ST Microelectronics – partnering for profit

Tang, Hung Kei; Gleave, Tom

2001

Tang, H. K., & Gleave, T. (2001). ST Microelectronics: Partnering for Profit. Singapore: The Asian Business Case Centre, Nanyang Technological University.

https://hdl.handle.net/10356/100787

NANYANG TECHNOLOGICAL UNIVERSITY
Nanyang Business School

Richard Ivey School of Business
The University of Western Ontario
IVEY

ST MICROELECTRONICS : PARTNERING FOR PROFIT

Publication No: ABCC-2001-005
Print copy version: 4 Dec 2001

Tang Hung Kei and Tom Gleave

It is December 2000 and Jerome Roux is preparing for a meeting with Mr. Liu Jin, President of China-based Suanpan Company Limited (Suanpan). As the person responsible for marketing ST Microelectronics' (ST's) Discrete and Standard Products Group (DSG) in Asia, Roux's objective for the meeting is to establish mutually agreed upon sales and market share goals for the coming year. The meeting is important to Roux because Suanpan is one of ST's largest distributors in Asia. At the same time, the semiconductor industry is experiencing intense competition which has led to sustained downward pressure on prices and profit margins across many product categories, including those in DSG family. These pressures have led ST to shift its product mix towards higher value-added items which, in turn, is impacting the company's relationship with its distributors.

To facilitate the shift in product focus, Roux and his team have developed a so-called "Roadmap" business planning tool. Given that the Roadmap is still in its infancy and that ST's expected sales targets are admittedly aggressive, Roux knows that he will have difficulty trying to convince the likes of Mr. Liu to adopt the new planning tool. In addition, he recognizes that certain cultural differences could also potentially impede its acceptance. Therefore, in preparation for the meeting with Liu, Roux must review the merits and drawbacks of the Roadmap in order to be able to counter any possible resistance, as well as substantiate the sales and marketing share goals that he is proposing.

Ivey-Nanyang Case Writer Tom Gleave prepared this case under the supervision of Associate Professor Tang Hung Kei. The case is based on public sources and interviews with key personnel from ST Microelectronics. As the case is not intended to illustrate either effective or ineffective practices or policies, the information presented reflects the authors' interpretation of events and serves merely to provide opportunities for class discussion.

For copies, please write to The Asian Business Case Centre, Nanyang Business School, Nanyang Technological University, Nanyang Avenue, Singapore 639798
Phone: +65-6790-4864/6790-5706 Fax: +65-6791-6207 E-mail: asiacasecentre@ntu.edu.sg

To offer strategic independence to our partners worldwide, as a profitable viable broad range semiconductor supplier.

ST Microelectronics' mission statement

In December 2000, Jerome Roux of ST Microelectronics (ST), was preparing to meet Liu Jin, President of China-based Suanpan Company Limited (Suanpan). As the key person responsible for marketing the semiconductor manufacturer's discrete and standard integrated circuit products (DSG) products in Asia, Roux's objective for the meeting was to establish mutually agreed upon sales and market share targets with Suanpan. The meeting was important to Roux because the semiconductor industry had sustained downward pressure on prices and profit margins on many of the products found in the DSG family. This led ST to shift its product focus towards higher margin, higher value-added items. Therefore, Roux needed to convince all of its distributors, starting with Suanpan, of the need to aggressively sell more higher valued-added items in order to maximize mutual profitability.

To facilitate the shift in product focus, Roux and his team developed a so-called "Roadmap" which was expected to serve as a cooperative business planning process between ST and its distributors. However, he anticipated some difficulty trying to convince the likes of Mr. Liu to accept the new tool because the sales and market share targets established by ST for the distributors would likely be perceived as very aggressive. Moreover, since this was the first time that the systematic sales tool was being used, Roux expected a certain degree of resistance from several distributors and their employees because of a cultural preference for conducting business in a less systematic manner. Therefore, in preparation for the meeting, Roux reviewed the preliminary objectives established for Suanpan, as well as the merits of the Roadmap in order to be ready for any potential disagreements with Mr. Liu.

