived as Innovative**

Since 2001, in wireless handset space, Samsung has consistently come on top as the leading innovative company among various consumer surveys and reports. Although it does not necessarily mean Samsung is the best in delivering product innovation among all wireless handset manufacturers, it does suggest that Samsung has been successful projecting an innovation image and creating such consumer perception.

So why is Samsung able to convince consumers that Samsung products are innovative? It may be difficult to come up with an exhaustive list of reasons. Some of the intangibles, such as the leveraged brand name, are hard to quantify. But let's look at some of the tangible ones:

First, for wireless handset product, Samsung has more "World's First .....". Samsung was often able to incorporate novice technology into its product quickly, and be the first to introduce in the marketplace. It did not hesitate to use advertising dollars to emphasize the message that these are the world's first product with certain functions or features. Many of those technology incorporated into wireless phone were available to most of the manufacturers, Samsung's faster development cycle and shorter time to market certainly help the company to achieve more "World's First". Below are some examples: Samsung's world's first phone with a hard drive, with 3D movement recognition; first GSM TV phone and first 7 mega pixel phone.



Figure 6: First phone with a hard drive: SPH-V5400



Figure 7: World's First GSM TV Phone SGH-P705



Figure 8: First phone with 3D movement recognition: SCH-S310



Figure 9: First 7 megapixel phone SCH-V770

Second, Samsung wireless phone product has more form factor variety. With focus on flip phones, Samsung also has more models in other form factors (Slider, Swivel, Tablet, Candy bar, etc) than competitors. Compared with Nokia whose product offering are mainly candy bar form, Samsung has a huge advantage in terms of the number of form factors in their product offering. Even compared with Motorola, Samsung has more slider and Swivel models, some of which were selling well in European and Asian market. Some of the novice form-factor product may not be the high volume product, but

the mere existence of these products in the product offering mix does help creating the desired consumer perception. Below is a brief list of various form factors Samsung is offering:



**Figure 10: Various form factors in Samsung product offering**

Third, Samsung introduces more wireless handset models to the market. In terms of the number of product in the product offering mix, Samsung has more models than competitors, especially in recent years. In North America market, (often labeled as a “carrier-dominant market”), in which carriers direct consumer to choose a phone plan first and then buying a wireless phone, the number of models in the market may not matter that much. However, at the other spectrum, in Asian market where it is a consumer-dominant market, more models can have a significant impact. For example, Chinese market is more of a retail environment, where people are free to choose what

form or style of phone they want before they begin to worry about the phone plans. Consumers in these markets pay more attention to the phone products themselves, examine through the entire product offering mix and compare phones from different manufacturers. In this market environment, having more models give consumer broader product selection and more freedom. More choices certainly leave the consumer better impression. For example, in the third quarter of 2004, Samsung launched 40 phone product, more than Nokia, Siemens and Sony-Ericsson combined. Below is a snapshot of all the models Samsung launched during that quarter:

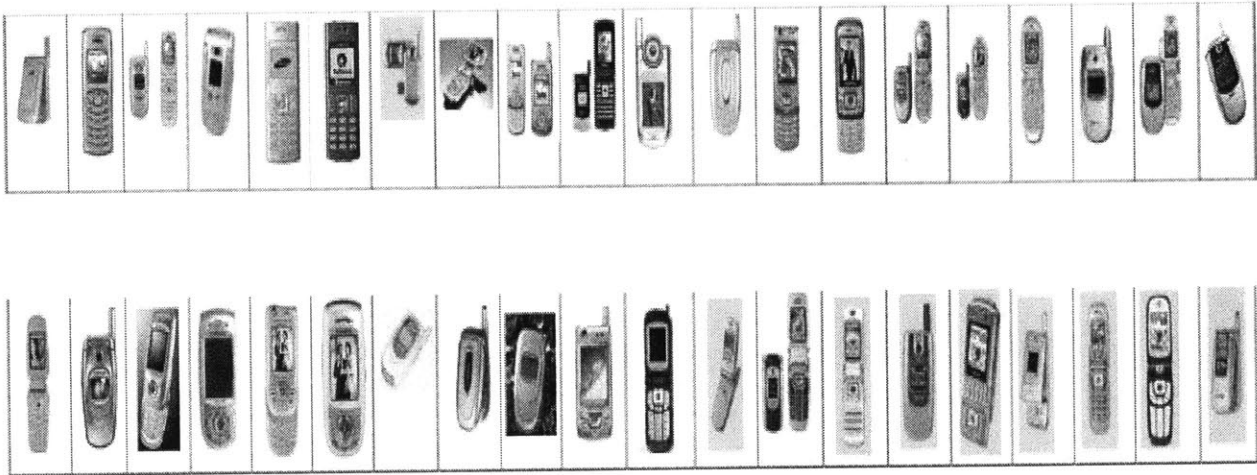


Figure 11: Models Samsung launched during Q3 2004

### Innovation Vs Platforming

Since Samsung is leading in consumer perception of innovativeness, one could wonder that its development team must constantly come up with new designs and keep the product line-up fresh to project the innovator image. If this is true, Samsung must be

not very active in platforming, and may face huge challenges to keep field failure rate low and cost down. However, after careful study of its product in recent years, the findings seem surprising.

In the first quarter of 2002, Samsung launched in Korean market (CDMA market) a new model SPH-X4200, with a very stylish modern look industrial design (see figure 12). During the same period, it launched a model with the same industrial design to the GSM market, SGH-T100. The design paid attention to many attributes consumers value in flip phone, such as large color display, large keypad, smooth contouring and rich and consistent paint and finish.



**Figure 12: General looks of Model SPH-X4200 and Model SGH-T100**

It seemed the style of new product was so well perceived by consumer, Samsung decided to reuse this industrial design for several new products coming out in the subsequent quarters. For example, later models such as SPH-A500, SGH-

S100/S300/S307, SGH-V100, SGH-A800 etc, are all using very similar industrial design as the initial SPH-X4200. For easier future reference, I will label this industrial design as “Platform A-1” (see figure 13).



