

Chapter 2

Foton Lovol International Heavy Industry Co., Ltd.—Service for Information Demand

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On 2014.05.16, the Department of Agriculture held the 2014 ‘summer harvest’ video conference, pointing out that in this year’s ‘summer harvest’ up to 550 thousand combine harvesters were used, among which the main force—more than 300 thousand—were from Foton Lovol. Just like spring festival gala of the Chinese Spring Festival, Foton Lovol combine harvester is the absolute protagonist of the annual national summer harvest, leading in the field, bringing joy from harvesting crops.

Meanwhile, Lovol continues to deepen the ‘Grand Service’ concept into its inter-regional summer harvest service. It provides 24/7 customer service, in which Lovol uniforms standards and images, providing whole time/whole journey service to all harvester drivers around the country under the unified name of Lovol Service. On the other hand, to cooperate with other regular service ‘Lovel mobile service station’, ‘Lovel special service group’ and ‘electronic parts delivery system’ continue to operate in the field from south to north together with the harvesting force, providing agile, timely and professional service. As Lovol is the only brand that can provide such service, to some extent Lovol has become the synonymous to the summer harvest. In our survey we found that Foton Lovol has long passed the stage of merely being an equipment provider but gradually transformed into a service provider.

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2.1 Introduction of Equipment Manufacturing Industry

Global service economy booming promotes major changes in global industrial structure. In western countries, economic structure has realized the major transform to become ‘service economy’ with expanding service industry. Service industry has weighed more than 2/3 of the total national GDP in many developed countries, replacing the manufacturing industry as the mainstay industry.

With the development of service economy, many manufacturing companies abroad have realized that only by expanding manufacturing scale to reduce cost is no longer enough to adapt to the market competition. They have started to abandon or outsource the manufacturing section but to expand and develop service related business in order to provide customers with more knowledge based, personalized and customized products and value added service for the whole product life cycle from product use support to maintenance and recycle. While changing from traditional product manufacturer to service provider, most manufacturing companies in developed countries have realized the transformation to product R&D, sales, maintenance and upgrade and other high-end sections (Jiang 2014).

Meanwhile, with the development of manufacturing industry growing shortages of resources and energy start to become severe constraints for the industry development, especially in the developing countries. Industrialization at the expense of high consumption of resources and energy leads to growingly severe problem of natural environmental degradation. As destructive exploit of natural resources depletes non-renewable resources and industry waste causes pollution, under double pressure from resource and environment it is urgent to solve the industry restructuring problem in developing countries.

As the embodiment of a country’s industry strength equipment manufacturing industry is a special branch of the manufacturing industry. Different from regular manufacturing industry, equipment manufacturing industry requires a lot higher on technique and capital and has an outstanding effect in leading the development of the other industries. However manufacturing industry of China is now lack of competence in the world due to the following current situations: limited overall development status, lack of competence in equipment manufacturing technology innovation, few independent property rights of core technologies.

Servitization of manufacturing industry representing the changing process of one company from providing products to providing services is one important trend of the current development of the manufacturing industry. Although study of China’s manufacturing industry servitization is still in the initial stage many manufacturing companies abroad have succeeded in the transition and realized multiple value sources such as Rolls-Royce, GE and IBM.

Driven by the global development of servitization, China’s equipment manufacturers are speeding up their servitization process. Take Foton Lovol International Heavy Industry Co., Ltd. for an example: it has set up a company level information sharing platform promoting active service and is actively developing financial service while expanding its original manufacturing business. In the year 2013 Foton Lovol’s sales revenue reached 22.6 billion RMB with a 21.5 % annual

increase, which set an important milestone for China's equipment manufacturing industry servitization. Shaanxi Blower (Group) Co., Ltd. is another good example of servitization: from a single equipment provider to a equipment set provider then to a production integration solution provider, Shaanxi Blower has become an integration solution service provider with customers from metallurgy industry, petrochemical industry, military industry and many others and its revenue has increased from 0.4 billion RMB in 2001 to 6.25 billion RMB in 2011. Other companies such as Xuzhou Heavy Industry Co., Ltd., SANY Heavy Industry Co., Ltd. and China National Machinery Industry Corporation, just to name a few, have all sped up their servitization process expanding original manufacturing with services providing in many other channels.

However, the following two problems need to be addressed in the servitization process (Pang 2013):

1. Inadequate understanding of servitization and lack of service awareness

Although the servitization transition can bring more profit some companies would rather get short-term profit from just selling products than acquire long-term profit from providing long term services due to their fear of the uncertainty risks. Meanwhile, as the manufacturing channel still has profit to offer through cost reduction many companies lack enough motivation to change the existing business model hence hinders the progression of China's equipment manufacturing industry servitization process.

2. Low application of information technology

With economy globalization, there are growing requirements on application of information technology in the equipment manufacturing industry. It is required not only in the management and e-commerce level but also to be applied in the digitalization of product design, equipment manufacturing, production process management etc. Current information technology development and application level in China's equipment manufacturing industry cannot meet the above mentioned requirements hence also hinders the servitization process.

2.2 Introduction of Foton Lovol

Foton Lovol International Heavy Industry Co., Ltd. (Foton Lovol) is a leading manufacturer of construction machinery, agricultural equipments and vehicles. Founded in 1998, its revenue in 2012 reached RMB 17.76 billion. In 2012, Foton Lovol brand value climbed to RMB 17.736 billion, ranked the 64th among China's top 500 most valuable brands by virtue of its outstanding performance in "Essential Growth, Structural Adjustment and Globalization". The Company has been identified as the "National Key High-Tech Enterprise", its engineering and technology research institute as the "Nation-Certified Enterprise Technology Center", and moreover, its leading products have been awarded as "Chinese Famous Brands", "Well-Known Trade Mark in China" and "Most Competitive Brand on the Market".

Fast and healthy development of its construction machinery manifests itself in wheel loaders, excavators and rotary drilling rigs. In recent years, guided by the management guideline of “Essential Growth, Structural Adjustment and Globalization”, Foton Lovol has been actively involved in promoting a balanced and rapid progress of the three major businesses. In order to improve R&D capabilities, R&D centers have been established in Weifang, Tianjin, Italy and Japan. According to its global strategy, Foton Lovol has introduced products, technology, personnel and other resources worldwide, utilizing the team, system, culture and management forces to create value and keep up with the global avant-garde technology. Based on its leading position in several China market segments, Foton Lovol has entered overseas market. At present, the company has formed a global sales & service network made up of more than 300 sales and service providers covering over 120 countries and regions. The exported products cover agricultural equipments, construction machinery and vehicles.

