Asia Case Research Centre
THE UNIVERSITY OF HONG KONG

Poon Kam Kai Series

NEALE O'CONNOR

SHANGHAI INTERIOR AUTOMOTIVE DOOR SYSTEM: RUNNING A MANUFACTURING OPERATION IN CHINA

In 2009, U.S.-based Interior was a leading player in the automotive component industry. Through its joint-venture Shanghai Interior Automotive Door System Co. Ltd. (Shanghai Interior), the company controlled almost one-third of the China automotive component market. Nonetheless, between 2007 and 2009, the company failed to meet its profit target for three years consecutively. A number of factors contributed to this failure, some internal and some associated with the challenges of working in an emerging economy. If Shanghai Interior was to stay competitive, it had to meet targets. What should Shanghai Interior's management do to put the company back on track?

INDUSTRY BACKGROUND

In 2009, China became the largest automotive market in the world. While its automotive industry had grown to produce about one-seventh of the vehicles in the world, its automotive component industry remained relatively small with a high potential for growth. The total output value of China's autoparts industry amounted to US$164.98 billion in 2009, up 20.4% from the previous year.[1] In early 2010, China had some 10,788 auto parts manufacturers with annual sales of more than US$760,000 and the industry employed more than two million people.[2] As joint-venture automotive manufacturers such as Shanghai General Motors and FAW Volkswagen sourced their parts increasingly from China, more and more international component manufacturers set up plants in the country and China's automotive parts industry was expected to grow to US$350 billion in value by 2015.[3]

[1] Research In China (July 2010) *China Auto Parts Industry Reprot, 2010*, http://www.researchinchina.com/Htmls/Report/2010/5914.html (accessed 2 February 2011).
[2] Ibid.
[3] Bloomberg (10 February 1009) "China's Vehicle Sales Top U.S. Tally for the First Time."

Grace Loo prepared this case under the supervision of Dr Neale O'Connor for class discussion. This case is not intended to show effective or ineffective handling of decision or business processes.

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Company Background

Shanghai Interior came into being when its mother company, U.S.-based Interior Products, LLC (Interior), acquired Delta Autopart Corporation's (DAP) global interiors and closures businesses in 2008. With over 160,000 employees and more than 140 manufacturing sites in 30 countries, it was one of the largest auto parts manufacturers in the world. In 1996, DAP began to expand as a global supplier with a strong emphasis on the Asia Pacific market.

DAP entered China in 1994 and operated more than 15 entities and over 20 manufacturing sites in China, supplying to almost all the local automakers by 2009. Shanghai Automotive Door System Co., Ltd. (Shanghai DAP) established in 2000, was a Sino-U.S. joint venture between DAP China Co. and Shanghai SIIC Transportation Electric Co., Ltd with the former being the majority stakeholder. Its main products included door modules, latches and actuators and it was one of the top three automotive parts manufacturers in the world. Its customer portfolio included a significant number of major China based auto makers. Shanghai DAP had a highly educated workforce, with more than half its staff holding a master's or bachelor's degree. The company aimed to provide a perfect quality, good reputation and excellent services to the domestic and international markets with a vision of being "recognized by our customers as their best supplier." Following Interior's acquisition of DAP's global interiors and closures businesses, Shanghai DAP was renamed Shanghai Interior.

Management Review of Operations

Shanghai Interior enjoyed a 30 percent share in China's automotive spare parts market with revenues of about 320 million RMB in 2009, and revenues had averaged a robust 20 percent annual growth between 2007 and 2009. Nonetheless, the company had failed to meet its profit target and first time quality (FTQ) rate for three consecutive years between 2007 and 2009. This and other operational issues came to the forefront of the company's management review in 2010.

Quality control

FTQ referred to the number of pieces that were rejected during the production process. It was measured in piece per million (ppm) defective. A low ppm indicated a production line with good quality control and also a lower production cost. A high FTQ rate meant that many pieces needed reworking and re-testing before they could be shipped, leading to a high production cost. Shanghai Interior's FTQ target and actual FTQ rates during this period were summarized as follows:

	Target FTQ Rate	Actual FTQ Rate
2007	No more than 2400 ppm	3498 ppm
2008	No more than 1700 ppm	2467 ppm
2009	No more than 1640 ppm	2570 ppm

Production costs

When Shanghai Interior was first established in 1999, it imported most parts from overseas for its production though it had slowly converted to sourcing from within China. By 2010, about 80 percent of its suppliers were based in China. Using local suppliers helped the company to control cost but also gave rise to many quality issues as many local suppliers did not possess a good understanding of its quality requirements. This was especially true for tier

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two suppliers [4] in the Western provinces, which had a frail understanding of quality requirements compared with their tier one counterparts in the eastern provinces, such as Zhejiang and Jiangsu. Shanghai Interior compensated by sending their own engineers to train their suppliers but managing suppliers continued to be difficult. Many domestic suppliers were not resourceful in solving problems and lacked project management skills to deliver on time and according to Shanghai Interior's requirements.