THE SEMICONDUCTOR INDUSTRY

Semiconductor manufacturing had been one of the fastest growing industries in the world in recent years, averaging over 20 percent annual growth with revenues expected to increase from US$167 billion in 2000 to over US$250 billion by 2003. The increased pervasiveness of semiconductors, also known as integrated circuits (ICs) or silicon chips, was largely due to the ability of manufacturers to increase product performance and functionality while decreasing production costs. Traditionally, personal computer manufacturers had been the largest consumers of silicon chips. However, increased demand from Internet connectivity companies in recent years was providing manufacturers with another significant revenue source.

From its inception, the semiconductor industry had been largely engineering and product driven. This led Intel Corporation's co-founder, Gordon Moore, to proclaim his famous Law, which stated that IC performance capacity doubled every 18 months. Such rapid product development contributed to the highly cyclical nature of the industry, which was characterized by widely fluctuating product demand, along with associated selling prices and gross margins.

One of the key challenges faced by all industry participants was the effective management of inventory. This was because demand was volatile, yet customers still expected short lead times. Such volatility often translated into significant excesses or shortages of inventory. Paramount in the minds of all industry participants was the need to minimize stock-outs since this could bring entire manufacturing and sub-assembly operations to a standstill. At the same time, however, carrying excessive inventories was costly because product life cycles were short, with margin contributions on new products declining by up to 80 percent one year after introduction. This placed a premium on the need for the smooth flow of information among participants in the supply chain. (See **Exhibit 1** – Semiconductor Industry Value Chain.) The rapid declines in product values also gave rise to another challenge faced by most IC manufacturers, which was the need to continuously develop new value-added products to offset the decline in margins of older products, especially commodity products that provided limited functionality and were easy to replicate.

Due to the complex nature of the IC design and manufacturing processes, the ability to attract and retain qualified personnel impacted a company's success. Given the dearth of qualified people in the industry, competition for skilled design, test and field engineers was intense. The extensive reliance upon proprietary technologies also presented another significant management challenge. This was because it was not uncommon for companies to experience patent infringements by other competitors.

COMPANY BACKGROUND

ST Microelectronics designed, manufactured and marketed a broad range of ICs and discrete devices. The company was originally called SGS-Thomson after SGS Microelectronica of Italy and Thomson Semiconducteurs of France merged in 1987. At the time, Thomson and SGS Microelectronica were ranked 17th and 20th in the world respectively based on sales that combined to US$800 million. The intense competitive environment, which included such players as Samsung, Hitachi and Texas Instruments, provided the impetus for the merger, as both firms faced the option of either retrenching into niche markets or merging and growing by harnessing complementary synergies. In bringing the two companies to become SGS-Thomson (which was renamed ST Microelectronics in 1998), a matrix organization structure was adopted. The headquarters for the newly formed company was established in Geneva, which also served as the base for its European operations. The regional headquarters for the US was based outside Dallas, Texas, while Singapore served as ST's base in Asia Pacific outside of Japan, which was considered its own region.

During the merger, a decision was made to retain the sales teams from the two previously independent companies so that the new entity could mount an aggressive attack on the market with the specific objective of winning market share. Since then, ST had significantly broadened and upgraded its range of products and technologies, as well as its manufacturing and distribution capabilities in Europe, North America and Asia. These activities were largely financed by funds raised on the New York and Paris stock exchanges in 1994, followed by the Borsa di Milano in June 1998. By 2000, ST had 36,000 employees working in 9 research and development units, 35 design and application centers, 18 manufacturing sites and 62 sales offices in 24 countries. Revenues for the previous year totaled US$5.06 billion (with net earnings of US$547 million), making ST the eighth largest semiconductor manufacturer in the world. In terms of the regional origin of the revenues, 36 percent came from Europe, 33 percent from Asia Pacific, 23 percent from North America, 5 percent from Japan and 3 percent from other areas. This contrasted sharply with the time of the merger when the newly combined company earned 62 percent of its revenues from Europe, 20 percent from North America and 18 percent from Asia Pacific.

ST'S BUSINESS APPROACH

ST attributed its success to its adherence of four guiding principals that it formalized at the time of the merger. These were as follows:

- To be recognized as a world-class manufacturer in terms of quality, service and cost.
- To be an integrated supplier capable of developing, manufacturing and marketing products in each major macroeconomic system in the world.
- To sustain a high rate of innovation in products, processes and capabilities.
- To form strategic relationships with key customers, assuring them strategic access to ST technologies and capabilities in return for access to markets and system know-how.