Aside from business, Foton Lovol plays a responsible role in the social society. During Wenchuan earthquake, Sichuan Ya'an earthquake and many other disaster recoveries Foton Lovol was always among the first helpers. These responsible acts have won Foton Lovol a reputation of responsible citizenship.

2.2.1 Construction Machinery

Lovol construction machinery is one of the fastest growing brands in China's construction machinery industry, providing full series of loaders, extractors and rotary drilling rigs. With 4 production sites Lovol has an annual production volume of 30 thousand construction machineries. At present, Lovol performs under European standards with advanced technologies introduced from Europe and its has 19 product platforms with more than 20 product series and 200 matured product combinations, covering almost all product types in the market (Fig. 2.1).

Lovol's production bases for construction machinery are located in Weifang, Tianjin and Qingdao. These production bases have modernized workshops with advanced automated production equipments, all of which ensure good quality of the products.



Fig. 2.1 Foton Lovol construction machinery. **a** Extractor. **b** Loader. **c** Rotary drilling rig

Currently, Lovol has set up sales network in most cities in China, covering major markets for construction machineries. It has also built a sales service hotline providing its customers with 24/7 services. 200 service vehicles, more than 400 onsite service engineers, 120 service stations and 31 service websites work together to offer ‘faster, more reliable, more satisfactory’ services to its customers.

2.2.2 Agricultural Equipment

Founded in 1998, the agricultural equipment business unit which is an independent operating business unit integrating functions of technology innovation, manufacturing and marketing, was the first business unit setup by Foton Lovol International Heavy Industry Co., Ltd. according to modern corporate system. As China’s biggest agricultural equipment provider, Lovol Agricultural Equipment offers its customers complete agricultural equipment solutions on information, technology and products with world leading technology and service (Fig. 2.2).

The agricultural equipment business unit is responsible for agricultural equipment R&D, production and sales for Foton Lovol.

By virtue of ‘Enthusiastic, Innovative, Never Stop’, after it was founded the agricultural equipment business unit had itself guided by customer and market requirements, insisted on technology innovation and constantly expanding product options in order to meet customer requirements. In 2012, its revenue reached 7.62 billion RMB with a sales volume of 124 thousand pieces of equipments, which realized 7 % annual increase rate for 11 years in a row. Among its products, Lovol combine harvester has led the market for 13 years with 70 % market share. As a matter of fact, there have been no other agricultural equipments better known and liked than the Lovol combine harvesters. Mr. Shi Xin from Zhumadian in Henan province is one of its loyal fans. In every summer harvest Mr. Shi would drive his Lovol combine harvester and take part in the cross-province harvesting work. With Lovol combine harvester farmers like Mr. Shi was able to change from labor-oriented to technique-oriented farmers and become new farmers ‘employed’ in other people’s lands (Zhu and Mu 2013).

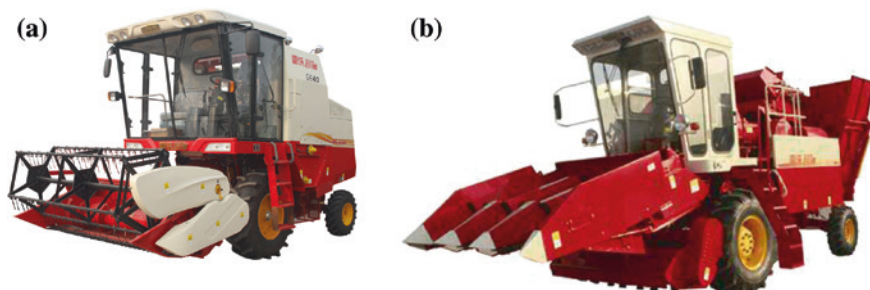


Fig. 2.2 Foton Lovol agricultural equipment. **a** Ceres wheat harvester. **b** Ceres corn harvester

2.2.3 Financial Product

In order to promote sales of construction machinery and agricultural equipments Foton Lovol developed financial business, which mainly focuses on individual and enterprise financing needs in selling and purchasing Lovol physical products. Around 60 % of physical products sales use Lovol financial service and in 2013 revenue from financial business reached 0.2 billion RMB, becoming the company's new source of growth. So far the financial business has built up a financial business platform consisting of Huiyin bonding company and Huiyin financial leasing company as its main body. As the first to strategically launch financial leasing business on agriculture equipments in the industry, Foton Lovol has won many titles of honor for it.

After stepping into financial business in 2005, through multiple stages of business adjustment and improvement Lovol has now a complete financial service system with a diversified financial support platform, which is able to nicely meet end market demands and avoid influence from macro financial policy change. Currently, the financial business mainly includes five modules: personal loan business, commercial loan business, bonding business, intermediary business and assets management business, covering mortgage, lease financing, inventory financing, insurance and guarantee.

In the future, based on 'service and support' strategy, Foton Lovol financial business will strengthen service concept and business model innovation in order to provide end users and upstream and downstream enterprises with comprehensive financial services. It will provide strong financial service guarantee for Foton Lovol by constantly promoting the combination of financial business and entity business, supporting company's fast growth in domestic market and effective expansion in overseas market and realizing industrialization operation of financial business eventually.

2.3 Trigger of Servitization and Change Steps

2.3.1 Trigger of Servitization

2.3.1.1 External Trigger of Servitization

Different from sales of traditional products, long before which procurement of raw material, manufacturing and testing jobs take place and the contract terminates as long as the product is delivered and installed, signing of contract is only the start for service business, where the service ends only after it is completely performed or service time is due.

Authoritative data shows that in European and north American market service is making up a growing proportion of revenue in the manufacturing industry,

e.g. 13–20 % from 1999 to 2005 of German mechanical equipment manufacturing industry, Thyssen Krupp group 32.3 % in 2007 and in GE revenue ratio of service sales versus physical product sales were 45, 54 and 55 % respectively in 2003, 2004 and 2005. The proportion increase shows the competitiveness of these famous companies and this is the macro trigger for Foton Lovol to perform servitization transition.

