

CHAPTER 4

CASE STUDY OF LENOVO GROUP

4.1 Introduction of Lenovo Group

Lenovo Group Ltd. or Lenovo PC International, often shortened to Lenovo, is a Chinese multinational technology company with headquarters in Beijing, China and Morrisville, North Carolina. It designs, develops, manufactures and sells personal computers, smart phones, workstations, servers, electronic storage devices, IT management software, and smart televisions. Lenovo is the world's largest personal computer vendor by unit sales since 2013. It markets the ThinkPad line of notebook computers, Idea Pad, Yoga and Legion lines of notebook laptops, and the Idea Centre and Think Centre lines of desktops.

Lenovo has operations in more than 60 countries and sells its products in around 160 countries. Lenovo's principal facilities are in Beijing and Morrisville, with research centers in Beijing, Shanghai, Shenzhen, Xiamen, Chengdu, Nanjing, and Wuhan in China, Yamato in Kanagawa Prefecture, Japan and Morrisville in the U.S. It operates a joint venture with EMC called Lenovo EMC, which sells network-attached storage solutions. It also has a joint venture with NEC, Lenovo NEC Holdings, which produces personal computers for the Japanese market.

Lenovo was founded in Beijing in November 1984 as Legend and was incorporated in Hong Kong in 1988. Lenovo acquired IBM's personal computer business in 2005 and agreed to acquire its Intel-based server business in 2014. Lenovo entered the smart phone market in 2012 and as of 2014 was the largest vendor of smart phones in Mainland China.

In 2001, Lenovo introduced the Six Sigma method from Motorola, which was formally adopted as an important part of the continuous improvement system, and became the first Chinese enterprise to officially introduce the Six Sigma Black Belt Training Consulting Project.

Lenovo Group divides Six Sigma management into three levels. The first level: Define the strategic goal of enterprise quality management: The customer-centered quality management concept is reflected in Lenovo's core values: serving customers, accurate and realistic, honest sharing, and entrepreneurial innovation. The second level is to establish a continuous improvement mechanism based on Six Sig's core around the entire process of product realization. The third level: support for strategic

goals, personnel training and development, quality information, quality costs, and cultural awareness. At the implementation process level, the continuous improvement mechanism is placed in a prominent position alongside the quality assurance system. The aim is to continuously improve the quality assurance system through the establishment of a continuous improvement mechanism. At the same time, Six Sigma management will be the core of the continuous improvement mechanism, so that Six Sigma management will be fully integrated with the company. The quality management system is integrated.

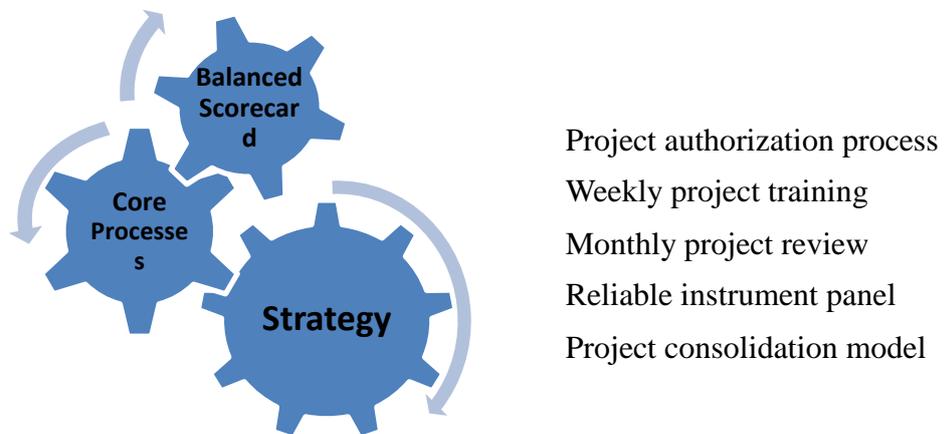
At present, Lenovo has established its own Six Sigma green belt, black belt training system and certification system, and has carried out extensive promotion and application within the scope of Lenovo Group Corporation. The specific implementation process of Lenovo Group Six Sigma adopts a combination of theory and practice, and it is very much focused on “doing high school”. After the first phase of training is completed, trainees are required to do the project. In each of the five stages of studying Six Sigma, the students must go back and do the project whenever they complete a course in the course of the course. Only after they have achieved the required degree can they come back to attend classes.

4.2 Application of Six Sigma Management in PM in the Lenovo Group

4.2.1 Theory exploration stage

At the beginning of Lenovo's promotion of Six Sigma management, they were also confused and contradictory. Because the division does its own project, the Six Sigma team has to do its own project. How do we cooperate? How to achieve a balance? This is also a point that Lenovo initially thought about and tried hard to find a breakthrough. In the end, they found that as shown in the figure below, there are strategies, core processes, and corresponding balanced scorecards in the business process. Each division has the ability, foundation, and experience to monitor and operate strategies, core processes, and KPIs. As mentioned earlier, in fact, Six Sigma is also a management method, as long as the core approach and thinking are integrated into the project management process. It can play a role in resource integration.

