

Changhong: Adopting a culture of innovation and surpassing expectations

Overview

■ **Business Challenge**

The Changhong Electronics Group, a leader in the Chinese home appliance and electronics industry, sought to revitalize the manner in which it developed and brought new products to market. The company wanted to instill a culture of innovation, and to make internal product development processes more efficient, controllable and forward-looking.

■ **Solution**

Changhong teamed with IBM Global Business Services consultants to implement the IBM Product Innovation Management model which is based on the principles of Integrated Product Development, Market Planning, Emerging Business Opportunities and Research/Technology Management. The company chose this development management solution because it is designed to help electronics manufacturers focus on projects that best align with market needs and business strategy.



■ **Key Benefits**

- *25 percent reduction in time-to-market for new products*
- *Identified seven potential new business opportunities*
- *Initiated approval and development of a “green” manufacturing process*
- *Achieved cost reduction by stopping development on two ineffective new product launches*

The Changhong Electronics Group (Changhong), a leader in the Chinese home appliance and electronics industry, entered the new century with a period of low, faltering growth. The company decided it needed to instill a culture of innovation in order to bring new vitality to Changhong. In 2006 Changhong introduced the IBM Product Innovation Management (PIM) model, to provide fertile ground for institutional growth and make product development more efficient, controllable, and forward-looking. This decision provided a powerful impetus to Changhong’s reform and growth, bringing Changhong into a brand-new era.

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Changhong reborn through innovation

At the turn of the century, the Chinese color television industry was in a slump: market price competition was becoming fierce, leaving manufacturers with increasingly squeezed profit margins; and, none of the large manufacturers were in control of the core technologies, making it impossible to lower costs. After a challenging period of transition, Changhong has achieved significant results through its transformation.

In 2004, when Zhao Yong, who currently serves as the chairman of Changhong’s Board of Directors, returned to Changhong, the company was on a lower tier of the industry structure and lacked capacity in the core technologies. Innovation became an absolute necessity for Changhong. Zhao Yong convened the 2004 Technology Innovation Conference, honoring and rewarding those who proved able to innovate, and made technological innovation a core feature of Changhong’s overall growth strategy. This new direction translated into concentration on four main technological areas: integrated circuitry design, embedded software design, industrial design and technological capability in engineering. Over time, these capabilities have brought significant results in the development of new products.

However, Changhong gradually came to realize that there were some issues which were holding the company back from maximizing its potential. At Changhong’s 2005 Technology Innovation Conference, Chairman Zhao Yong noted that the company’s research and development activities are not isolated and that the company must provide fertile ground for growth. Changhong’s senior management team came to the increasingly clear recognition that systematic innovation requires the support of a suite of scientific tools and methodologies.

Cultivating fertile ground for innovation

In 2006, Changhong began approaching major consulting companies, both domestically and abroad, seeking their assistance in providing a framework that would help transform key business processes at Changhong. Changhong eventually selected the IBM Product Innovation Management model.

A very important reason for Changhong's selection of PIM was that it had been the basis for IBM successes in product development and process transformation. While IBM grew profits 26 percent in the first quarter of 2008, from 1991 through 1993 IBM experienced net revenue losses due to declines in product profitability. Two primary causes were the long time to market and high development costs. This forced IBM to restructure its research and development process flows and management. By 2000, IBM had successfully transformed its product development and market planning process flows and made significant improvements in areas such as its time to market, product development costs and losses from research and development expenditures. This helped IBM save US\$1.6 billion between 1995 and 2000.

Another factor that affected Changhong's decision was that Huawei, a leading company in the Chinese communications industry, had previously introduced Integrated Product Development (IPD) with the assistance of IBM, greatly improving the manner in which it planned, screened, implemented and managed the development of new products.

Sowing the seeds of IPD

At the 2006 PIM project kick-off meeting, Chairman Zhao Yong pointed out that technological innovation must start by defining business objectives before creating knowledge and intellectual property; at the same time, a company's creative activities require cooperation across departments and across teams.

PIM is a complex system project, composed of Integrated Product Development, Market Planning, Emerging Business Opportunities and Research/Technology Management. It covers various aspects of innovation at Changhong, not only relating to its research and development department, but also many other departments. Changhong and the IBM project team selected the Multimedia unit and the Technology Center as pilot projects for the introduction of IPD and for the accumulation of experience and data, laying the groundwork for subsequent processes such as large-scale promotions and market planning.

Key Components

- IBM Global Business Services
 - IBM Product Innovation Management
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Why it matters

Changhong's senior management team realized that systemic innovation requires the support of a suite of scientific tools and methodologies. After adopting the IBM Product Innovation Management (PIM) model, Changhong was able to not only improve business processes, but also efficiently deliver new products, and regain its preeminent position in the Chinese home electronics market.

“Technology innovation is first and foremost a management issue, reaching beyond the narrow definition of technology itself... the emphasis in technology management consulting must be on management, and what IBM has brought to us is a suite of work methodologies.”

– Zhao Yong, chairman, Changhong Electronics Group

To reduce the time it takes to enter the market and to increase profits, Integrated Product Development stresses the use of phase-based controls of the development pipeline, team-based development and the use of shared development components. For most Changhong employees, IPD is entirely new. In order to increase the knowledge and skills of the pilot personnel involved, IBM, Multimedia and the Technology Center organized many training and Q&A sessions.