In China, both construction machinery industry and agriculture equipment industry are negatively affected due to overcapacity. Take excavator industry for an example: China's domestic capacity has reached 0.4 million pieces per year while the overall global demand for excavators is no more than this number. As a consequence, the excess capacity has led to price competition. On the other hand, in agriculture equipment industry tractor also has the problem of overcapacity and the ministry of industry and information may increase standard for industry admittance in order to adjust industry structure. This raises severe challenges for suppliers including Foton Lovol. More difficult to survive and more rival competition are servitization triggers from industry for Foton Lovol.

While dig deeper into customer demand it is not difficult to realize that what a customer really need is 'function' rather than 'product' itself. Equipment manufacturers are introducing big-scale and high-grade projects and market demands are showing the trend of customization and specialization, which require relevant enterprises of deep, flexible and informative service rather than focus solely on the equipment. Manufacturers have to consider the effectiveness and reliability of function of the whole machine and the ability to provide customized information service to the customer. This raises higher demand for the equipment manufacturer. Customers have developed high recognition on the complete service model with information service packed into the product and this change on customer demand is the servitization trigger of Foton Lovol from customer demand perspective.

From the above analysis we can see that the external trigger for Foton Lovol to perform servitization transformation is quite apparent. Service is playing a more and more important role in the machinery equipment manufacturing industry and overcapacity has led to profit ratio decrease and intensified competition. On the other hand customers are requiring better service compared with former demand on single equipment. All these market characteristics and reasons have provided Foton Lovol with strong motivation for servitization change.

2.3.1.2 Internal Trigger for Servitization

If the outer environment provides Foton Lovol with external trigger for servitization and makes the transformation inevitable, then the internal trigger is the pressure which decides the direction and foundation that the transformation will take.

As discussed before, the business of Foton Lovol Heavy Industry covers a very wide range with various product lines and complicated business models. Firstly, R&D team met with such problems: how to realize high efficiency R&D

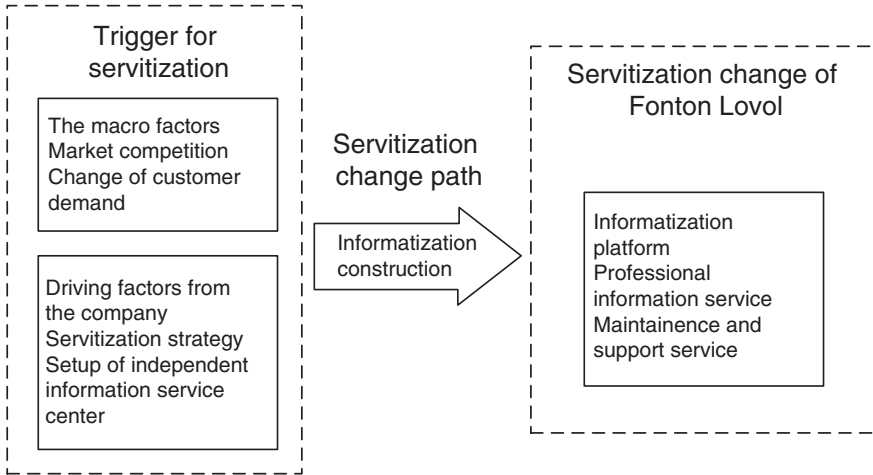


Fig. 2.3 Foton Lovol servitization transformation trigger

cooperation among research labs in different regions even different countries? Secondly, how to ensure data security while sharing data and cutting cost? Thirdly, how to enhance BOM management in order to respond to fast market change? Fourthly, how to manage data from different design software under a unified PLM platform while being able to support personalized requirements? Fifthly, as a traditional equipment manufacturing company, how to provide customers with more knowledge-based, personalized and diversified service in order to meet their customized needs while offering the products? Last but not least, in the traditional service model, the customer contacts after-sales department when the product breaks down and then the after-sales department responds and provides service accordingly. But can this be changed with today's information technology?

Foton Lovol has long been exploring the possibilities and means of servitization transformation. As company level strategy, Lovol has built company information platform and information center, which has build concrete base for the servitization change. Foton Lovol's exploration on servitization not only benefits the company itself but the equipment manufacturing industry as well (Fig. 2.3).

2.3.2 Change Steps

Foton Lovol's servitization transformation is based on a '3 Step' change plan (Fig. 2.4).

1. Infrastructure construction stage (1998–2003).
2. Informatization trial stage (2004–2008).
3. Informatization popularization and enhancement stage (2009–2013).

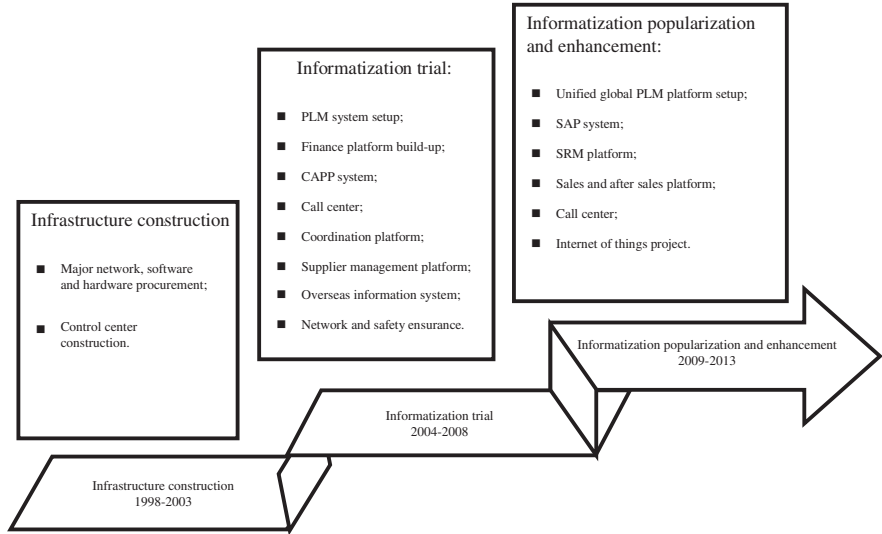


Fig. 2.4 Foton Lovol informatized servitization change step

So far, Foton Lovol has built up operations and maintenance platform, R&D management platform, supply chain management platform and marketing and after sales platform, covering all core products and businesses of the company. In 2003, Foton Lovol has built up information center, based on which the information service center provides farmers all over the country with technical support, rescue and repair services free of charge during summer harvesting. In 2007, Foton Lovol started to explore the intelligent and innovative service model in agricultural equipment industry and has set up a web-connected service system with information center system, GPS intelligent information system and spare parts service system as main parts and whole vehicle sales and financing and renting business integrated. The service platform has greatly enhanced service level and customer satisfaction. In May 2014 Foton Lovol formally introduced a new member to the intelligent service family—‘Lovel Cloud Service’, including five major contents of all time training, three dimensional simulation training, 24 h customer caring, e-logistics and machine intelligent service.

