Enterprise-wide Strategic Information Systems Planning for Shanghai Bell Corporation

Yuan Long, Fiona Fuihoon Nah, and Zhanbei Zhu

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Yuan Long
University of Nebraska - Lincoln, USA

Fiona Fuihoon Nah
University of Nebraska - Lincoln, USA

Zhanbei Zhu
Shanghai Bell Co., Ltd., China
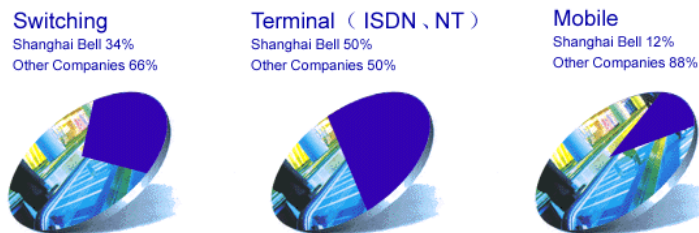
EXECUTIVE SUMMARY

In response to increasing competition and technological advancement, Shanghai Bell Co., Ltd., a leading telecommunications enterprise located in Shanghai, China, carried out a major initiative to develop its next generation Information Technology/ Information Systems (IT/IS) strategic plan. The initiative was prompted by limitations of its current enterprise application systems where the systems were neither able to keep up with the evolving needs due to organizational change nor satisfy the increasing demands for information sharing and data analysis. This case describes the environmental and organizational context of Shanghai Bell Corporation, and the problems and challenges it encountered in developing an enterprise-wide strategic IT/IS plan. The issues covered include alignment of IT strategy with evolving business needs, application of a methodology to develop the strategic IT/IS plan, and evaluation of strategic planning project success.

BACKGROUND

Shanghai Bell Co., Ltd. (herein referred to as Sbell), is a joint venture between China, the Belgian Fund for Development, and Alcatel. Founded in 1984, Sbell has become one of
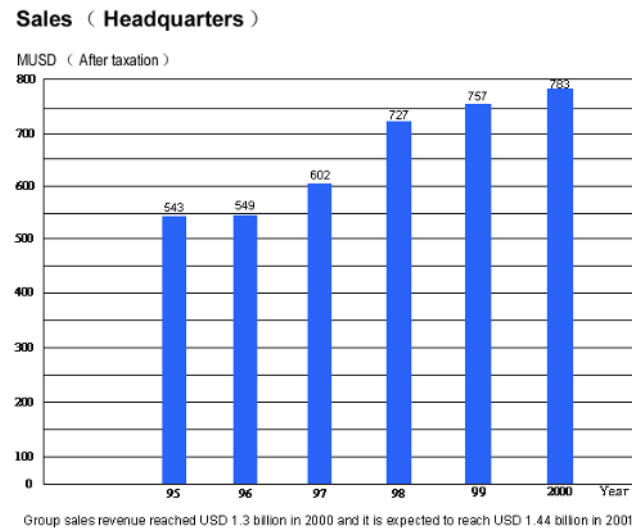
Figure 1. Market Share in China (in 2000)