**Figure 13: Samsung Industrial Design “Platform A-1”**

In the following year, Samsung slightly modified this industrial design “platform A-1”. The center navigation keypad was changed from oval shape to rectangular shape. However, much of the physical appearance of the phone was unchanged, including the larger color display, metallic-feel paint and finish, the general shape and smooth contouring. I will label this slightly new industrial design as “platform A-2” (see Figure 15). Samsung continue to develop and launch product using “platform A-2” throughout 2003, 2004 and 2005. Below is a partial list of Samsung new models using this industrial design (see figure 14). Although individual models may have different hardware

components and different application software, the general principles of the platformed industrial design stay the same. Each new model may have some incremental improvement or changes, but most platform products have very similar keypad design, hinge design, large display and metallic-feel paint and finish. In fact, the general looks of these product have so much similarities, the “platform A-1” and “platform A-2” created a signature look for Samsung wireless phone product.

2004				2003		
Q4	Q3	Q2	Q1	Q4	Q3	Q2
SPH-A740	SGH-E315	SCH-A670	SCH-A650	SGH-X426	SGH-E100	SCH-A530
SPH-A760	SGH-E316	SCH-X850	SGH-X450	SGH-X427	SGH-E105	
	SGH-E317		SPH-A680	SGH-X710	SGH-E400	
	SGH-E318			SPH-A660	SGH-S508	
	SGH-E330				SPH-A620	
	SGH-E608					
	SGH-E800					
	SGH-X458					

Figure 14: Partial list of Samsung product models using “Platform A-2” during 2003 and 2004

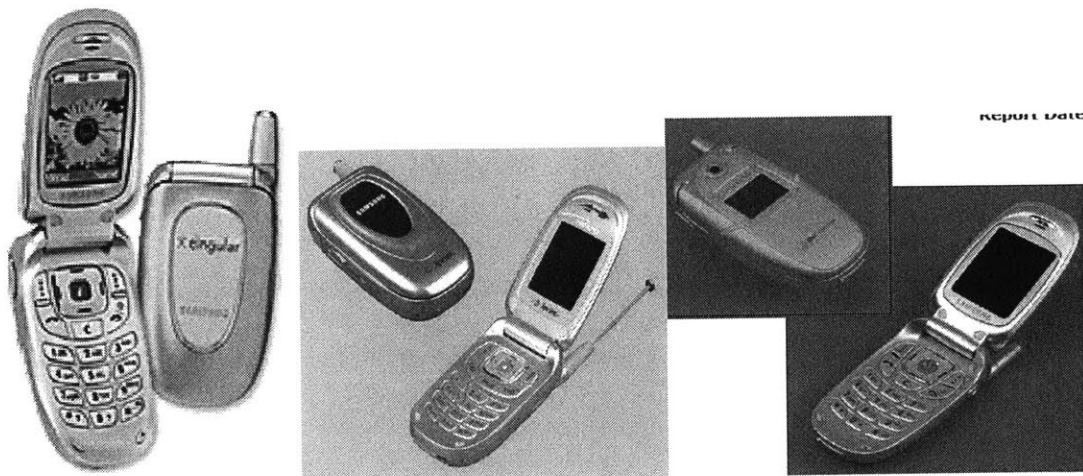


Figure 15: Samsung Industrial Design “Platform A-2”



From this finding, it was not coincidence that Samsung has so many models of its product offering that share the same or similar industrial design. Clearly Samsung has a conscious platforming strategy to reuse its popular industrial designs. To make it even more evident, out of all 33 Samsung high-volume wireless phone product launched from 2002 through 2005 in North America Market, 19 phones were either using “Platform A-1” or “Platform A-2”. In fact, the industrial design platforming initiative is an integral part of Samsung’s strategy to create innovative image while maintaining competitive cost and high product quality. Obviously, by platforming via components and designs reuses, supply chain efficiency is increased, and cost and time savings are significant. Samsung actually benefits from this platforming effort in several other ways as well, summarized as below:

1. All the platform product together create a Samsung signature look and enhance the brand. Many of the platform products have different chipsets and PCB board design inside, but they all share similar outside appearance. Those well-perceived “A-1” and “A-2” industrial designs were reused so to help establishing the brand image. The signature look can be so recognizable that repeat Samsung customers could immediately pick out the Samsung product among competitor product without looking at the brand logo.
2. Since keypad and hinge designs get reused, related field failure rate is reduced. Flip phones are more prone to field failures than candy bar form phones. One of the main reasons is that certain circuitry needs to go through the hinge to connect the display to mother board, and this circuitry is delicate and can be damaged during phone assembly and/or normal uses of open and close. By platforming,

quality-sound hinge designs are reused, same or similar hinge assembly processes are reused, and hinge related failures are minimized. Similarly, keypad problems are also common field failures among most wireless handset manufacturers.

Those problems can also be reduced by reusing good keypad designs.

3. One of the most significant benefits is related to cycle time by platforming industrial design. Samsung reduces the development cycle and is able to introduce product faster and experiment with “controlled product launch”. Industrial design is a major step during the entire product development processes, it can take several weeks to make major modification to existing industrial design. If you count the interactions between this step and other steps, the impacted development time is even longer. By reusing existing popular industrial design, Samsung is able to shorten the development cycle of individual product, so that it can create a competitive edge in terms of time to market (TTM). This way, the platforming strategy also helps enhancing the company’s innovative image because the shorter development cycle allows Samsung to create so many “World’s First”, and to introduce more number of models during the same time period at a given design/development capacity.
4. Another important benefit of a short development cycle is that it gives Samsung time to experiment with “controlled launch”. Given the development time saved from platforming effort, Samsung is able to conduct regional launch (usually in Korean home market) before global launches. The consumer feedbacks and field failure data collected from this regional launch are of great value to Samsung’s development team. It allows Samsung to make changes to product design

according to these data. As a result of the changes, Samsung is able to then launch the product globally at a much lower field failure rate. Other wireless handset manufacturers certainly have the options to conduct similar “controlled launch” in a regional market, say in Hong Kong. But, without the shorter development cycle, most manufacturers simply do not have the time to experiment with “controlled launch” under their tight product launch schedule.