2.4 Business Model Analysis

2.4.1 Informatized Platform—Root of Lovol Model

Foton Lovol’s informatized platform includes operation and maintenance platform, R&D platform, supply chain management platform and marketing and after sales platform, covering all major products and businesses of the company (Chu 2013) (Fig. 2.5).

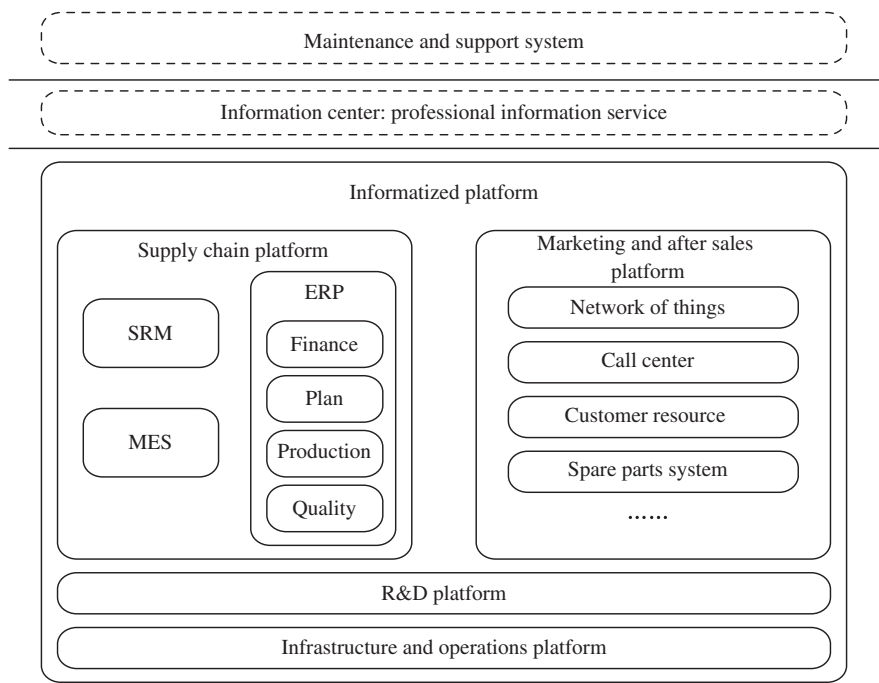


Fig. 2.5 The four Foton Lovol information platforms

2.4.1.1 R&D Platform

Foton Lovol has set up a four in one global R&D system (Fig. 2.6) with Shandong R&D headquarter as data center, Tianjin R&D center, Europe agricultural equipment technology center and Japan Lovol extractor technology center as high end R&D hubs, covering 3 countries, 6 R&D centers and supporting 5 businesses and 14 product lines.

Foton Lovol is able to effectively make use of global resources in order to reduce R&D cost and realize cross regional design cooperation and knowledge sharing by means of a unified global Product Lifecycle Management (PLM) platform. Through knowledge sharing and digital prototype verification cost and lead time for new product development are reduced. Through complete Bill of Material (BOM) management Lovol is able to respond faster to market demands due to shortened product lead time (Shi 2013).

The importance of PLM in the whole Foton Lovol informatized system lies in that it provides accurate data sources for all Lovol entities and ensures the consistency of data on the whole platform. Launch of PLM system solved many problems Foton Lovol faced in the globalization process, such as design collaboration between different places, data sharing between different product lines even different business units, the accuracy and consistency of source data for

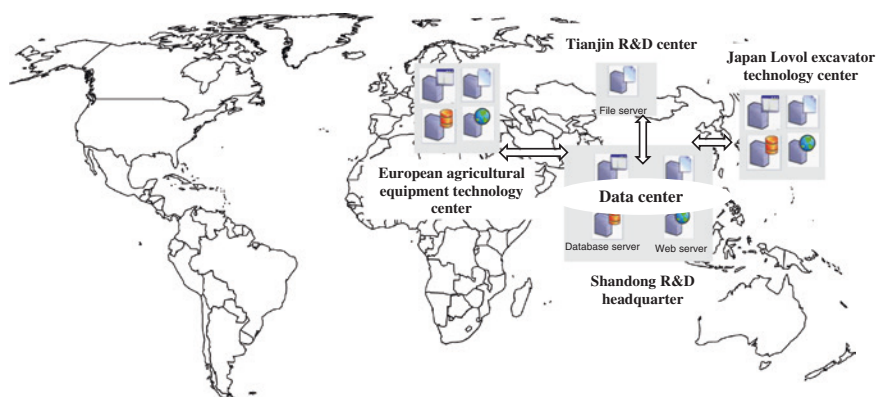


Fig. 2.6 Foton Lovol global R&D system

R&D, data security, the accuracy and promptness of change management. Using Siemens PLM software made it possible to solve the above mentioned problems and improved R&D management, reduced R&D investment, increased data accuracy and hence enabled the company to obtain considerable development in a relatively short period of time.

2.4.1.2 Supply Chain Platform

As a large-scale enterprise, Foton Lovol has extremely high demand for the development of supply chain development (Li et al. 2011).

1. Demand for procurement and supply function
The demand to execute lean production and production with 0 inventory; demand for flexible procurement in order to adapt to market vibration; demand to reduce procurement cost; process control demand; demand for global sourcing; demand for advanced inventory management; sourcing demand.
2. Demand for complex supply model adaptation
With different suppliers the inventory model and logistics design are different; inventory arrangements for production material and spare parts are different.
3. Demand for supplier management
Demand for supplier management system; demand for supplier performance evaluation; demand for supplier partnership building; demand for supplier quality system management.
4. Demand for central supply management
Demand to manage between central control and business units operation; demand for centralized purchasing.
5. Demand for informatized supply information among the group

Demand for unified coding and evaluating system for all suppliers; demand for supplier information sharing over the whole group; demand for logistics visualization; demand to share information with supplier partners with system integration.