Market Share in China （ **Till Year 2000** ）

Switching
Shanghai Bell 34%
Other Companies 66%

Terminal （ **ISDN 、 NT** ）
Shanghai Bell 50%
Other Companies 50%

Mobile
Shanghai Bell 12%
Other Companies 88%

Source: Shanghai Bell Corporation

the pillar enterprises in China's modern telecommunication and information industry. During the past few years, Sbell was ranked among China's top ten foreign investment enterprises and China's top 100 enterprises in the electronics and information industry. In 2001, Sbell employed more than 4,800 people with an average age of 29, among which 78 percent of them have university education, including 900 with postgraduate degrees. The main products of Sbell include switching, transmission, terminal, mobile and Internet systems. Figure 1 shows the statistics on the market share of Sbell in China in the Year 2000. In 2000, the sales revenue of Shanghai Bell reached 10.8 billion RMB (1.3 billion USD), which is an increase of 17 percent over the previous year. Figure 2 shows the increasing trend in after-tax sales revenue at the headquarters from 1995 to 2000. By the end of 2000, Shanghai Bell has total assets of 17 billion RMB (2 billion USD) and in May 2001 was recognized by Fortune as one of the best foreign investment enterprises in China.
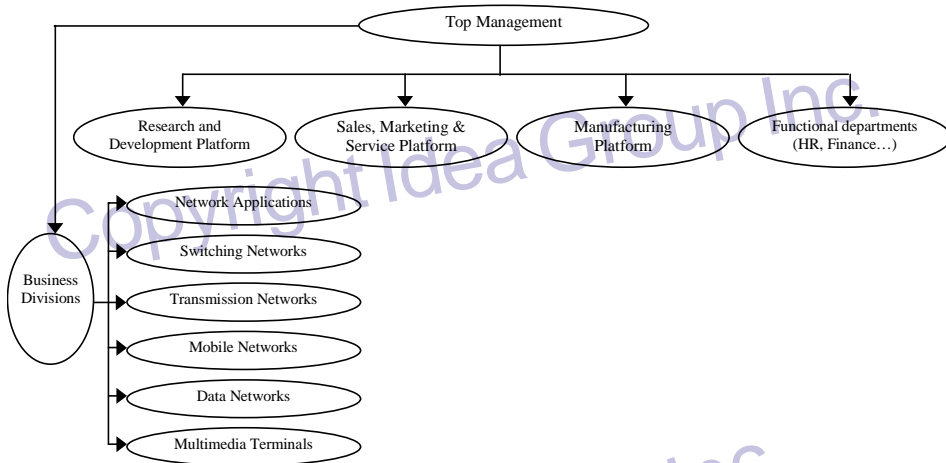
Figure 2. Sales at Headquarters (from 1995 to 2000)

Sales （ **Headquarters** ）

MUSD （ After taxation ）

Year	95	96	97	98	99	2000
MUSD	543	549	602	727	757	783

Group sales revenue reached USD 1.3 billion in 2000 and it is expected to reach USD 1.44 billion in 2001.

MUSD: Millions of USD
Source: Shanghai Bell Corporation

Figure 3. Organizational Structure of Sbell

Urged by intense competition and the fast-changing, dynamic environment, Sbell carried out a significant organizational innovation at the end of 2000. The company initiated a series of changes to reengineer its previous hierarchical and highly centralized management structure to a flatter and more flexible one. Four major measures were taken to establish a new matrix organizational structure, which includes six business divisions and three platforms within the overall company (see Figure 3).

First, Sbell established six new independent business divisions— switching networks, mobile telecommunication networks, data communication networks, transmission networks, network applications, and multi-media terminals—to cover the key business core. Each division was given the authority to determine its own products and materials (within the broad company context) and has some degree of financial independence. The sovereignty and flexibility of these business divisions led to speedier response to the changing environment and a closer relationship with customers.

Second, a research and development (R & D) platform was set up to improve the capability for technological innovations. In order to manage the development of products efficiently, the R & D platform was organized as a three-layer structure. The first level is located at the top management level, titled as "Chief Engineering Office," which is responsible for corporate technical and product strategy, technological innovations, project management, technical/product standardization management, intelligence service, and corporate Intranet, etc. The second level is the corporate R & D department, which focuses on intermediate- to long-term R & D, and technologies that were shared among different business divisions. The third level is the Business Division (BD) R & D, which is located within each business division and is regarded as the front-line that interacts directly with customers on a regular basis. In order to enhance technological innovations, Sbell planned to increase the number and proportion of employees in the R & D department (from 34 percent in 2001 to 40 percent in 2005) as well as its R & D investment (from 9 percent in 2001 to 15 percent in 2005). Sbell believes that enhancements of research capability using advanced Information Technology would greatly benefit its long-term development.

Third, Sbell set up eight marketing, sales and service regions in multiple distributed sites, including 32 branches in China and about 20 overseas offices, to establish a strong sales and service network across China and abroad. Instead of focusing only on sales revenue, the top managers of each region have to pay more attention to marketing and service. Both cooperation (gaining cross-regional customers and supporting nation-wide promotions) and competition (pressure to minimize cost and meet budget) co-existed among these regions.