> *"Sometimes the suppliers do not have the parts, or something went wrong, and they could not deliver the parts and that affects our production. So it involves our project management skills, many suppliers are just starting to develop their skills in this, and perhaps they need more time. Lots of our suppliers are not experienced, and this puts additional responsibility on us. We need to improve our project management skills as much as the suppliers need to work on their quality and technical capability.*
>
> \- Manager, Shanghai Interior

The situation was further complicated by the fact that Shanghai Interior did not have all the measurement equipment required to check the quality of product output of suppliers and had to rely on measurement information from its suppliers. Even for the measurement equipment it possessed, calibration of such equipment was both difficult and costly.

Shanghai Interior was set up to take advantage of China's cheap labour cost and there were many manual processes on the assembly line. A high turnover rate meant Shanghai Interior was constantly putting new workers who were unfamiliar with its work processes and requirements, leading to mistakes and unstable product performance. Internally, the performance of the machineries was unstable because of lack of proper maintenance and they were often not set up correctly after an unscheduled repair, leading to product quality problems.

> *"There is a high degree of automation on the production line overseas so you can do well even if you are working the line for the first time because there will be automatic warning alerts if you make a mistake. When overseas production lines are transplanted to China, they are modified to include more manual processes in order to take advantage of the lower labour cost. But the lower degree of automation means more space for mistakes, and sometimes these mistakes become apparent only when the goods reach the customers."*
>
> \- Manager, Shanghai Interior

In addition, the production team was unable to take into account environmental factors that affected production, such as weather changes, during the planning stage.

New product development

There were other factors that contributed to Shanghai Interior's failure to meet its profit target. Shanghai Interior was not strong in new product or technology development. Shanghai Interior's engineering team was not stable and most of the new know-how had been transferred from its US headquarters, and the transfer had somehow dwindled. There was no communication channel between the R&D department, the sales team and customers. Customer feedback on new product concepts could not reach the R&D department nor did the

[4] In the automotive industry, a tier 1 supplier is one who supplies products or services directly to the assembly plant or the original equipment manufacturer. Tier 2 suppliers are those who sell products or services to tier 1 suppliers, and tier 3 suppliers are those who supply to tier 2 suppliers.

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sales people receive information on the latest product innovation. In an intensively competitive marketplace, the salespeople found it hard to compete on existing products alone.

Turnover of account receivable

Shanghai Interior's general credit terms for its customers were 30 days, and special approval was required for any customer who needed longer credit terms. Nonetheless, the average collection time for account receivable (AR) was 65 days. A number of reasons accounted for the overdue AR.

Payment cycles

Shanghai Interior's billing cycle was out-of-sync with its customers' payment cycles. About 35 percent of the company's sales were billed in the last three to four days of the month when the cut-off day for payment for most of its customers was the 25th of each month. If Shanghai Interior billed a customer, say, on the 28th of October with a credit terms of 30 days, many customers would not pay until December because their payment cut-off date fell on the 25th. This meant that while Shanghai Interior's bill would be excluded from its customers' November payments and pushed to the December cycle, resulting in overdue AR.

Bank acceptance notes

A number of Shanghai Interior's customers paid with bank acceptance notes instead of cash. These customers normally issued a one to three months' bank acceptance note[5] and gave Shanghai Interior the bank acceptance note just after the 30-days credit period. Unless Shanghai Interior was prepared to pay the bank interest to discount the note, it would receive money from the bank only after 30 to 90 days. Shanghai Interior had little choice but to accept bank acceptance notes from its customers because it would not get paid otherwise. The key issue was that Shanghai Interior did not monitor its customers' credit history nor update the customer's credit information in its billing system, and billing continued based on existing terms and conditions even if the customer showed an unfavourable payment history.

Management Issues

In an economy where the demand for talents exceeded supply, Shanghai Interior's competitors continued to lure away its talents with more attractive compensation packages even though Shanghai Interior provided attractive development opportunities such as sending high-potential managers to Harvard Business School. Prior to the acquisition, Shanghai DAP's top management, including the general manager and directors, was supposed to be assigned by both DAP China and Shanghai SIIC Transportation Electric under their joint-venture agreement. But the frequent failure of the two sides to come to a consensus stalled the promotion of middle managers, driving many middle managers to leave out of frustration. Since DAP was one of the top three global suppliers of automotive parts, many staff interpreted Interior's acquisition of DAP as a downgrade and the company further saw its turnover rate rise to 18 percent, 12 percent higher than the previous year. To make the situation worse, the annual increase in managers' salary averaged only eight percent compared to the industry average of 10 percent.