In order to meet these demands Foton Lovol built up a SAP, ERP and SRM based and financially consolidated supply chain management platform, which is able to coordinate with suppliers in procurement planning, logistics, compensation claim, financial settlement and reconciliation.

The implementation of supply chain platform has brought significant benefits for the company, mainly shown as management, economic and social benefits.

1. Management benefit

Constructed company basic informational infrastructure, integrated information network and unified data exchange format; setup shared supply chain coordination platform therefore enhanced feedback efficiency; reduced waste in logistics and invalid labor during the work process hence improved work efficiency; all data input into computers and realized electronic management and ready to take new challenges from international competition as a result; centered data management enabled data consistency and accuracy; more qualified suppliers were able to be developed from the SRM platform therefore inspired healthy competition among the suppliers; all purchasing prices centrally managed and fully shared hence increased bargain power; increased management transparency effectively reduced grey spots in the procurement process; by using the SRM platform, increased efficiency enabled procurement personnel to focus on more valued added work, such as price analysis, new supplier development etc.

2. Economic benefit

The use of SRM system deepened partnership between Foton Lovol and its suppliers and realized coordination in R&D, purchase planning, logistics, compensation claim, and financial settlement. Network based purchase plan sharing saved suppliers and the factories 8 million RMB/year in communication, office work and travel costs; logistics efficiency increased 25–27 %; reduced capital stock occupancy as much as 60 million RMB/year for both suppliers and the factory. Application of production management system increased BOM accuracy to 99 % and inventory accuracy to 99.8 %, purchase lead time reduced 35 % and capital turnover rate increased by 15 %. Just to name a few.

3. Social benefit

The improvement in supply chain informatization effectively enhanced speed and accuracy in delivery and financial transparency hence improved relationship between Lovol and its suppliers and realized mutual development.

As users of the SRM project are located all over China and they all have gained great economic benefits, which have aroused attention for informatization. Hence to some extent, Lovol's application promoted informatization development of the society.

2.4.1.3 Marketing and After Sales Platform

Foton Lovol built up a sales and spare parts service platform with SAP and DMS as the main body. With this platform the company is able to realize unified after-sales service management, integrated call center service, GPS system, and internet of things based service resource dispatch management platform. The company formed 'customer centered' service system and was able to provide high quality and prompt marketing and after-sales service to both domestic and international customers. Meanwhile, Foton Lovol made innovative exploration in modern manufacturing service and through the use of GPS and call center system the company has initially achieved service model innovation from passive service providing to proactive servicing.

2.4.1.4 Operation and Maintenance Platform

Foton Lovol established global company network which was a solid infrastructure platform and strengthened its informational system security. Through the application of firewall, SSL VPN, bandwidth management, network access threshold, Lovol integrated internal resources and preliminarily constructed a scientific and coordinated global IT operation and maintenance platform.

2.4.1.5 Economic Benefit Analysis

The informatization construction continually promotes integration, innovation and business optimization and has brought enormous economic benefit to Foton Lovol: 30 % reduction in product R&D lead time, 50 % reduction in trial and test cost, 130 million RMB/year reduction in capital stock occupancy, 15–17 % increase in capital turnover rate and sales order receipt to delivery lead time reduced from 7 to 3 days.

Unified global PLM R&D platform effectively integrated global resources, enabled cross-regional design coordination and knowledge sharing hence reduced R&D cost. Setup of company level standard parts database enabled and eased data sharing and reuse. Knowledge reusability and digital demo trial reduced product R&D cost and lead time. Complete BOM management enabled fast response to new market demands.

The construction of supply chain platform increased BOM accuracy to 99 %; type A and type B material inventory accuracy reached 99.8 %; purchase lead time reduced by 35 and 30 % for type A and type B material respectively. Capital turnover rate and capital stock occupancy were clearly reduced.

The operation of marketing and after-sales platform puts into reality coordination of marketing, after-sales business and distributor/service station, with a coverage of 98 %. This act effectively brings the company and its distributor's operation risk within control and AR rate reached over 95 %. It also improved inventory accuracy to 98 % and customer satisfactory rate more than 98 %.

On the other hand, information technology has also brought lots of benefits that cannot be quantified by numbers, which is based on 'Grand Service' concept promoted agricultural modernization in and out of China. In the recent years, Lovol agricultural equipment, to strengthen its originally leading position in traditional business and to further take a place in the global competition, built up two more R&D centers in Beijing and Europe. Together with existing R&D center in Shandong headquarter it has setup a three-in-one state-of-art R&D platform. Meanwhile, through undertaking major national science and technology projects, Lovol continued with research innovation, conveyed many high quality agricultural products to the market and gained leading position in China's market.

2.4.2 Information Center—Backbone of Lovol Model

2.4.2.1 Introduction of Information Center

When Foton Lovol entered harvesting machinery industry 15 years ago, in China's market agricultural equipment services were divorced from actual demands and it was always difficult for farmers to get required services after purchasing the equipment. The whole industry was out of order in service providing.

It was under such circumstance that Foton Lovol was the first to take this opportunity and innovated with 'Lovel model' to solve the problem. Lovol immediately excelled in sales with apparent differentiation compared with traditional sales model and taught the whole industry a vivid lesson. 'Lovel model' in some extent set up a new industry service standard hence fully altered the competition rules. As shown in Fig. 2.7, on the basis of informatized platform Foton Lovol built up information service department in 2003 and its service and functions are as shown. Figure 2.8 is Foton Lovol's large customer service center.

According to Foton Lovol heavy industry business characteristics, distributed call centers were set up for 7 business units in Weifang, Huangdao, Zhucheng and etc. (Fig. 2.9) and allocated with different hot line numbers; meanwhile Lovol gave authorization to distributors in different places in China and set up more than 80 distributor-managed call center, which provided strong support to Lovol after sales service.

After more than 10 years development, Foton Lovol heavy industry information center has integrated vocal mutual communication, professional call servicing and computerized network data and set up a whole time, seamless information passage with customers by means of telephone, message, cell phone platform, GPS, email and fax.