By September 2006, Changhong had completed the IPD process flow/template design and the team building for Multimedia and the Technology Center. It then began the six-month-long process of fine-tuning the process flow. Through the project pilot, the Changhong team gained a deeper understanding of IPD as well as real-life experience in project operation and management. This experience has led to improvement in Changhong's corporate organization and process flows. First, Changhong established mechanisms for cross-organization team operation with clearly identified responsibilities, powers and benefits for the various departments. Second, product development process flows suited to Changhong were established in the pilot units. Phased management is now conducted for every project, in accordance with the IPD process flow.

At the same time, established assessment points were introduced for conceptual, planning, attainability and end-of-lifecycle evaluations at a project's key decision-making phases. Cross-functional teams make decisions jointly, and enable the elimination of ineffective projects at established checkpoints. Furthermore, in keeping with IPD management, product development projects have begun emphasizing return on investment. Changhong has introduced project managers on the basis of IPD, and created a certification committee and a project manager coordination center. Once a product development initiative begins, the project manager and the development team execute an agreement with company leaders and propose the funding and resources required, at the same time making a commitment to the overall results.

Letting Product Innovation Management mature and grow

The IPD pilot projects at Changhong's Multimedia unit and the Technology Center were highly successful. At the kick-off of the second phase of the project in April 2007, Chairman Zhao Yong pointed out that Changhong and IBM have worked together to implement IPD, and have begun to see the first positive results. In phase two of the project, the company introduced other additional elements such as Market Planning and Emerging Business Opportunities allowing Changhong's innovation management to flourish.

Changhong has made major educational and promotional investments in IPD. Following in the steps of Multimedia and the Technology Center, IPD was progressively implemented in Changhong's innovation center, air conditioning company, Panovasic Technology Company and its Internet unit. Changhong has also established its own IPD evaluation standards, evaluation issues and evaluation process flows. This is in accordance with the IBM evaluation system for the promotion of IPD using quantifiable metrics, and to facilitate continued improvement.

Before its foray into IPD, Changhong previously implemented Capability Maturity Model Integration (CMMI), to support software development. Because the Technology Center's business also involved the development of hardware, IPD process flows needed to be introduced as well. With the help of IBM consultants, Changhong's Technology Center integrated IPD and CMMI process flows and templates, thereby satisfying the business needs of the combined development of software and hardware.

Market Planning (MP) was instituted primarily to resolve the issue of disconnects between product research and development, and market needs. This is a very serious problem in the home appliance industry, where the market changes with every passing moment. In keeping with MP management principles, market planning must be built on the basis of customer and market demand and completed after six phases: understanding the market, implementing market segmentation, conducting investment portfolio analysis, developing business



Measurable results

Two similar products developed before and after Changhong introduced PIM illustrate its value. PT5016 was developed before the introduction of PIM. The time to bring this product to market was 12.5 months, and the out-of-the-box audit pass rate was 99.21 percent. On the other hand, PT50600 was developed after the introduction of PIM. The time to bring this product to market was 9.5 months, a reduction of three months, and the out-of-the-box audit pass rate was still 99.21 percent.

strategies and plans, conducting optimization by tying it to company strategies, managing the business plan and evaluating performance. Using the Multi-media company as a pilot unit, Changhong set up a market-oriented process flow for market planning and customer-centered product planning teams, all the while learning and mastering market planning methodologies and tools. At the same time, Changhong also established an interface between the MP and IPD process flows, creating complementary process flows, thereby increasing the effects of IPD implementation.

Emerging Business Opportunities (EBO) is a relatively independent project. With the assistance of IBM, Changhong established an EBO committee, a creative team and a pilot project team incorporating team and project incubation teams. It has established EBO mechanisms and process flows, and has studied theories, methodologies and tools such as financial analysis tools, and strategic positioning analysis tools, strategy tables and 22 earnings models.

Following the introduction of PIM methodologies, Changhong pushed forward internally with two programs. The first program is the employee profit-sharing program. Allowing teams to share in the value that they have created and directly linking the return in profit to their work ensures that Changhong will always have the capacity for continuous innovation, both in terms of its system and organization. The second program is the internal employee initiative program. This program, aimed at promoting entrepreneurship encourages employees to propose business plans, with the company acting as the investor and the employees being shareholders. This program will allow Changhong to tap into the enormous innovation potential that lies within Changhong's employees.

Product innovation flowers and bears fruit

The results of the PIM project were readily apparent to all. Even during the project introduction phase, the benefits were obvious. In the 10-month period from the full implementation of IPD in February 2007 through the end of 2007, the Technology Center eliminated one technology development project in the conceptual decision phase and one in the planning decision phase, thereby avoiding unnecessary costs.

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At the first creative selection meeting held after EBO was introduced, Changhong uncovered and analyzed seven potential business opportunities, including those in the energy and environmental sectors, and business services. With the assistance of a series of process flow and analytical tool operations, a “green” manufacturing project was approved by the EBO committee and moved to the incubation and verification phase.

The introduction of Product Innovation Management allowed Changhong to establish a complete, comprehensive system for product development, standardize the development process flow, improve the quality of product development and shorten the time to bring new products to market. Phased management has made all development projects more controllable, avoiding unnecessary expenses. Changhong can now discover new business opportunities through sustained EBO cycles, and quickly make informed judgments on how to best act on these prospects. All of this supports Changhong in its quest for robust and sustainable growth. Currently, Changhong is perfecting the PIM model and promoting IPD in all of the company’s business departments, carrying the innovation throughout the enterprise.

For more information

To find out more about how IBM Global Business Services can help transform your business and help you innovate, please contact your IBM representative or IBM Business Partner.

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Armonk, NY 10504
U.S.A.

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