Fourth, the previously isolated manufacturing sub-divisions (such as production, planning and procurement) were re-arranged to establish a flexible and unified manufacturing platform. Both the manufacturing platform and the business divisions have the authority to determine their providers or buyers based on their unit's cost and revenue (ROI). For instance, if the business divisions find that the manufacturing platform cannot satisfy their requirements (cost, time or technology), they can choose manufacturers from outside the company. The same is true for the manufacturing platform. When the price offered by the business divisions is too low or a technological requirement is too high, the manufacturing platform can receive orders from outside the company. Competition and cooperation greatly contributed to business performance. In this way, units that have an independent accounting privilege would strive to reduce cost and increase benefits in order to avoid elimination.

To summarize, a new matrix organizational structure (as shown in Figure 3) was established. The new organizational structure was supported by six business divisions (network applications, switching networks, mobile networks, etc.) and three platforms—(1) manufacturing, (2) research and development, (3) sales, marketing and service. The six business divisions share the resources provided by the three platforms. For example, a project team can recruit technicians from BD, technology instructors from R&D, and sellers from marketing on a temporary basis to deal with a specific case. In addition, functional departments, including human resource and finance, supported the daily operations of the company.
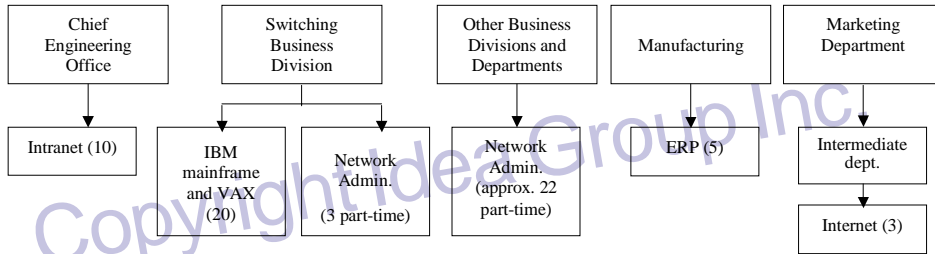
The integration and advancement of both research and development platform and the sales, marketing and service platform contributed to the evolving business strategy of Sbell, which is a combination of "technical-oriented" and "market-oriented" strategy. A decentralized architecture enhanced sovereignty of units and increased flexibility. A flattened structure reduced management layers and resulted in quicker response to changing customer preferences and a shorter design-to-market cycle.

IT Structure

Sbell implemented the SAP R/3 Enterprise Resource Planning (ERP) system in 1998 as its core transaction processing system. The ERP system comprises four modules—Materials Management (MM), Production Planning (PP), Financial Accounting (FI), and Sales and Distribution (SD). According to the ERP project leader, Mr. Yunjun Xiao, "The FI module has worked well during the last few years. However, data-sharing problems existed between and within the MM and PP modules. Business processes for sales and marketing were only partially supported by the SD module." Hence, further integration of MM and PP modules as well as extensions of SD functionality were needed. Besides the ERP system, other applications were also developed, including the Human Resource (HR) system that was outsourced and a call center that was developed in-house.

Sbell invested several million USD to develop its computer platform and network systems in 1996 and continued to extend and improve its networks and technical infrastruc-

Figure 4. Existing IT Organization in Sbell (April 2000)

Chief Engineering Office	Switching Business Division	Other Business Divisions and Departments	Manufacturing	Marketing Department
Intranet (10)	IBM mainframe and VAX (20) · Network Admin. (3 part-time)	Network Admin. (approx. 22 part-time)	ERP (5)	Intermediate dept. → Internet (3)

Source: Shanghai Bell Corporation

ture. To provide a solid high-speed network, Digital Data Network was used to connect multiple sites within Shanghai, and ISDN, ISP and ADSL were installed to link sales distributions outside Shanghai with the headquarters. Despite using advanced equipment and technology, the current networks could not satisfy the increasing needs of the distributed and continually expanding environment. Moreover, distinct operating systems (Windows 95/98/2000, Unix, Windows NT) and databases (Oracle, Sybase) existed simultaneously in the company, which resulted in data isolation and inconsistency.