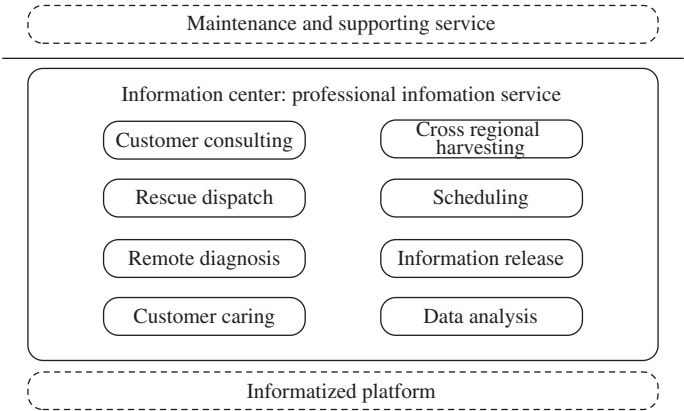


Fig. 2.7 Information center’s sustaining position in the servitization transition



Fig. 2.8 Outer and inner view of Foton Lovol information center

2.4.2.2 Cross Regional Harvesting Information Service

As introduced by assistant director of Lovol information center Mr. Min Xiangrui, with market sharing increasing, it’s impossible for Foton Lovol to provide side-by-side service to its customers by means of traditional service model. To solve this problem Lovol innovatively created the informatization based ‘Lovel Model’ and national cross-regional work information service is its core service.

From 2006, China’s agriculture department co-built national summer harvesting information service center together with Foton Lovol and Lovol’s information center undertook the role of providing information service and dispatch service for hundreds of thousands of agricultural equipment drivers in Foton Lovol’s equipments and other brands’. Since 2006, the information center has received more than 5.2 million phone calls, sent out more than 57.6 million dispatch instruction messages and benefitted more than 3.2 million users.

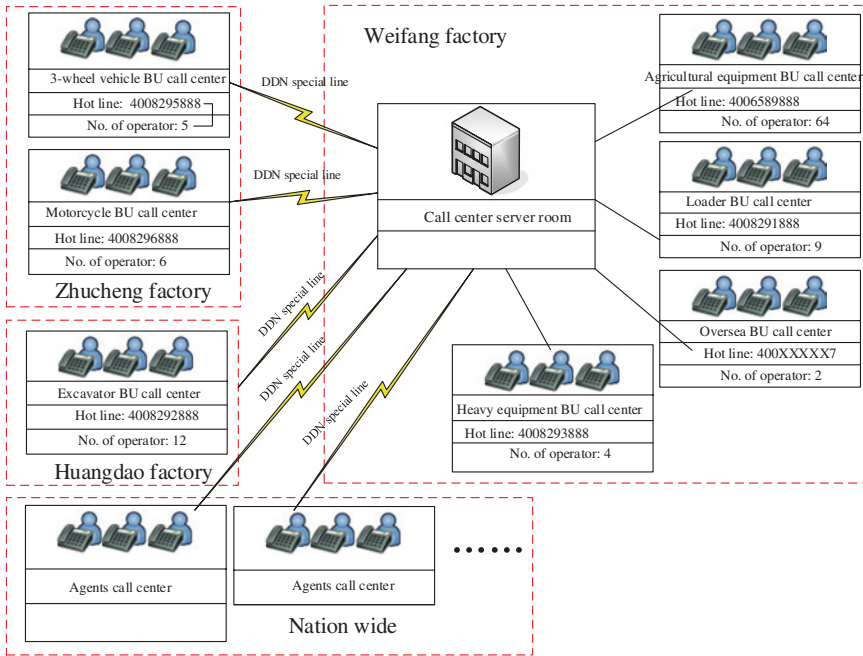


Fig. 2.9 Foton Lovol distributed call centers

On the wall of information service center, a poster written ‘3 + 5 + 1’ aroused writer’s curiosity (Fig. 2.10). Center manager explained that 3 are operation skills, machine maintenance, repairing techniques which are most demanded information by users that decides the user operation level; 5 include operation rate, market price for machine harvesting, supply and demand, weather and traffic, which affect work flow direction and income; 1 is comprehensive information which mainly includes relevant government policies. The ‘3 + 5 + 1’ supporting system works closely related to customer actual needs and well meets consumers’ requirements on information.

2.4.2.3 Economic Benefit Analysis

Up till now, the information center system has successfully covered more than 50 countries and regions in the world and more than 2000 distributors and service providers in and out of China. It is now a coordination system that can provide sales management service, marketing management service, call center service, after sales compensation claim services and etc. to Foton Lovol and its distributors all around the globe.

Through nation-wide distribution and service network and professional technical group Foton Lovol was able to collect and translate agricultural equipment



Fig. 2.10 Foton Lovol national cross-regional information service supporting system

technology and resource information then send instructive information to hundreds of thousands of equipment users for free. Comprehensive, prompt, accurate and widely covered SMS service not only promoted industry information service but also helped the equipment users with income increase. Roughly calculated, the information platform improved cross regional harvesting equipment user's income increase by a couple of thousand RMB per year and overall in the recent years Lovol has increased the 490 thousand equipment users' income for almost 1000 million RMB totally.

Foton Lovol is now in the leading position in China's agricultural industry in informatization. It has not only improved service efficiency and provided customers with faster and better service but deeply changed marketing methodology in China's agricultural equipment industry.

2.4.3 Service Model Innovation—Expansion of Lovol Model

So far, Foton Lovol's network of things has integrated with the following service functions: locating, parameter feedback, automatic navigation, financial risk control, interactive voice response, professional call processing, fault remote guidance, remote service dispatch etc.

Foton Lovol started its exploration in service innovation since 2007. Up till now it has constructed a network of things service platform which is integrated with complete vehicle sales and financing leasing system and with information center system, GPS intelligent information system, spare parts service system as the main components. The application of this platform is a service model innovation and has improved product quality and increased customer satisfaction. With support from GPS system and call service system Foton Lovol is gradually transform from passive service model to accurate and proactive service model. It has further put into practice 'cloud service' model in 2014 and preliminarily released innovative application of the three new service models (Fig. 2.11).