## **Lessons learned**

Samsung clearly didn’t introduce new industry designs very frequently, especially in high volume phones, in fact, it reuses one or two popular ones quite extensively and only make some incremental changes. From that respect, maybe Samsung is not as “innovative” as most people perceived. However, from this Samsung Platforming example, we can see that product innovation certainly does not equate to redesigning every time. Samsung clearly demonstrated that it was able to keep its innovative image by using incremental changes to make its product line-up look fresh.

Samsung is not only good at creating a few excellent industrial designs, and more importantly, it is good at identify those well-perceived designs and aggressively platforming around them. Over the years, many wireless handset manufacturers have created models with excellent industry designs at some point, but few of them achieved the kind of success as Samsung did leveraging and platforming those winning designs to enhance the company’s innovative image. One may even argue that in today’s highly competitive wireless handset market, Samsung’s platforming approach is the most efficient way to create the innovative image – identify the company’s own winning

designs and platform around them to save time and cost, and incremental changes are sufficient to make these product offering appear fresh.

Samsung's case demonstrates that platforming strategy does not necessarily jeopardize the effort in product innovation. In fact, if used properly, platforming strategy not only saves development and manufacturing cost, but also shortens time to market and improve product reliability. In essence, platforming initiatives can be implemented to fit in the overall company strategy of delivering product innovation and beating the competition.



**Figure 16: Motorola's Razor Product**

Finally, lessons can be learned for many other wireless handset manufacturers from Samsung's platforming approach. One good example could be Motorola, since its new product Razor (see Figure 16) introduced in 2004 was clearly a "winning" design for the company. The antenna and housing design and paint and finish took product innovation to another level. The sexy look of this ultra-thin wireless phone product was well perceived by different regions of the world. Many celebrities were requesting product samples, and Razor was used in the popular TV series "24" even before the product

launch in US. Such a popular industrial design presents Motorola an excellent opportunity to initiate some level of platforming effort around the “Razor platform”. Motorola should leverage its Razor development by platforming its industrial design so that derivative products could be quickly and cheaply developed and manufacturing cost could be saved. In addition, a novel design such as Razor’s is inevitably prone to more field failure problems than some existing designs. Platforming effort will certainly help improving field failure rate and make this product family more reliable. In short, by studying competitor Samsung, Motorola should be able to learn something valuable about creating the innovative company image, and establish a better approach to product platforming and product innovation.

## **Section 3: Analysis and Methodology**

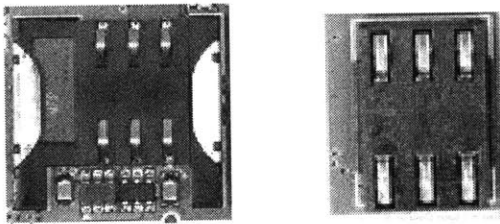
In the previous section we discussed how platforming could fit in company's strategy of delivering product innovation. This section will look at focus analysis. It starts with a simple case study of SIM card holder, examining the differences between two handset manufacturers on reusing existing designs. Further discussion on whether SIM card holder should be platformed is followed. This will lead to a more critical question: how does a handset manufacturer decide what components or designs to platform and is there any methodology to help in this analysis? In the middle part of this section, Matrix analysis and Kano analysis will be introduced, and an example will be given to demonstrate how those two methods can be combined to help companies determine the focus of their platforming effort, and focus of their innovation effort as well. In the end, the limitation and potential improvement of these methods is commented.

### **SIM Card Holder Case**

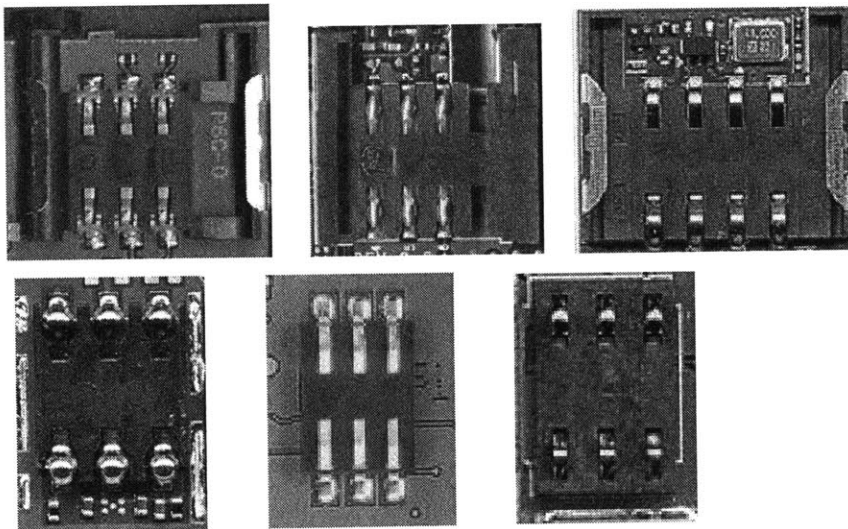
As an important component of the wireless phone, the SIM card holder has the function of holding a SIM card, which stores customer's phone book and other personal information. Usually one can locate the SIM card holder after opening the battery cover at the back side of the phone. In most case, there are six springs in the holder so that the six small plates on the SIM card can make contact with the phone in order to transfer information back and forth. Depending on the personal use of the phone, one can seldom change the SIM card or one can put it in and take it out quite often. SIM card holders

have many different forms and designs, some are harder for first time customer to insert the SIM card than others. Thus, SIM card holder failures are among the common field failures for a wireless phone.

It is difficult to account for all the SIM card holder a handset manufacturer has ever used. But by examining many product models in recent years, one can get some general idea of the number of holder designs a company has used. Among recent Samsung phone models, only two holder designs are extensively used (see Figure 17). In Motorola's case, 8 or 9 different holder designs are identified; some of them are shown in Figure 18.



**Figure 17: Samsung SIM card holder designs**



**Figure 18: Motorola SIM card holder designs**

One might now want to ask whether SIM card holder designs should be platformed and reused. The SIM card and the holder are an integral part of the wireless phone, one can not use the phone if the holder has problems. On the other hand, the holder is hiding inside the phone beneath the battery cover, and the customer usually doesn't care too much about it as long as it works. So, the holder needs to be reliable, but variety does not deliver much additional value to customer. It is thus an excellent candidate for a platforming initiative, in which proven designs are reused so that reliability is improved and cost is reduced. In some cases, it may be understandable that Motorola development team might desire a different SIM card holder design for a new model with a certain PCB board lay-out. But 8 or 9 total different holder designs seem to suggest that the development team didn't value platforming as much as it should, and didn't make a conscious effort to reuse good holder designs.