Chart 4- 1



The following are two examples of examples in the Lenovo Lean Six Sigma Yellow Belt Training manual. It shows how the Lenovo group applied to the Six Sigma management method in a project, mainly the application of DMAIC process in the project process.

Chart 4- 2

<p>Title: Excessive Time for Parts Delivery Area: Warranty Team, RTP Time Frame: 08/01/07-11/30/07 Team: Ima Example</p>	<p>Define: Problem Definition: Parts ordered are taking an excessive amount of time to be delivered to techs. Why Selected: An Authorized Servicer can experience downtime waiting on parts. The repair time takes longer, impacting repair turnaround time and customer satisfaction.</p>
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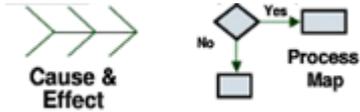
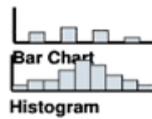
<p>Analyze:</p> <p>Tools Used: Fishbone, Excel, Process Map</p>  <p>Root Cause Findings: No real time notice of when part will be available; No tracking of parts delivery status in AS database</p>	<p>Measure:</p> <p>Before Measures: Waiting time for parts can take up to 5 business days.</p> <p>Objective/Goal: Reduce wait time by 50%</p>
<p>Improve:</p> <p>Actions Taken: 1.created program so AS can track part delivery status; 2.trained parts delivery personnel to update availability status every day or when status changed; 3.ran pilot to test effectiveness and implement metrics for AS's to report average part wait time</p> <p>Results/Savings: Average wait time reduced 40%</p>	<p>Control & Share</p> <p>Standardization/Sustaining: Monthly reporting of average part wait time pulled for top 5% of Authorized Servicer.</p> <p>Future Plans/Sharing: Include next 5% AS in reporting in 6 months; share with sister teams in EMEA and LA.</p>

Chart 4- 3

<p>Title: Global Application Inventory Process</p> <p>Area: BT IT Team</p> <p>Time Frame: 06/01/07-10/15/07</p> <p>Team: M. Overwhelmed</p>	<p>Define:</p> <p>Problem Definition: 35% of the global application inventory have completed into on all 17 required attributes; 90% of inventory directly affects critical Lenovo business processes</p> <p>Why Selected: To enable rapid Disaster Recovery, IT Security Compliance, and BT strategy.</p>
<p>Analyze:</p> <p>Tools Used: Fishbone, Excel, Process Map</p>  <p>Root Cause Findings: 1.No established metric to measure completeness and data quality; 2.No defined process in AP/J; 3.lack of defined roles/responsibilities in AG; 4.Required knowledge not transferred or documented.</p>	<p>Measure:</p> <p>Before Measures: Completeness of required fields varied from 20-100%. Status was inconsistently reported 5-60% of time</p>  <p>Across functions</p> <p>Objective/Goal: Maintain 100% completeness on Defined required fields. Have no incremental resource hits to do it.</p>

Improve:	 Control & Share
Actions Taken: 1.Review to-be inventory add/change and decommission, and ongoing review w/stakeholders to business apps; 3.Report metrics at SVP ops calls	Standardization/Sustaining: Monthly reporting became standard part of Ops 9/15/07; distributed baseline and reporting to all SVP's 9/30.
Results/Savings: All apps in scope have met required completeness; future apps apply reqs before approval and release.	Future Plans/Sharing: Publish requirements on intranet site 11/30/07; distribute requirements to IT focal points in all geo's.

4.2.2 Practical application

The personal computer industry has developed rapidly in recent years. In 2017, global PC shipments totaled 259.5 million units, Lenovo ranked second, PC shipments reached 54.857 million units, and the market share was 21.1%. In addition to the main business of personal computers, Lenovo's products include servers and storage, printing, projection and consumables, digital products and options, service products and mobile phones. Since its acquisition in May 2005 of IBM's personal computer division, overseas expansion has continued to accelerate. Lenovo currently has branches in 66 countries, operates in 166 countries, and has more than 25,000 employees worldwide. Lenovo is divided into four regions: Greater China, Americas, Asia Pacific, Europe, Middle East, and Africa. Each district consists of functional departments, including production, transportation, supply chain, marketing and sales.

Before 2004, multinationals such as Dell and Hewlett-Packard who entered China had not yet adapted to the local market and did not form effective competition with Lenovo. But in 2004, their localization had a big impact on Lenovo's market share, especially in the area of large customers. Lenovo urgently needs to improve execution and core competitiveness to achieve better market performance.