The company did not have an integrated IT/IS department that was responsible for developing IT strategy, managing IT projects, and supporting and maintaining the IT infrastructure. The current IT workforce within Sbell included (Figure 4): (1) an IT department (with ten people) that focused on providing technical support for the IT infrastructure (network, desktop, data center and maintenance) of the whole company; (2) 20 engineers in the switching business division that took charge of maintaining IBM mainframe; (3) technicians in each division who were responsible for installation and maintenance of local networks; and (4) teams established on an ad hoc basis for specific IT application projects such as the ERP implementation. There was no position similar to that of the CIO, and the existing IT department provided solely technology support rather than drove IT strategy by aligning it with business goals.
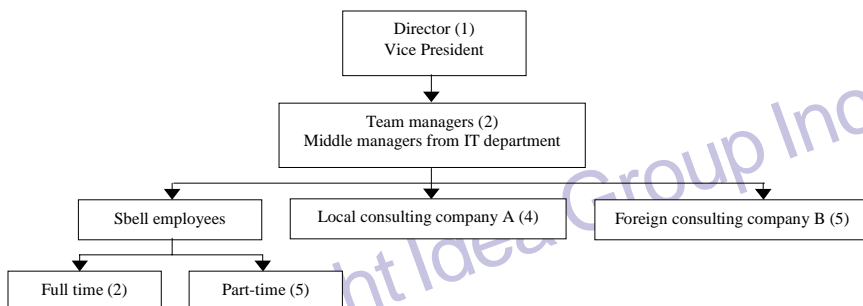
SETTING THE STAGE

Because radical organizational change took place over a short period of time, many problems, including organizational and behavioral issues as well as application systems and information technology issues, arose. The challenges discussed next led the top management to initiate a strategic IT/IS plan in order to support the organizational change and to improve the capability of current IT application systems.

First of all, the current IT applications did not provide sufficient support for the revised organizational structure. For example, the two core competencies identified—*research & development, and sales, marketing & service*—were not well supported by the existing application systems. Without the help of IT, the strategic advantage that can be gained from the new organizational structure was limited.

Second, the current IT/IS structure needed significant improvement. The existing information systems could not satisfy the increasing demands for information sharing and data analysis. For example, problems in integrating legacy systems and the ERP system, and in information sharing within the ERP system, still existed. Some departments felt that the

Figure 5. Organization Structure of SISP Project Team

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                    ┌─────────────────────────┐
                    │      Director (1)        │
                    │    Vice President        │
                    └────────────┬────────────┘
                                 │
                    ┌─────────────────────────┐
                    │    Team managers (2)     │
                    │ Middle managers from IT department │
                    └────────────┬────────────┘
          ┌──────────────────────┼──────────────────────┐
┌──────────────────┐  ┌──────────────────────┐  ┌──────────────────────────┐
│  Sbell employees │  │ Local consulting company A (4) │  │ Foreign consulting company B (5) │
└────────┬─────────┘  └──────────────────────┘  └──────────────────────────┘
    ┌────┴────┐
┌─────────────┐ ┌──────────────┐
│ Full time (2)│ │ Part-time (5)│
└─────────────┘ └──────────────┘
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current application systems could not satisfy their specific functional requirements of day-to-day operations and decision-making, thus they began to build small-scale systems within their units without waiting for or obtaining approval from the top management. These isolated systems led to serious problems such as information conflicts and functional redundancy. Furthermore, the current information technical architecture could not support the decentralized structure of the extended organization. The current systems lacked the capability to manage, control and support multiple sites, and the ability to adapt to the changing environment. Moreover, without a centralized IT/IS department, the company felt an urgent need to build an effective and efficient IT organization to help the company develop its IT strategic plan, manage IT projects, and outline specific IT policies and rules.

Third, there was a high likelihood in the near future that Alcatel would acquire Sbell by becoming a majority shareholder and develop Sbell as one of its major global information technology research centers. Although the contract was still under negotiation at the time of the case, future integration problems concerning management, organization and technology should be considered. IT should be designed to support the potential merger with Alcatel.