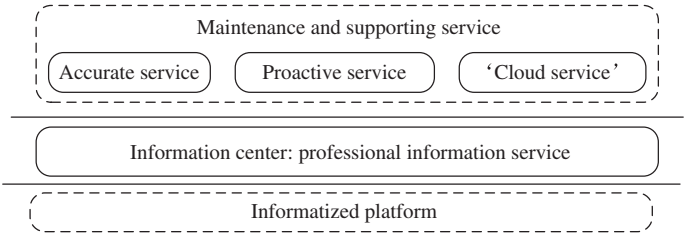


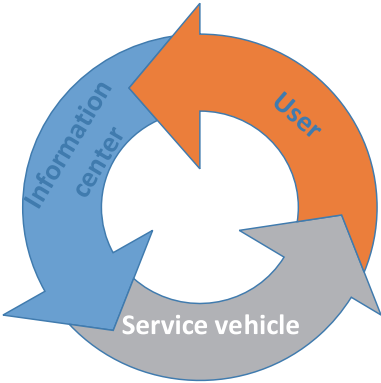
Fig. 2.11 Foton Lovol service model innovation

2.4.3.1 Accurate Service Model

Besides GPS on every agricultural equipment Foton Lovol has also placed GPS on every service vehicle during summer harvesting this year, which actually realized accurate locating service. GPS system enabled information exchange among harvester, service vehicle and customer service center. Once service center received a customer repair claim or a fault report automatically report from a GPS terminal it was able to accurately locate the breakdown vehicle and nearby service vehicles and meanwhile dispatch the closest service vehicle to provide on-site service (Fig. 2.12). Customer, information center and service vehicle together make up a recycling accurate service model.

The accurate service model (Fig. 2.13) works as per the following six steps: (1) customer detects a problem and dials service hotline for help. Call center receives the call and searches customer information in the call service platform (Fig. 2.14); (2) information center locates breakdown vehicle and nearby service vehicle through GPS; (3) call center staff dispatches the service requirement to closest service vehicle and maintenance staff confirms through GPS intelligent terminal or cell phone platform(Fig. 2.15); (4) service vehicle got navigated to the location and provides service on-site; (5) after repairing maintenance staff feeds back repair information, service vehicle route to call center for return; (6) meanwhile service vehicle synchronizes repair information, mileage to spare parts service VEI system and proceeds with after sales compensation claim.

Fig. 2.12 Recycling accurate service model



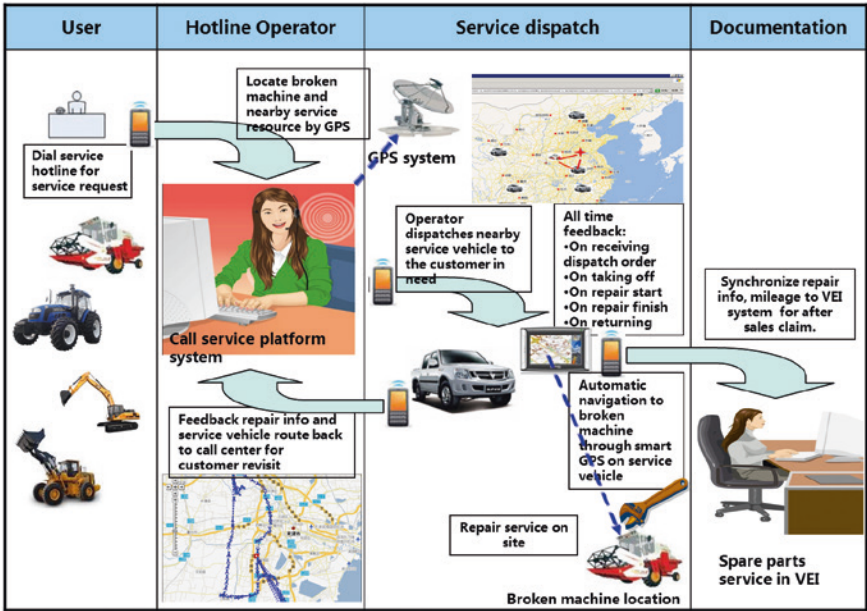


Fig. 2.13 Accurate service model

The screenshot shows a web-based customer information search interface. The interface includes fields for customer name, address, phone number, and a search button. Below the search fields is a table displaying customer information.

客户编号	客户姓名	联系电话	手机号码	车牌号码	客户群	状态	证件号码	邮编	操作
XL51000029995	刘国	13814384496	13814384496			活跃			选中

Fig. 2.14 Search customer information in call service platform

2.4.3.2 Proactive Service Model

In proactive service model information center receives engine rotation rate, temperature, continuous work length etc. information from sensors installed on key locations of the equipment and after diagnosis sends proactive alarm to customer and dispatch service staff to provide on-site service (Fig. 2.16).

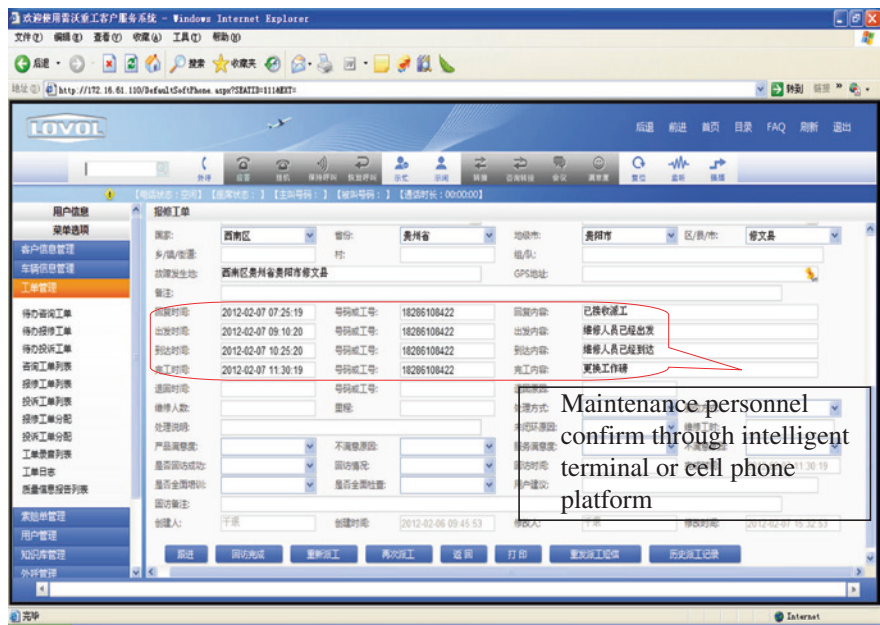
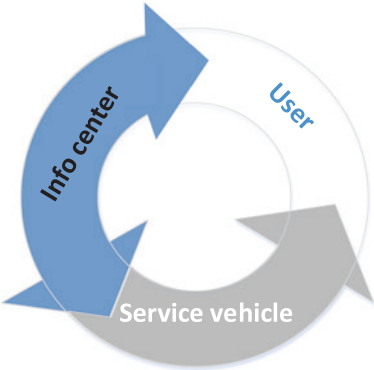