In concert with the company's four strategic guidelines, ST adopted an uncompromising commitment to Total Quality Management (TQM) and Total Quality Environmental Management (TQEM). Since 1991, it had earned more than 70 quality-related awards, including the Malcolm Baldrige National Quality Award, one of the most coveted in the world. In addition, ST's regional operations in Asia received the Singapore Quality Award for Business Excellence (SQA), an accolade given to only one company per year by the Singapore government. The SQA was a source of considerable pride among the Singapore-based employees because, on one previous occasion, ST had applied for the award but failed to win. This created a heightened resolution among the local employees to achieve the designation. Among the other awards received, over 30 were related to environmental management issues, such as the United States Environmental Protection Agency's Climate Protection Award. (See **Exhibit 2** – ST's Five Principles of TQM.)

To ensure it remained a leading-edge technology developer, ST consistently invested significant sums in new capital equipment and research and development. On average, the company had spent over US$1.0 billion in each of the previous five years on new capital equipment and upgrades, with an additional US$836 million spent on research and development in 1999 alone.

In addition to its commitment to quality and technological excellence, ST placed a high degree of importance on encouraging and providing continuous learning opportunities for its employees, as evidenced by the establishment of ST University in Aix-en-Provence (in southern France). The university ran over 70 courses that were closely aligned with specific training goals of the company, including a certified Masters degree in Microelectronics Technology andManufacturing Management.

ST'S PORTFOLIO OF PRODUCTS

ST designed and sold more than 3,000 types of semiconductors products, ranging from single transistors to some of the world's most complex ICs with millions of transistors fabricated on a single chip. These products were sold to more than 1,500 customers worldwide who used them in a wide variety of applications, including telecommunications systems, computer systems, consumer appliances, automotive products, as well as industrial automation and control systems. Some of the company's most important customers included Alcatel, Ford, Hewlett-Packard, IBM, Nokia, Nortel Networks, Philips and Sony.

The products ST manufactured fell into four main categories: differentiated products; memories and logic; analog and discrete devices, and standard ICs. The differentiated group was comprised of value-added products that incorporated a high level of customization into their design and development. The bulk of the memories and logic group consisted of non-volatile memory devices, an area where ST had become the world's leader. Analog ICs continuously carried signals that varied in amplitude (unlike digital signals), while discrete devices, such as power switches and amplifiers, were designed to handle higher power levels and voltages than regular ICs. Standard ICs performed simple functions in common devices, such as amplifiers, comparators and voltage regulators.

Many of the products in the standard ICs and analog and discrete groups were often referred to as commodity items within the semiconductor industry due to their limited functionality, ease of replication and associated price erosion. ST combined these two product categories to become the Discrete and Standard ICs Group (DSG). Forecasted sales of DSG products in Asia (ex-Japan) for 2000 was expected to reach over US$400 million, of which about 45 percent was expected to be derived from sales to numerous distributors in the region.

Jerome Roux was ST's Director of Marketing in Asia (ex-Japan) for the company's DSG product lines. Prior to arriving in Singapore in 1998, the 36-year old French native had worked for 11 years at ST facilities in France and Morocco, where he was involved mainly in a variety of operational and marketing capacities. In Singapore, much of his efforts focused on the marketing of standard products because they were a major cash generator for the business. He was also involved in so-called "advanced marketing" efforts which entailed the creation of new applications using existing products, thus extending their product lifecycles.

DISTRIBUTION: PARTNERING FOR PROFIT

In keeping with the company's strategic guidelines, ST had developed a worldwide network of alliances with various players in the IC manufacturing value chain. This network provided a wide range of mutually beneficial arrangements, including product and technology development alliances with key customers and other semiconductor manufacturers, as well as equipment and computer-aided design alliances with major suppliers. In addition, the company had established strategic relationships with key distributors around the world. By 1999, sales to all strategic partners amounted to US$2.1 billion, more than double the 1995 level of US$1.0 billion.