## **Analysis Methodology**

The discussion on whether the development team should platform SIM card holder naturally leads to a more important question: how can a company systematically determine what components/designs it should focus its platforming strategy on, and what not to? It is a very complicated problem, since it touches one of the major dilemma wireless handset manufacturers are facing in today's fast clock speed, highly competitive environment: how to balance delivering product innovation and their platforming effort? On the one hand, companies want to innovate and create product variety so that customer needs from different market segment are satisfied and market share is maximized. On the other hand, companies are also competing on cost, product reliability, time to market, and



as a result some level of platforming initiative needs to be implemented. To find the right components/designs for the platforming effort to focus on is such a huge complex optimization problem, it is almost impossible to find a one-size-fit-all solution for all companies. However, the Matrix analysis and Kano analysis introduced in the following section are valuable tools for development team to use in this kind of platforming focus analysis. Although there are limitations to these methods, they are excellent starting point to tackle the problem.

### Matrix Analysis

There are many literatures related to development product platforms and platform focus analysis. The “Matrix Analysis” method, introduced in “Planning for Product Platforms” by David Robertson and Karl Ulrich in 1998, is especially applicable in this case to help wireless handset manufacturers to determine platforming focus. In Robertson and Ulrich’s original method, ranked “Differentiating Attributes” and “Physical Chunks” are populated into the vertical and horizontal axes respectively. The term differentiating attribute (DA) is to denote a characteristic that customers deem important in distinguishing between products.<sup>6</sup> If the values of the differentiating attributes that characterize the products are noticeably different, the two products are distinctive from one another. The term chunk is to refer to the major physical elements of a product, its key components, and subassemblies. So DAs reflect the level of distinctiveness as perceived by the external customer; and Chunks reflect the level of commonality as perceived within the firm.

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<sup>6</sup> Robertson, Ulrich (1998, p. 21)

The matrix shown in Figure 19 is a simple application of this type of analysis on wireless handset product. For confidentiality reasons, the table is just for illustrative purpose, and the rankings are in random order. The DAs for this analysis are the attributes of a wireless phone that differentiate itself from other models and affect consumer's purchasing decisions. From top to bottom, DAs are ranked from the attribute customer cares the most to less-cared ones. The objective ranking ideally should come from consumer survey results. The chunks are the physical elements and components of a phone product, and they are ranked from the most expensive ones to cheapest ones from left to right. Note that how expensive here is in terms of the cost to the company to provide variety in that component and/or design. To complete the matrix, put a circle to any intersection of a DA and a chunk if they are related. If a DA is strongly connected with a chunk, put a large circle in the intersection; if they are only weakly connected, put a small circle.

After the matrix is completed, we can perform some analysis that will shed some light on the question of platform focus. We can look at the bottom half of the matrix first. These are the attributes that customer do not care much so that not much value can be delivered even if more designs or choices are provided. Unless there are other compelling reasons, these are the components and designs that should be platformed aggressively to save cost, improve reliability and shorten development cycle. Now look at the upper right corner. This is a section where the attributes are the most important ones and the relating chunks are not expensive. Thus these chunks are the ones wireless handset manufacturers should focus their product innovation on, since they are less expensive and the product/design variety the innovation provides deliver much value to the customer. Sony

Walkman product offering is a classic case where product variety delivered significant value to customers which enabled the product families' success.<sup>7</sup> Now, the only left section is upper left corner, which is a more complicated region. The attributes in this region are the important ones, however the chunks are expensive. So more detailed trade-off analysis is needed to determine whether it is a good idea to platform those components.

Relationship between *Differentiating Attributes* and *Physical Chunks*

← Increasing cost of variety

Differentiating Attributes	Chunks	Display	Imager	Flex	PCB	Battery	Audio	Antenna	Housing	Keypad	Paint	Connector
	Overall thickness		○	○	○	○	○	○	○	○	○	
Form factor				○	○							
Hinge design/sound				○								○
Structural stiffness		○			○	○		○	○			
Density		○			○	○			○			
Metallic Finish									○		○	
Conformance		○	○				○	○				○

↑ Increasing value of variety to customer

Note: This table is for illustrative purpose only, rankings are in random order.

Figure 19: Matrix Analysis in terms of Cost

The original “Matrix Analysis” in Robertson and Ulrich’s literature is mainly dealing with the cost of physical chunks, since the context there is that the main objective of platforming is cost savings. Although cost is certainly important in wireless handset industry, product reliability is becoming increasingly critical as well. As product on-

<sup>7</sup> Sanderson, Uzumeri (1994)

market-life is getting shorter and shorter, the field failure rate of a new product at launch has significant impact on the bottom line. Therefore, it is necessary to consider field failure impact when performing platform focus analysis. To incorporate field failure rate information into the “Matrix Analysis”, the physical chunks need to be re-ranked based on their impact on product quality. The rest of the matrix can be completed in a similar matter as the original one. In this matrix, analysis will show that companies are better off at providing product innovation in the upper right corner where the chunks have less negative impact on product quality. In other words, delivering variety around the proven reliable component/designs is the best approach for ensuring product quality.

### Similar analysis on product quality impact

← Increasing impact on product quality

Differentiating Attributes	Chunks										
	Display	Flex	Connector	Audio	PCB	Antenna	Battery	Keypad	Housing	Paint	Imager
Overall thickness	○	○		○	○	○	○	○	○		○
Form factor		○			○						
Hinge design/sound		○	○								
Structural stiffness	○				○	○	○		○		
Density	○				○		○		○		
Metallic Finish									○	○	
Conformance	○		○	○		○					○

Increasing value of variety to customer ↑

Note: This table is for illustrative purpose only, rankings are in random order.