Fig. 2.15 Maintenance staff makes confirmation

Fig. 2.16 Non-recycle proactive service model



The proactive service model (Fig. 2.17) works as the following six steps: (1) service center staff detects abnormality by actively checking vehicle state (Fig. 2.18) and sends alarm to the customer; (2) information center locates the breakdown vehicle and close by service vehicle through GPS; (3) service center staff dispatches repair requirement to closest service vehicle and maintenance confirm through GPS or cell phone platform (Fig. 2.15); (4) service vehicle got navigated to breakdown vehicle location by GPS system and provides service; (5) feeds back repair information and service vehicle route back to call center after

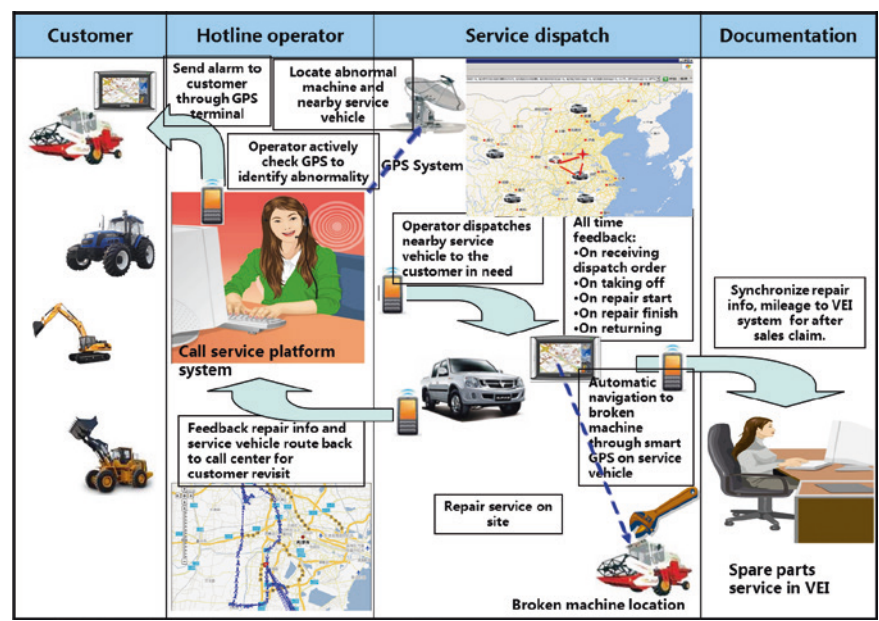


Fig. 2.17 Proactive service model

repairing; (6) meanwhile service vehicle synchronizes repair information, mileage to spare parts service VEI system and proceed with after sales compensation claim.

2.4.3.3 ‘Cloud Service’ Model

‘Cloud service’ includes all time cloud training, 3D simulation training, 24 h customer caring, electronic delivery service and agricultural equipment smart service (Fig. 2.19). With all time cloud training Lovol is able to give face to face training to its distributors and customers at any place, any time. Users at different places are able to share instruction from engineers at the same time and play with a series of 3D simulation tools. The training method with 3D digital model and all time cloud system to deliver has fully realized knowledge sharing as well as enhanced customer understanding of operating methods.

On the other hand, through video tools customers receiving training through all time cloud are able to see other users receiving training at the same time and make communication with each other. By using all time cloud training Foton Lovol was able to train more people with no labor cost, material cost and time cost increase and comprehensively improved customers operation skills and ability to get rich.

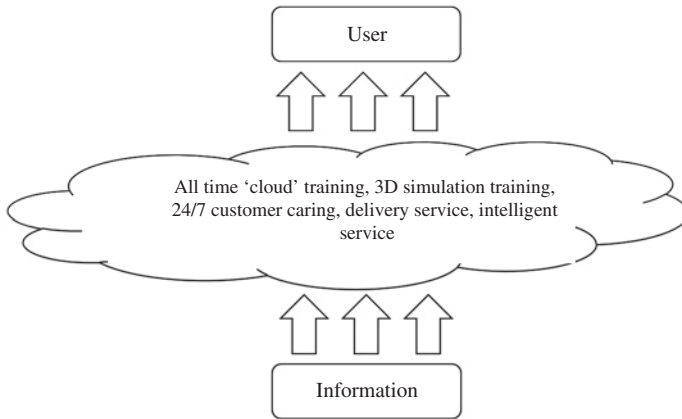


Fig. 2.19 'Cloud service' model

2.5 Conclusion

Through our research, we found that Foton Lovol was always doing things that others not dared to or even not able to achieve. From constructing information platform to information center, from passively providing service to actively making service innovation, Foton Lovol has carried out its responsibility as industry leader.

'Do people not dare to do'. In our research we found that when other companies were having headaches with customer service, Foton Lovol has started with service innovation. Changed from passive service to proactive service, Lovol added GPS control system to its products and information center staff detected abnormality through active checking and sent alarm to customer as well as providing service. This innovation effectively reduced vehicle idle time, increased product use efficiency and played an important role in keeping customer loyalty.

'Do people not able to do'. As mentioned before, since 2006 Lovol provided information service to all summer harvesting vehicles with or without Lovol brand. Such work is impossible for other companies and Lovol is able to do it due to its enormous market share: Lovol combine harvester takes 70 % of market share and is the market lead in a row for 13 years.

'Widen the path for itself'. Development in informatization not only supported service innovation but also supported R&D and the new development model to face future globalization challenges. The company has a four-in-one global technology innovation system in Europe, Japan, Tianjin and Shandong and through informatization construction to realize design coordination and data sharing. Setup of the technology innovation system enabled the company to produce first class products with global talents and technology resources and carried forward its global development paces.

Foton Lovol's informatization and servitization process will focus on the following four major parts:

Firstly is to deeply make use of information resources with the development of technology.

Secondly is to setup remote control center, which integrates with call center, spare parts service system and GPS terminals, GPS smart service system.

Thirdly is to expand network of things and provide customers with comprehensive services such as rental information release, evaluation, vehicle and parts sales through network and second hand vehicle transaction etc.

Last but not least, Lovol is to spur company service model change from passive service to proactive and accurate service model and push China's machinery equipment manufacturers to speed up in service innovation, and product and service intelligence transformation.

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