In response to these challenges, Lenovo proposed a change in its original business model when it formulated a strategic plan in 2004, and used the project as the main method to promote the transformation of corporate strategy and business model. The specific measures are as follows:

First, project management is used as a means to implement corporate strategy:

1. After the completion of the strategic plan, some major tasks that need to be resolved across departments will be planned into projects that will be resolved

through strategic projects. Unlike strategic projects and R&D projects, value cannot be measured in terms of time and cost. It may be to open up new areas, solve problems, increase organizational efficiency, integrate strategic resources, and improve employee satisfaction and capabilities. There have been cases where strategic planning did not follow well. The implementation of strategic project management solved this problem. Strategic projects can be effectively implemented and translated into results.

2. Establish a Strategic Project Management Office (PMO) to unify management strategy projects. From 2004 to early 2005, Lenovo PMO established a project management system, including the organizational structure of the process and project management office, and determined the relationship between the strategic tier and the project management office, and the relationship between the strategic tier and the resource budget. The relevant specifications of Lenovo's other departments should comply with the PMO's macro specifications. The more detailed specifications are formulated by the business department. PMO did not interfere with the project administratively, but provided services such as training and established standardized processes. Employees treat PMOs as resources. Some companies have turned the PMO into an administrative agency as one of the reasons for its failure. The work of Lenovo PMO is very effective. The team won a good team award. Lenovo believes that the application of project management in the enterprise must meet certain conditions. First, companies face challenges, that is, external environmental requirements; second, high-level attention; and third, professional teams. The professional team can make a system that meets the corporate environment; fourth, the organizational culture. The organizational culture needs to have knowledge of the project management. Otherwise, it cannot be implemented when implemented.

3. The strategy has special fund budget support. There is no project budget after the completion of the previous strategic plan. But later, the company's top executives outside the regular budget approved the budget for the project and the project also had bonuses. This guarantees the completion of strategic planning.

Then, attach importance to project management personnel:

1. Select excellent project management personnel to participate in project management professional (PMP) certification exams and application project management standards. The PMP® certification developed and managed by PMI (Project Management Association), the world's largest project management professional association, is the most authoritative and influential project management professional qualification certification in the world. PMP® certification is currently

the only truly globally recognized and universal project management professional qualification certification in the world, and follows PMI's guidelines for project management-project management knowledge system (PMBOK® Guide). The PMBOK® Guide has also been recognized and adopted by relevant authorities in the world. It is a recognized project management standard. After Lenovo acquired IBM, Lenovo's project managers needed a unified communication platform to manage the international team. As a common language in the project management field for people of different cultures, backgrounds, and countries, PMI's project management standards help Lenovo unify project management languages and implement standardized processes. Lenovo selected a group of talents from functional departments such as R&D and supply chain to participate in project management training and PMP certification examinations. After they returned, they became seed members, promoted project management in the functional departments, and trained other employees engaged in project management.

2. Internal implementation of project management advanced sequence. Lenovo's advanced sequence is matched with the overall human resources planning. From 2000 to 2001, the Lenovo Research Institute implemented a sequence, such as an assistant engineer, a deputy chief engineer, a chief engineer, and a chief engineer. Every year, experts are organized to comment on two dimensions. One is the level of knowledge, such as background and comprehension; the other is performance, such as the ability to innovate in research and development. In 2006, Lenovo began to do job grooming in the world. For example, the sales department has a sequence of assistant sales, sales managers, consultants, and so on. The sequence is linked to wages, but a certain percentage is specified. For example, a team's advanced sequence can only have 5%. A dedicated project manager can enter the project management sequence. Lenovo has more than 100 full-time project managers. But almost everyone in the company has done projects. The project management sequence establishes a career ladder for the project manager and provides a rising channel for the career development of the project manager.

Lenovo's practice in project management has effectively promoted the transformation of corporate strategy and the optimization of business models. Through the project approach, it is conducive to the establishment of team work and flat organization. It promoted the formation of team mechanisms and corporate culture, and promoted institutional innovation and international integration. Project management helped Lenovo improve execution and core competitiveness in the external market, thereby improving customer delivery efficiency and customer satisfaction, and ultimately creating excellent performance. In 2006, Lenovo had a 7%

market share in the global PC market, second only to Dell and HP. In 2006, Lenovo's consolidated revenue reached US\$14.6 billion, an increase of 10% over the previous year. In general, through the project team's efforts, the project improvement based on Six Sigma achieved the expected goal. The entire project implements Six Sigma management to reduce waste in the process, improve efficiency, shorten the cycle of computer development projects, and meet the needs of customers and businesses. The previous Six Sigma was mainly used in the manufacturing sector, such as production lines. Through this successful project, it provided a good reference for improving process categories.