Each of ST's major regions had dedicated distribution, sales and service staff. In most parts of the world, including Japan, exclusive agreements had been struck with product distributors. However, in Asia ex-Japan, ST relied on an extensive network of independent distributors, which ranged considerably in terms of both sales volume and market coverage. The largest distributors often had customer bases of over 200,000 accounts, many of which were inactive. Among the active accounts, the top 20 percent generated about 80 percent of all sales. These larger accounts typically included computer manufacturers, other distributors and electronic components sub-assemblers. The bulk of the smaller accounts were comprised of retailers and specialty niche players.

Globally, 35 percent of the company's revenues were generated from direct sales to end-users. By contrast, only 25 percent of sales in Asia were transacted directly to end-users. In Asia, six of ST's top 10 customers were distributors, with the remaining four being world-scale manufacturers. In order to support its distribution network, ST invested a considerable sum in computerized warehousing, inventory, stock rotation and logistics support. For

example, the company built a state-of-the-art logistics center in Singapore that was QS 9000 and ISO 14000 certified. Apart from handling regular inventories for much of the region, this operation also held special inventories for original equipment manufacturing (OEM) customers who had signed long-term contracts at agreed delivery dates and prices.

Given that inventory management was a critical success factor for the industry, ST relied on its distribution partners to provide timely and relevant market intelligence in order to control and forecast inventory stocks. As Roux explained, this led to a constant pressure to fulfill sales orders placed by customers:

> *The industry is so competitive that if a member of the value chain runs short of inventory, it will do almost anything to secure supply. This is because nobody wants to run the risk of permanently losing a customer. So if an order for 1,000 pieces comes in from a customer and a supplier only has 900, drastic measures will often be taken to find the other 100 pieces in order to rescue the sale. Since we don't want to permanently damage our relationships with our various customers, we need to make sure that we do not create their stock out positions.*

To help distributors and end-customers manage their inventories better, ST offered different forms of inventory relief on a very selective basis. In some cases, this would involve allowing orders to be rescheduled. In other instances, the company might allow orders to be cancelled, but only as an absolute last resort. Due to the sophisticated nature of the manufacturing process, which required significant time to design the customized IC dies and subsequently stamp the silicon, ST scrutinized any inventory relief measure very vigorously.

SUANPAN CORPORATION

Suanpan Corporation was founded in Shenzhen, China in 1988 by Liu Jin, the company's President and CEO. The company began by manufacturing electronic components before eventually establishing distribution dealerships across Asia. As it grew, Suanpan broadened its coverage to more than 75 major electronics manufacturing segments, including ICs, passive components, hard drives, floppy drives and CD-ROMs. In addition to product sales, the company provided warehousing and back-up support for downstream customers, such as computer manufacturers and electronic component sub-assemblers. Over the past several years, the company had enjoyed 30 to 40 percent annual sales growth, going from US$30 million in 1992 to an estimated US$255 million by 2000 in China alone. During this same period, overseas sales had increased from US$26 million to US$366 million. By 2000, Suanpan had become one of the largest distributors of ST microelectronic products in Asia, with sales of ST products expected to reach about US$103 million by the end of the year. Of this, about US$56 million was expected to be DSG products, 40 percent of which were advanced marketing or value-added items.

Suanpan's organizational structure consisted of eight separate business units, five of which were responsible for marketing specific branded products. One of these latter units was responsible for marketing six different families of products made by ST, while the other units were dedicated to marketing products made by some of ST's key competitors. The company employed over 80 marketing representatives and field application engineers to service the various product lines sold. This support included pre-sales service (such as sample selection and express sample delivery), customer design services and joint product development. After-sales service involved working with customers to ensure that the products ordered were suitable to their intended applications and performed to their specifications.

To help improve operational efficiency and ensure just-in-time (JIT) delivery to its downstream customers, Suanpan had recently invested over US$700,000 in an enterprise resource planning (ERP) software system. Since ST used an ERP platform developed by SAP, the two companies began to develop a seamless interface between each other's inventory management modules. Preliminary plans for such an interface had been drafted and it was hoped that a reliable link would be in place by the end of 2001.

In addition to the five product marketing business units, Suanpan maintained a strategic marketing business unit that was responsible for developing new agency relationships, corporate resources planning activities, inventory management and general marketing activities. The company also maintained an electronics product development center staffed by over 20 research and application engineers, which allowed Suanpan to design and develop customized components. Finally, a general

administration and finance department managed the day-to-day affairs of the business. In terms of its geographic presence, Suanpan had established branch offices in Malaysia, Singapore, South Korea and Thailand. To keep pace with the company's expansion, the number of staff had grown from about 65 in 1992 to 275 by 2000.