[5] A bank acceptance note is a time draft drawn on a bank deposit that promised future payment, usually for the purpose of financing international trade A bank acceptance note is guaranteed by the bank and it specifies the amount, the date and the person to whom the payment is due. A banker's acceptance helps a buyer to use the bank's credit rating to finance his transactions.

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Epilogue

Faced with a failure to meet its profit target for three consecutive years, Shanghai Interior had to take action to reverse the trend. Shanghai Interior's management had already identified some of the factors that had prevented the company from achieving its targets, now it must decide on the measures it should undertake to turn the situation around.

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<table>
<tr><td colspan="4">Trimester: Jan 2024 - April 2024
Examination: End Term Examination</td></tr>
<tr><td colspan="2">Programme code: 01
Programme: MBA</td><td>Class: SY</td><td>Trimester: VI
(SVU 2023)</td></tr>
<tr><td colspan="2">Name of the Constituent College:
K. J. Somaiya Institute of Management</td><td colspan="2">Name of the department/Section/Center:
Economics</td></tr>
<tr><td>Course Code: 217P01M605</td><td colspan="3">Name of the Course: Game Theory for Managers</td></tr>
</table>

Maximum Marks: 50 **Dates: 28th March 2024**

Notes: Choose any two questions from questions 1 to 3, and question 4 is mandatory.

<table>
<tr><th>Question No.</th><th></th><th>Max. Marks</th></tr>
<tr><td>Q1</td><td>A. Determine which of the following situations describe games and which describe decisions. In each case, indicate what specific features of the situation caused you to classify it as you did.

a) A group of grocery shoppers choosing what flavor of yogurt to purchase

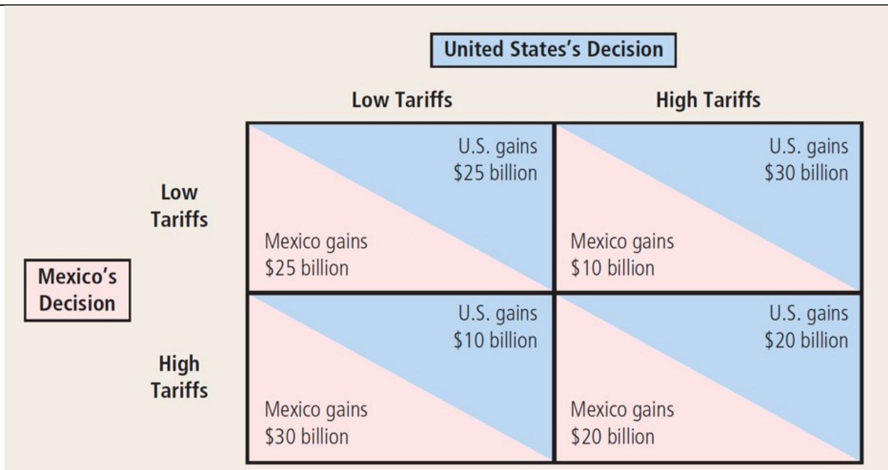
b) A pair of teenage girls choosing dresses for their prom

c) A college student considering what type of postgraduate education to pursue

d) Microsoft and Netscape choosing prices for their Internet browsers

e) A state gubernatorial candidate picking a running mate

B. In game theory, why do people sometimes choose to cooperate with others instead of pursuing purely self-interested strategies? Discuss the factors that influence cooperative behavior in strategic interactions.</td><td>10
(5+5)</td></tr>
<tr><td>Q2</td><td>Consider trade relations between the United States and Mexico. Assume that the leaders of the two countries believe the payoffs to alternative trade policies are as follows:</td><td>10</td></tr>
</table>

	 a) What is the dominant strategy for the United States? For Mexico? Explain. b) Define Nash equilibrium. What is the Nash equilibrium for trade policy? c) In 1993, the U.S. Congress ratified the North American Free Trade Agreement, in which the United States and Mexico agreed to reduce trade barriers simultaneously. Do the perceived payoffs shown here justify this approach to trade policy? Explain. d) Based on your understanding of the gains from trade do you think that these payoffs actually reflect a nation's welfare under the four possible outcomes?	
Q3	Write short notes on ***<u>any two:</u>*** A. What is Group Rationality and The Rationality of Individuals? Explain. B. What is Game Theory and how does it benefit business strategy? C. What is the prisoners' dilemma, and what does it have to do with oligopoly Market?	10 (5*2)
Q4	**<u>Case study : Shanghai Interior Automotive Door System: Running a Manufacturing Operation in China</u>** A. What are the factors that contribute to Shanghai Interior's failure to meet its profit target between 2007 and 2009? B. Categorise the out of control problems for Shanghai Interior in terms of the lack of direction (D), lack of incentives, hard work (H), and/or personal limitations (I). C. What recommendations do you have for Shanghai Interior to improve the situation? ***Case is attached**	30