**Figure 20: Matrix Analysis in terms of Product Quality**

## Kano Analysis

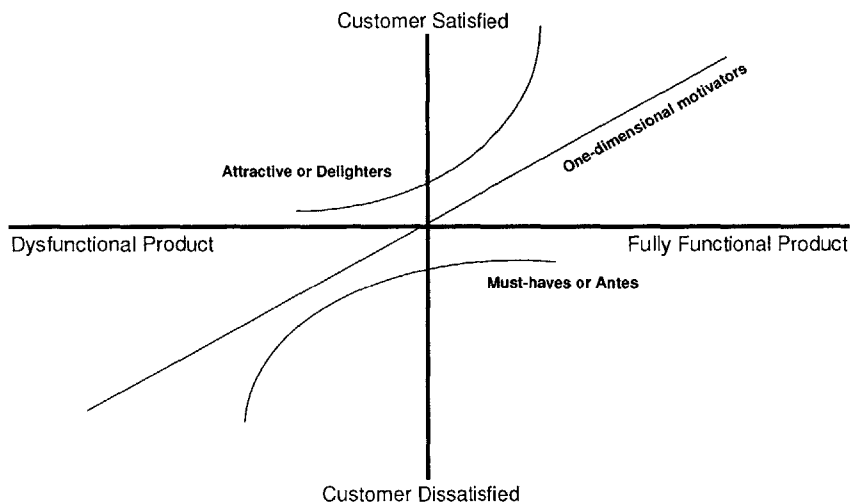
In the previous “Matrix Analysis”, the attributes of a wireless phone product is ranked in order of the importance to the customer. However, this ranking lacks certain useful information about these attributes. This is the case where Kano analysis will be very helpful. Kano Analysis is an analytical technique that helps prioritize product development opportunities and product features – it helps determine the characteristics that matter most to consumers. The theory started with Herzberg’s Hygiene-Motivation Theory, and was developed by Noriaki Kano at Tokyo Rika University. The basic Kano concept is that for some customer requirements, customer satisfaction is proportional to how fully functional the product is, while other customer requirements are not One-dimensional – there are also “Must-have” and “Attractive” elements. Below are the four basic classifications of a product characteristic:

- A = Attractive (“Delighter”)
- M = Must-have (“Ante”)
- O = One-dimensional motivator (“One-to-one”)
- I = Indifferent

In Figure 21, the relationship between customer satisfaction and product functionality of these characteristics are shown. As the graph depicts, one-dimensional motivator is a product characteristic that customer satisfaction is in linear relationship with product functionality. The must-have is the one that the customer only notices when it is missing.

The attractive is the characteristic that the customer would not mind if missing, but will be delighted when it is in place.

## Kano Diagram of Product Results



**Figure 21: Kano Basic Classifications**

It provides additional insight to our platform focus analysis when we characterize most product attributes according to Kano classification. Some of the attributes are generally one-dimensional motivators, while there are others are clearly must-haves or delighters. For example, at current technological level, battery life, call clarity, and the size of the display are all one-dimensional motivators. Density, integrated keypad protection and center of gravity are mostly must-haves, while new form factor, novel lighting and smooth contouring are likely to be delighters.

Everything else equal, development team will normally platform around must-haves, and innovates around delighters. The must-haves are usually some specification that the design team is trying to meet, and once met there is not much point to change it

frequently. Must-haves are thus good candidates for platforming to allow proven design to be reused. Delighters are total different stories. Product innovation can be awesomely rewarded since customer will be pleasantly surprised by these features. Everything else equal, delighters should be the focus for delivering product innovation and providing the variety.

### Combined Analysis

Both the “Matrix Analysis” and the “Kano Analysis” mentioned before have its own merit. In our quest to determine the appropriate focus for platforming and product innovation, it makes sense to combine the two methods. In practice, one can add three columns to the right of the matrix created in the “Matrix Analysis”, each representing one of the basic Kano classifications: Must-have, Delighter, and One-to-one. To complete the three columns, one needs to categorize each DA into one of the Kano classification.

Figure 22 is an example of how a more extensive combined analysis would look like. For confidentiality reason, the DA list is not complete, and all the rankings are in random order.

If it is a simpler analysis than the one shown in the example, one can start with the original matrix analysis, and then identify the must-haves in the lower bottom region. These are the top priority for establishing platforms since they are shown in both analyses to be the platforming focus. Similarly the delighters in the upper right corner are clearly the focus for delivering product innovation. If the given analysis is more complex one than the one shown in the example, one can perform the matrix analysis on must-haves,

delighters and one-on-one separately. With the help of Excel, one can easily single out all the must-haves to create a sub-matrix, and similarly a separate sub-matrix for delighters, and another for one-on-one. One can perform the normal matrix analysis on one-on-one sub-matrix without any bias. For must-have sub-matrix, one can analyze it with a platforming focus, while for delighter sub-matrix with an innovation focus.