Suanpan prided itself on maintaining an environment of mutual trust and respect among its employees in the hope of achieving a motivated staff. To this end, the company had implemented a series of measures designed to promote employee performance. One of the strongest motivations to perform was instilled by the profit sharing scheme made available to all employees. In addition, the company provided employee development and training programs for all of its key personnel. A knowledge network was also established in the company to encourage the exchange of information among all the departments. The result of these initiatives was that, in contrast to many of its competitors, Suanpan did not experience a significant attrition of staff.

THE PRODUCT MIX ISSUE

The commoditization of many of the products in the DSG group had led ST to emphasize greater market development of newer, more customized products since these differentiated items provided higher profit margins. In 1999, ST earned about 63 percent of its global revenues from customized products, with the remaining 37 derived from commodity products sales. However, Asia lagged in the uptake of differentiated products with sales of 34 percent, 24 percent, 19 percent and 23 percent for Hong Kong, ASEAN, Korea and Taiwan respectively. Approximately 80 percent of these sales came from completely new products, while the remaining 20 percent were comprised of enhanced items borne from ST's efforts at developing new applications for existing products. Explaining the product mix situation, Roux stated:

> *The standard products market is the least glamorous part of the semicon industry because it basically consists of single function items. But these products are still the bread and butter of our business and, in some ways, they are just as important as expensive higher-value added products. This is because if a downstream manufacturer lacks a simple $0.50 cent chip, an entire production schedule can be halted. Standard products also have the highest level of competition and require the largest investment in manufacturing infrastructure. This means we need to keep our facilities operating around the clock in order to maximize asset turns. Therefore, managing profit margins is critical to our success.*
>
> *The highly commoditized parts business is becoming like a supermarket - many offer razor thin margins, sometimes even negative margins! Although many of our standard products are maturing, they are still a big cash cow. But we can't drop prices anymore than we already have or else we will all lose. On the other hand, differentiated products offer margins that are much higher. Therefore, we urgently need to refocus our product mix toward differentiated products.*
>
> *We are hoping to fast track this process by achieving a 60 percent - 40 percent mix for differentiated and commodity products this year, but this is causing a lot of disruption with our distributors. This is because supporting sales of higher value-added products requires commitment and investment by our distributors. They need suitably educated engineers and sales staff who can work effectively with manufacturers and assemblers because new products have design and application features that are too complex to handle through a simple customer service hotline.*

DEVELOPING THE ROADMAP

In late 1999, Roux and his colleagues embarked upon a comprehensive planning process that was designed to yield specific revenue and market share targets for all DSG products in Asia (ex-Japan), as well as the action steps required to achieve these objectives. The culmination of this exercise was the creation of a so-called business "Roadmap." The first Roadmap was applied exclusively to the local Singapore market in 2000. The initial results were viewed with such promise that, in mid-November 2000, Roux hosted over 100 ST employees from all over the world at a three-day Roadmap planning workshop in Singapore. In the weeks following the workshop, Roux and his team prepared preliminary 2001 Roadmaps for each major distributor in Asia

Pacific (ex-Japan). During meetings that were scheduled in mid-December 2000 with each of the major distributors, including Suanpan, Roux hoped to gain acceptance of the targets contained in the individual 2001 Roadmaps. In explaining the rationale for the process, Roux commented:

> *ST has come a long way since the merger in 1987. Back then, the market was driving us because we were small and not organized efficiently. But now, we are in a much better position to drive the market…and the Roadmap is one of the tools that will help us steer the course in our race to beat the competition. This is because it is designed to ensure that we achieve specific revenue and market share objectives, as well as secure some protection against our competitors. We have taken this fundamental and logical approach to business development because we can no longer afford to tolerate 'management by guess'. Until recently, our long term business planning window was just a few weeks or months, but now we hope to plan for the medium term.*
>
> *On a strategic level, we hope that by negotiating the targets and actions steps contained in the Roadmap with our distributors, our mindsets will be in harmony with each other. We expect that the process will help us develop a group identity - one that highlights the fact that we are all in this business together to make money. In terms of execution, we foresee working hand-in-hand with our partners to help them develop individual Roadmaps so that they will understand the people, capacity, management decisions and plans that need to be put in place in order to realize our mutual objectives. And to do this, you don't need rocket science – you just need good sense. So we will use basic tools like BCG analysis to help our partners rationalize and conceptualize their objectives. Forecasting is far from an exact science, but by adopting a more systematic approach to business planning and market development, we hope to eliminate the big spikes in demand that occur along the way.*
>
> *We decided to roll out the Roadmap in multiple stages for two reasons. First, we knew there would be resistance because many business people in Asia do not like taking such systematic approaches to business development. Therefore, we knew we had to prove that the process was worth it, so we kept the initial roll-out very limited. I could then monitor its acceptance and identify potential trouble areas that needed to be addressed…which is the second reason we why took a multi-stage approach. We wanted an opportunity to fine-tune both the strategic planning and execution phases before we took it region wide.*

COMPLICATING MATTERS

Roux's Perspective

Roux felt that there were three alternative routes which would motivate ST's distributors towards achieving higher sales levels: offer more profit margin for each product sold; threatened to sell more products through other distributors; or mutually cooperate. As far as Roux was concerned, the first two options were non-starters because ST could no longer afford to reduce its profit margins, particularly for commodity products, nor was the use of threats consistent with Roux's management style. Still, he knew that seeking a mutually cooperative solution would not be without its challenges. Roux explained:

> *We will be pushing Suanpan to sell about US$70 million worth of DSG in Asia Pacific next year – 60 percent of which will be advanced marketing or value-added items and 40 percent commodity products. That may sound like a big increase over this year, but we are simply taking the consensus of many internal and external analysts who are predicting that the industry will grow by about 25 percent in 2001. And keep in mind, the analyst's forecasts have been scaled back considerably …earlier this year, most of them were talking about 50 percent sales growth in 2001. Most importantly - if Suanpan does hit the US$70 million target we have suggested, it will benefit us both. There are huge global distributors out there doing US$20 billion in sales every year.*

They can be very formidable competitors to distributors like Suanpan, as well as tough negotiators with chip manufacturers like us.

We are not insensitive to our distributor's position - we have to recognize that a substantial size effects exists. If we want to achieve 50 percent growth in Asia Pacific, we can go out and hire 20 new people, but companies like Suanpan can't always afford to do this. So we need to be mindful of the growth that they can achieve. Nonetheless, we still expect these companies to do their job - which is to grow as fast or faster than the market. This is particularly true for Suanpan since they are one of our preferred customers, which means we give them preferred support. Given strong focus on selling value-added products in 2001, this means that they will need to hire many more properly qualified field engineers to service the end-users.

One of the persistent issues that we have with companies like Suanpan is that they sell a significant amount of our competitors' products. Suanpan actually has entire business units dedicated to selling products made by our direct competitors. So our concern is how much of their efforts are being placed on ST products. We can monitor their efforts to some degree by having 'advocates' in place at our distributors. They can check up on how we are doing because Suanpan gives them access to its books at anytime. But if we detect that Suanpan or the advocates are not telling us the whole picture, we can always go to one of our other customers and see what they are saying about the market. Having these kind of cross-checks in place helps keep everybody honest.

Another issue that always seems to arise when we meet with distributors is their desire for more profit margin. We are usually not ready to listen too much to this line of thinking because we believe this is just an easy temporary solution for the distributor…it shows that they haven't looked at the market hard enough. If they want more margin, they need to provide us with inputs so that we can analyze how competitive pressures are forcing them to cut their prices. And keep in mind, we have advocates who can corroborate the story. In the event that the distributors do prove that prices, indeed, need to be cut, we would be willing to negotiate some marginal price adjustments.