		Display	Flex/Hinge Subsystem	Connector Points (Flex, Inter)	External Connectors (USB, C)	Audio	COG	Antenna	Battery	Keypad Subsystem (Keys, N)	Housing	Paint	Imager	M	A	O	
<b>Good Feel-in-Hand</b>	Density (size:weight ratio)	0				0	0	0	0	0	0	0	0	X			X
	Volume	0				0	0	0	0	0	0	0	0				?
	XYZ dimensionality	0	0	0	0	0	0	0	0	0	0	0	0				X
	Contouring	0	0	0	0	0	0	0	0	0	0	0	0				X
	Center-of-gravity (COG)	0				0	0	0	0	0	0	0	0	X			
<b>Protected, Pocketable Form</b>	Integrated keypad protection								0						X		
	Integrated display protection	0												X			
	Integrated camera lens protection									0	0	0		X			
	Weight	0				0	0	0		0	0	0		X			
	Absence of protruding parts (e.g.joysticks antennas)						0										X
<b>Rich, Consistent CMF</b>	Material and finish composition (i.e. metal, soft touch)						0			0	0						X
<b>Usable Keypad</b>	Key pitch: distance and uniformity									0				X			
	Surface geometry (tactile centers)									0				X			
	Placement of keypad relative to COG					0	0			0				X			
	Graphic contrast (including lighting)									0				X			
	Finger anchor points (grip points)									0				X			
<b>New / Different Appearance</b>	Novel form factor		0		0	0	0		0	0	0					?	?
	Novel lighting											0				?	?
	Novel CMF																
<b>Call Performance</b>	Signal clarity,number of drop calls						0										X
<b>Talk Time</b>	Number of hours							0									X
<b>Stable Materials / Smooth Mechanics</b>	Housing compliance										0			X			
	Flip hyperextension	0												X			
	Flip yaw...	0												X			
<b>Fast One-Handed Use</b>	Flip edge radii										0			X			
	Opening velocity	0												X			
	Take-over point	0												X			
<b>Large Display</b>	Display X and Y dimensions	0															X
<b>Articulated Features, Capabilities</b>	Feature graphics (e.g. mega pixels,memory capacity)	0					0						0				X
	Capability cues: speaker vents, camera lens detail...						0		0	0	0						X
<b>External Control / Display</b>	View play lists, Take quick,discreet pix...						0			0							?
<b>Clustered, Coded Controls</b>	Number of controls									0				X			
	Spatial and color coding									0				X			
<b>Meets / Exceeds Expectations on Open</b>	Display and keypad size relative to overall phone size	0								0							X
	Consistency of CMF											0		X			
<b>Fit-to-Face and Ear</b>	Open angle		0											X			
	Hinge offset		0											X			
	Earpiece sweep-back and edge radius					0								X			
	Open Y		0											X			
<b>Direct Self-Portrait</b>	Swivel camera		0										0				?
	Swivel display		0	0							0						?
	Fwd-facing camera												0				?
<b>Easy-to-keep-clean Surfaces</b>	CMF composition (attributes TBD)											0		X			
<b>Tight, Even Gaps</b>	Gap width												?				X
	Gap tolerance												?				X

Figure 22: Combined Use of Matrix and Kano Analysis

## Limitations and Cautions

Although the “Matrix Analysis” and the “Kano Analysis” can provide insights to guide company selecting platforming and innovation focuses, there are inevitably limitations to these methods. One needs to pay attention to the following when using these tools:

1. The effectiveness of the analysis largely depends on the accuracy of the DA rankings used in the analysis. For a complex product like wireless handset, the attributes list could be quite long. To survey end-users on ranking a long list of attributes may not get accurate results. Furthermore, there are usually sub-attributes under a high-level attribute. For example, one can divide a general high level attribute like “Good feel in hand” into several sub-attributes such as “comfortable shape”, “proper density”, and “smooth contouring”. Thus re-ranking all the sub-attributes could make this even more complicated analysis.
2. The ranking of physical chunks are equally challenging. Ideally, one wants to group all the components relating to a single function into one chunk. But with hundreds of components in a wireless handset product, we may inevitably use larger chunks than we wanted. Therefore there may be interactions between these chunks that the current methodology simply can not account for.
3. For the matrix analysis with chunks ranked according to their impact on product reliability, one needs to regularly perform this analysis with the updated reliability data. Wireless handset manufacturers usually have product quality initiatives targeting high field failure rate problems. It is no surprise that certain

component/designs in some models may have a lot of reliability issues 8 months ago, but improved significantly after the quality initiative. So the ranking based on reliability data is more of a moving target than the one based on cost. It is always a good idea to gather new data after a certain time period and re-perform the analysis with the updated information.

4. To determine the connection between DAs and chunks may not be as easy as it seems. To decide whether a DA is connected with a chunk, one could ask the question: is this chunk affected if I change this DA? Depends on the situation, the answer may not be simply yes or no, often time is yes, maybe, or no. So usually we are dealing with a matrix with both definite connections and probable connections. An approach minimizing this complication may be to start the analysis with the definite connections, then add the probable ones to the mix and compare the analysis results.

## Section 4: Organizational Challenges

Even when suitable methodology is used, proper analysis is done, and platform focus is identified, implementing such a strategy still faces significant challenges and resistance in most high tech organizations. Platforming as a fundamental concept might not be valued or understood from a strategic level. Many high tech companies have a culture where innovation is the focus, not component or design reuses. Finally if the political interest of different departments and/or groups are not well coordinated, the implementation of a platforming strategy is almost impossible. This section will explore the challenges and constraints most high tech companies face from three (strategic, cultural, and political) different aspects.

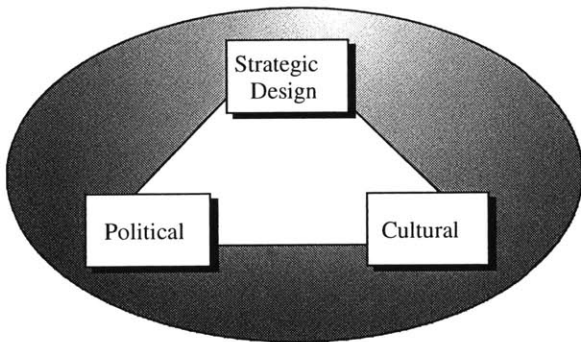


Figure 23: Three Aspects of Organizational Challenges Analyzed

### Strategic Aspect

From a strategic level, platforming concept is sometimes not as valued as it should be. In many cases, the term “platforming” means different things in different

departments/groups. With each team focusing on its own individual component or task, a company will never have a holistic platforming strategy unless such strategy is formed and implemented from top down.

In a large organization, it is difficult to have a unified definition of platforming. Different groups are likely to have a different understanding of the term, and often mean different things when they mentioned their “platforms”. In the example of a wireless handset product, the different chipsets the phones are using can be characterized as “chipset platforms”, similarly the different stack and application software used can be characterized as “software platforms”, and mechanical components and designs can be characterized as “mechanical platforms”. In addition, even some strategic components, such as imagers, displays or connectors can have similar groups in the roadmaps that development teams call them “platforms”. To implement a platforming strategy, to improve the communication between each group, a broad and unified definition of platforming should be established and well understood by all teams.