Some people at ST question the logic of working with companies like Suanpan…they ask "why don't we just do things ourselves?" But the reality is partners like Suanpan can be tremendously efficient in execution and, ultimately, cost effective for us. So it is in our mutual interest to cooperate. They have the connections and infrastructure in place, and that is not easy to establish. Their sales force and connections also provide us with market intelligence and sales feedback, which helps us control our inventory and production planning processes. However, there is quite a bit of room for improvement, especially when it comes to timely feedback of market signals. Even comparatively sophisticated distributors like Suanpan still have some remnants of the old-style approach to market development. By this I mean there are under-skilled people in the field who still drive hard to get a sale regardless of whether the customer needs the products or not. They also guard information because this is their greatest asset… some even engage in disinformation. But nobody can afford to withhold or distort information any more. This is a world where it takes much less time to build a car than a microchip, so any disruption in the information flow can have a substantial negative impact on the responsiveness of the supply chain. This means we must work with our distributors to help them help their own people understand the merits of a robust sales planning process.

Liu's Perspective

As one of ST's largest distributors in Asia, Suanpan was keen to work with the semiconductor manufacturer in order to enhance each other's positions in the region. At the same time, however,

Mr. Liu was getting frustrated because of the increased pressures of the industry in general, and the demands being placed upon it by its suppliers, like ST, in particular. Liu related:

> *ST always wants us to expand our sales offices, hire more personnel and train our existing and future staff better...but they don't always deliver on their promises either. If ST wants us to increase our sales and service, they have to realize that all of this costs money. The resale margin for the standard products in 2000 has been about 7 percent across the industry. This is largely due to inventory related problems – we are carrying an average of five months stock. This requires extra warehousing, administration, insurance, etc., which can cost up to 9 or 10 percent of sales. In other words, we are selling some standard products at a loss.*
>
> *I have come up with several possible remedies for the situation, but I am not sure how ST will respond. First, ST could provide us with a graduated volume incentive scheme to sell more products. For example, ST could provide us more margin once we reach predetermined sales levels…so the more we sell, the more margin we get. Of course, I expect some resistance to this idea, but what is wrong with asking for a bigger cut of the pie if we work harder at driving volume?*
>
> *Another solution would be to help us relieve our inventory problems. We have taken on too much stock, so we need booking relief. This means that we could manage our inventory better if we were allowed to cancel or reschedule our orders on shorter notice. Of course, ST might just come back and say that they can't cut the period because of manufacturing constraints. But why should we absorb all inventory costs – they have analysts telling everybody that the market will grow 50 percent in the next year and then, boom, all of a sudden the growth rate is revised to 25 percent.*
>
> *Since our prices are no longer competitive, we also need more protection for our inventory and backlog orders. If we order products at a certain price, we should receive them at that price, instead of having to absorb any price fluctuations that occur between the time the order is placed and the time it is delivered. Why is it that we are expected to endure most of the pain, and still be expected to invest more in facilities and people, etc.*
>
> *Sales targets and actions plans are good ideas, but the industry is changing so fast you can't anticipate everything - you need to be flexible and responsive, not a prisoner to some systematic theory. This is especially true when you are dealing with a relationship-driven business. We have to be careful about what we can expect from our customers. Some of our relationships have taken years to cultivate, so we don't want to do anything to upset them. At the same time, we can't be expected to sit in between ST and the end-users and feel squeezed all the time - we all must share the responsibility and the burden.*

PREPARING FOR THE MEETING

As the meeting with Mr. Liu approached, Roux once again reviewed the details of the preliminary Roadmap that he and his team had developed for Suanpan. He looked forward to seeing Liu again as the two managers had established a favourable rapport with each other. Still, Roux knew that he needed to be alert during the meeting in order to ensure that ST's interests were best represented because Liu was a skilled and savvy negotiator who would defend Suanpan's position forcefully.