Even when a company has a platforming group or initiative, the focus might still be narrow and biased. For wireless handset manufacturers, platform groups might be in place to coordinate the effort of platforming chipsets and/or stack software. A new platform is thus referred to new product with a new set of chipsets and/or stack software. Although some of the benefit from platforming can be realized through such effort, usually such initiative is not a holistic approach. A company may only focus on chipsets platforming and/or software platforming, while many other aspects, such as mechanical aspect, are left out. So, only when a broad and unified definition of platforming is established, and all aspects of platforming are taken into consideration, can the full

benefit of such strategy be recouped. In addition, a company needs to decide strategically when new platforms are needed and then invest in them. A unified definition and broad understanding of platforming will be especially helpful in defining and developing the future platforms.

## **Cultural Aspect**

In a cultural context, a platforming initiative can be difficult to implement in a high tech company with an innovative tradition. In a lot of cases, organizational forces seem to hinder the ability to balance between commonality and distinctiveness.<sup>8</sup> The development team in such an organization is usually very proud of its past innovations and outstanding designs. The team's tendency to innovate and come up with a new design at any opportunity contradicts the fundamental principle of platforming initiative.

Motorola is an excellent example. As a leading wireless handset manufacturer with innovative tradition, Motorola introduced "StarTac" in 1996, which was the most appealing form of wireless phone at the time, defined the stylish look of modern cell phones. In 2004, Motorola opened a new chapter of product innovation, introduced the ultra-thin "Razor" product line, which generated tremendous buzz in the marketplace and grabbed market share from competitors.

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<sup>8</sup> Vuuren, Halman (2001, p. 5)



**Figure 24: Motorola's StarTac Phone Product**

In such an organization where outstanding classic designs are remembered, innovative spirit is in the hearts of development team members. It is no surprise when coming up with the next great design is the dream and the focus of the designers, the platforming and design reuse concepts are not as valued. For instance, a keypad designer will give a new keypad design for every new product. Even when some aspects of a previous design are used, the designer will still try to redesign some the key shapes or colors to accomplish what he believes delivering additional value to the customer. Quite often such “additional value to the customer” should be weighed against the additional development time consumed and the additional complexity the redesign added to other groups during the product development process. Even if the trade-off analysis is not performed, the design team should at least determine if the attribute they are changing is ranked sufficiently high in the DAs list described in the previous section. However, under company cultural influence, generating great designs may be believed as the top priority, so the resulting extra burden is often overlooked.

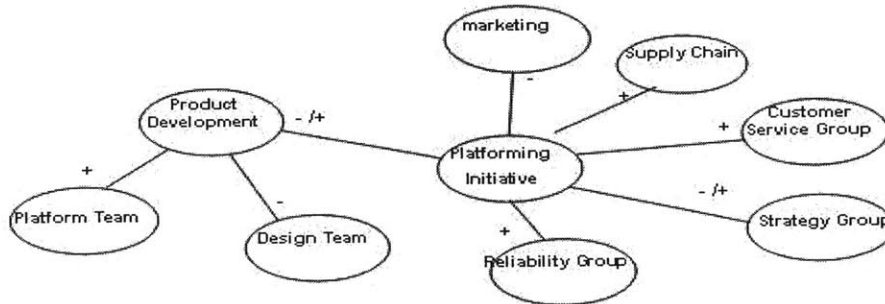
There could even be some internal complaints from other groups about the development team's tendency. For example, in a highly competitive market environment, under tight product launch schedule, supply chain group may challenge design team about their redesigns. Supply chain group may question whether the redesign worth the effort the supply chain undertakes to qualify the new process or suppliers for the new design. In an innovation-biased cultural environment, design team usually is able to provide sufficient justifications for the redesign, even though further trade-off analysis could have labeled the redesign NPV negative.

### **Political Aspect**

Balancing the political interest of different groups provides more obstacles for implementing a platforming strategy. Without effective communication and decision process, it can prove to be impossible to implement such an initiative. In addition, proper alignment of incentives of different groups is critical to the success of any platform strategy.

Different organizations have a different stakeholder map related to its platforming strategy depending on its existing structure and culture. Usually, the marketing team demands changes and redesigns that meet emerging customer needs, the development team comes up with new components and designs based on their criteria of good designs, while the supply chain team asks for more and more component and design reuses. As a result, the stakeholder map will be quite complex, such as the one below (“+” sign denotes support, “-“ sign denotes against) :





**Figure 25: A Sample Map of Stakeholder Analysis**

The implementation of a platforming initiative inevitably creates tension between different groups. Without appropriate metrics and incentives, it is very difficult to balance the request from marketing team to satisfy more customer needs and the cry from supply chain group to stay on the same platform for more component reuse. Similarly, it is impossible to reconcile the difference between design team’s tendency for providing new designs every time and the reliability group’s call for more reliable product. And each group can provide seemingly just causes to justify their requests and actions in order to defend their department interest. Thus, sorting out the differences and resolving the disputes may waste more development time than the company could afford.

To align the interest of different groups, senior management needs to create metrics that properly measure each group’s contribution to the success of platforming initiative. Also, a decision-making process need to be established that departmental differences can

be resolved in a manner which company bottom-line is maximized. In addition, a company needs to establish metrics in dollar terms measuring how one group's action could positively or negatively affect other groups, so that communication between them can become smoother and decision can be made easier. For example, if supply chain cost savings are substantial, this message should be communicated to the design team, and the decision should be made that some minor design changes should be eliminated. Similarly, if reliability group can prove that reuse of a certain design or component could have significant impact to field failure rate, a joint decision should be made that the component or design not be changed.

## **Section 5: Risks of Over-Platforming**

In the preceding chapters, numerous benefits of platforming are mentioned such as cost savings, improved product reliability, and shorter time to market, etc. These benefits are usually balanced with the need to provide product variety and product innovation to satisfy all customer segments. However, there are further risks involved with platforming that have not been discussed. This chapter brings the caution, using Nokia case as an example to illustrate the potential downside of over-platforming.

Platforming effort does save the company on cost and development time, however it limits the development capability to certain designs, reduces the development team's flexibility, and puts the company at disadvantage when it needs to respond to sudden market shift or changes. In a fast-pace, ever-changing environment, sometimes the platforming strategy works so well in a period of time but may come back against you later on when market condition changes.