EXHIBIT 1

SEMICONDUCTOR INDUSTRY VALUE CHAIN

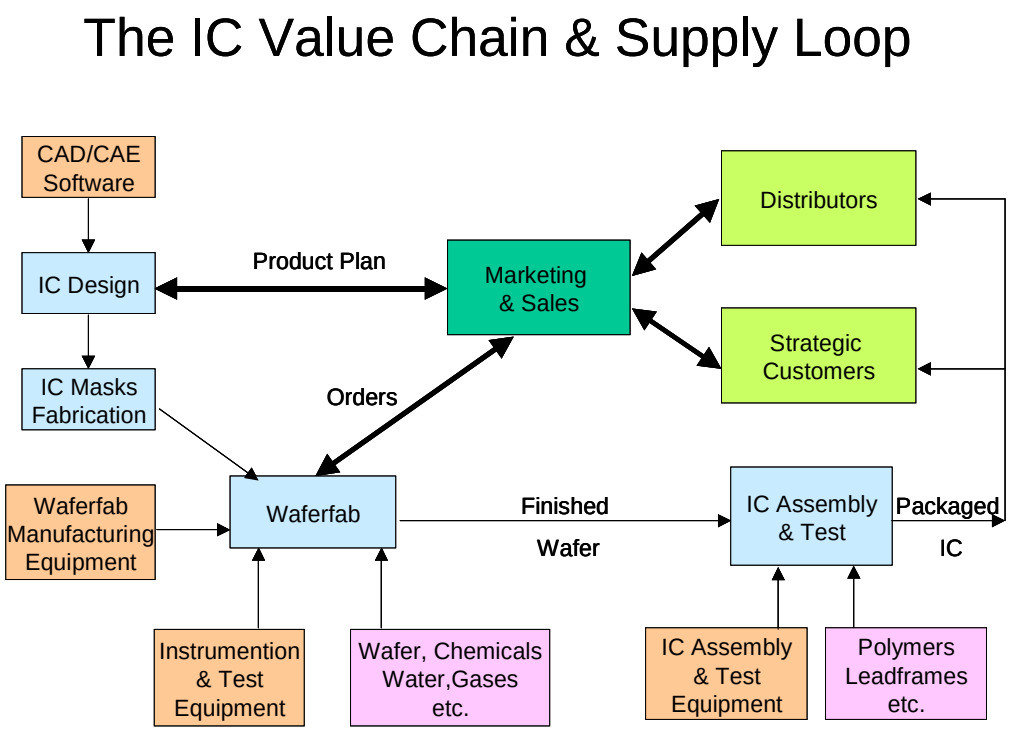


EXHIBIT 2

ST'S FIVE PRINCIPLES OF TQM

Management Commitment	1. Plan - drive, direct 2. Do - deploy, support, participate 3. Check - review 4. Act - recognize, communicate, review
Employee Empowerment	1. Training 2. Suggestion Scheme 3. Measurement and Recognition 4. Excellence Teams
Fact-based Decision Making	1. Statistical Process Control 2. Design of Experiment / Failure Modes and Effects Analysis 3. The Seven Statistical Tools 4. Team Oriented Problem Solving
Continuous Improvement	1. Systematic Measurement & Focus on Cost of Non-Quality 2. Excellence Teams 3. Cross-functional Process Management 4. Attain, Maintain, Improve Standards
Customer Focus	1. Supplier Partnership 2. Service Relationship with Internal Customers 3. Never Compromise Quality 4. Customer Driven Standards

EXHIBIT 3

PLAN DO CHECK ACT CYCLE

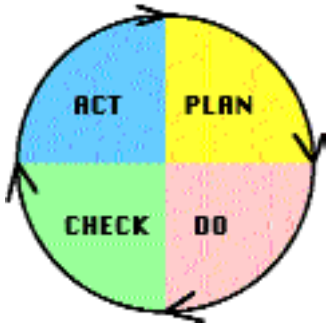
The Plan Do Check Act (PDCA) Cycle was popularized by the well-known American quality guru, Edward Deming, in the 1950s. Deming believed that business processes should be analyzed and measured to identify sources of variation causing products to deviate from customer requirements. He therefore recommended that a company's business processes be placed in a continuous feedback loop so that its managers could identify and change activities requiring improvement. This led Deming to use the PDCA cycle, which comprises the following elements:

PLAN: Design or revise business process components to improve results

DO: Implement the plan on a small scale to test changes

CHECK: Measure changes and report the results to key process decision makers

ACT: Take actions which will yield the greatest improvements



Deming's work using the PDCA cycle focused primarily on improving post-World War Two industrial production processes. Modern quality theorists have since attempted to adapt his work to include improvements to performance drivers at a broader strategic level. They have done so on the premise that strategy formulation and implementation are also process-driven activities, and therefore can be placed in a continuous feedback loop, complete with measurements and planning linked in a PDCA cycle.

Source: Adapted from www.balancedscorecard.org/bscit/intranet/pdca.html

EXHIBIT 4

JEROME'S BUSINESS ROADMAP