### **Early Success of Nokia's Platform Strategy**

Nokia is still the global market share leader today in wireless handset industry, although the market share lead is rapidly shrinking in recent years. Nokia success comes from establishing the low cost leadership in early years, and the resulting dominance in the low-end handset segment with product mostly in candy bar form. In no small part, the low-cost leader position and the market share lead was the result of its aggressive platforming strategy.

Nokia platformed almost everything from baseband ICs, memory ICs and software to components like imagers, displays and batteries. This aggressive approach did drive

the cost down significantly. For example, Nokia had a conscious effort to platform chipset and maximize the commonality among important ICs. As a result, Nokia leveraged its huge IC volume, partnered with major IC manufacturers, such as Texas Instrument, and got great deal on low-cost IC supply. Another major benefit of Nokia's aggressive platforming practice is better product reliability. Candy bar form phones naturally have better reliability since they don't involve circuitry going through the hinge, and only need one PCB board instead of two as is required in flip phones. Plus the extensive reuse of proven reliable designs, Nokia candy bar phones usually had the best-in-class field failure rate.

In most regions, Nokia's low cost and reliable candy bar phones were selling very well in early years. In many regions, the retail store recommendation often went to Nokia product because of the low cost and reliable reputation. The platforming strategy worked very well for Nokia that it enjoyed the market share leadership for a relatively long period of time.

### **Core Competency Turned into Core Rigidity**

Despite its various benefits, Nokia's platforming strategy did have serious downside which may not be as obvious at the time. Such platforming practice limits its development capability to low-end candy bar designs and reduced the development team's flexibility to change product functions and industrial designs. The end result is a portfolio of very similar-looking candy bar phones (see Figure 26)



**Figure 26: Nokia's Portfolio of Similar Candy Bar Form of Product Offering**

The heavy platform and low-cost model worked so well for Nokia, the company was so profitable for many years that there was no clear incentive for it to deviate from its aggressive platforming strategy. However, when the market condition changed during the past few years, Nokia had a tough time adjusting to it, and the market share lead dropped sharply.

In recent years, flip phones and other form factors have become more and more popular, competitors increasingly use industrial design and novel form factors to differentiate their product. As more people begin to view the cell phone as a fashion product, a symbol of life style or social status, Nokia portfolio of low-end similar-looking candy bar phones continue to lose market share. People pay more attention to form factor and the physical appearance of the phone, so that low cost and reliability are moving to secondary considerations, as many customers in Asia change to a new phone model every 6 months.

Nokia's candy bar platform strategy limited its capability of developing other form factor phones, and struggles lately to introduce new flip phone designs with the same level of cost and field failure rate. As technological advances made in wireless industry, wireless handset will no longer be just a daily communication phone. When people demand more and more from their wireless phone, Nokia could have further problems if it doesn't change from its current rigid platforms and its aggressive platforming approach.

### **Lessons and Summary**

Nokia case is an excellent example illustrating the risks of over-platforming. The benefits of platforming are quite tangible in many cases, yet if pursuing such initiative over aggressively may lead to the kind of rigidity that hurt the company in the long run. The Nokia example certainly reminds companies with an actively platforming practices to monitor the level of its platforming effort, and pay attention to its development capability in key areas. And it is always a good idea to keep a close eye on the market trend and current condition, preparing the company for future shift by regularly examining its capability and readiness to respond to potential sudden changes.

## Conclusions

In the preceding five chapters, we discussed the benefits and rewards of a platforming strategy, which includes not only time and cost savings from development and manufacturing processes, but also its contribution to faster time to market, improved product reliability and better innovation perception by consumers. At the same time, we also explored the challenges of implementing such a platforming strategy, whether they are the challenges of identifying the platforming focus, or the challenges of overcoming organizational obstacles, or the challenges of mitigating the risk of over-platforming. In today's highly competitive environment within the wireless handset industry, a well planned and executed platforming strategy is needed for a company to be successful at delivering product innovation and product reliability with shorter development cycles. Senior management support is critical for the success of implementing such a platforming strategy.

It is evident that a platforming strategy provides many rewards to companies that use it effectively. The general intent and motivation of platforming is to reduce development time/cost and manufacturing cost through the design reuses and part commonality. As Samsung data and finding suggest, those are not the only benefits. The strategy of identifying the winning industrial designs and platforming around them can be an efficient way to create a company's innovative image. In this approach, the use of incremental improvements is critical to make the derivative product line-up appear to be fresh. In addition, platforming initiatives help in other ways creating innovative perception by consumers. The shorter development cycles resulted from those platforming efforts enable wireless handset manufacturers fast product launches, and be

the first to market with models incorporating the latest technology. Faster development process also gives the manufacturer the option of a “controlled launch” in a test market to collect valuable feedback, in terms of design styles or field failure problems, before its global launch. Finally, platforming practices improve product reliability, which directly impacts bottom line in today’s wireless handset market. Field failure rate can be reduced by reusing proven reliable designs and components. Also faster develop cycles allow more time for quality assurance.

However, companies face many challenges when they try to implement their platforming strategy. First, it is difficult to determine the optimum platforming focus. As discussed earlier, Matrix analysis, Kano analysis, and the combined use can be valuable for companies to get the general idea of the important areas they should have their platforming initiatives focused on. However, it is a more complex optimization problem, and further trade-off analysis is needed. Second, companies have to overcome tremendous organizational obstacles when implementing platforming initiatives. It doesn’t matter whether it is in strategic, or cultural or political context, resistance and tension exist during platforming initiatives, in which better communication and incentive alignment are needed. Third, companies with overly aggressive platforming strategy run the risk that this competency could turn into rigidity. Over-platforming limits development capability, reduces the flexibility in introducing new product and leaves the company vulnerable to market shifts and changes.

The wireless handset industry has been increasingly competitive in recent years. Companies not only compete for cost, but also begin to pay more attention to production innovation, product reliability and time to market. Through the cases of Samsung and



Nokia, lessons can be learned for other manufacturers. A platforming strategy is needed to survive in this highly competitive environment. A well planned and executed platforming strategy can even fit in the company's overall strategy and help to beat the competition. However, such a platforming strategy is rarely easy in implementation. Senior management support is critical for the success of such a strategy. Companies need to be aware of the challenges and risks involved and consciously develop their organizational understanding and capability in platforming.

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