Facing the above problems, the top management decided to develop an enterprise-wide strategic information systems plan in early 2001 to achieve the following objectives:
- Update Shanghai Bell's IT vision and strategy to align with its evolving business objectives;
- Develop an appropriate application architecture that would meet its long-term growth objectives;
- Develop an appropriate technical architecture that would ensure interoperability and integration between existing and emerging systems, and provide appropriate linkage to key business strategies; and
- Assess and design an information services organizational structure to help meet its long-term objectives.

In the middle of February 2001, a kickoff meeting was held among the top management to initiate the Strategic Information Systems Planning (SISP) process. A project team was set up, and was directly led by a Vice President (VP) and two managers from the Information Center and the IT department of Sbell. To facilitate the implementation of SISP, the company suspended all of its application systems projects under development, and declared not to approve any IS budget until the end of the SISP project.

In March 2001, two IT consulting companies were selected to assist in the SISP project. One of the consulting companies (company A) is a domestic company that has extensive knowledge of Chinese corporations and rich experience in developing strategic information systems plan in the telecommunication industry. The other (company B) is a well known American-based IT consulting company that has a good reputation, an extensive knowledge base, and a proven methodology for SISP. "We selected company A for its strong communication skills and rich experience in dealing with IT strategic issues in domestic industries," according to the Vice President, Mr. Zhiqun Xu. He continued, "As for company B, we chose it because of its strong IT background and specialization in IT strategic consulting. In addition, it is also viewed as being 'unbiased' in software and hardware selections and recommendations. Company B does not have its own proprietary application products, so it is more likely to recommend the most appropriate products rather than in line with its vested interest. We hope that the two consulting companies can work closely with our employees, to bring new concepts and ideas to the company and to educate our staff."

A Vice President, two middle managers, four consultants from consulting company A, five from consulting company B, two full-time Sbell employees and five other part-time personnel from key departments, made up the core SISP project team (as shown in Figure 5).

CASE DESCRIPTION

At the beginning of the project, the team members, particularly employees within Sbell, did not have a clear understanding of SISP, and had little knowledge of how SISP can benefit the company and how to develop a strategic plan. Hence, the consultants spent about a week to train the employees in SISP approach.

The project manager of consulting company B, indicated:

"A strategic information systems plan for Sbell, can be seen as a vision with directional statements, and comprises a set of both broad and detailed guidelines that provide a framework for strategic, tactical and operational decision-making. An IS strategy should also clearly link the IS goals to the strategy of a business, and provide a detailed blueprint for the acquisition, development, deployment and retirement of IS/IT assets over a multi-year time horizon."

A strategic IS plan, according to Sabherwal and Chan (2001), comprises three types of strategies: Information Systems (IS) strategy, Information Technology (IT) strategy, and Information Management (IM) strategy. IS strategy focuses on systems or business applications of IT, and is primarily concerned with aligning with business needs to derive strategic benefits. IT strategy is concerned mainly with technology policies, including architecture, technical standards, security levels, and risk attitudes. Finally, IM strategy is concerned with the roles and structures for the management of IS and IT, and is focused on issues such as the relationships between the specialists and users, management responsibilities, performance measurement processes, and management controls (Earl, 1989).

The two consulting companies jointly carried out a four-phase approach (as shown in Figure 6) to accomplish the SISP project's objectives:

Phase 1: Development of IT vision (2 weeks)
Phase 2: Understanding the current business (6 weeks)
Phase 3: Strategic Information Systems Planning (4 weeks)
Phase 4: Delivery of final report (2 weeks)

For simplicity, the SISP development process was depicted in Figure 6 as a linear flow of events. However, it would be more realistic to have a number of feedback loops included in the diagram. For example, while producing the IS plan in phase 3, the planners frequently returned to phase 2 to interview specific employees to obtain additional information.

The details of the four-phase approach will be discussed in the subsequent sections.

Phase I: Development of IT Vision

The focus during the first two weeks of April 2001 was on understanding, identifying and documenting the IT vision. It was recognized that IT should support the basic goals of the firm, thus the first thing needed was to identify the business strategy. Several interviews were conducted at the top management level to understand strategic and organizational issues concerning short-term and long-term business goals, organizational reengineering, and IT evolution to support the necessary organizational change.

Mr. Xin Yuan, the associate chief executive manager summarized the weaknesses of Sbell as: weak in research and lack of innovative and cooperative culture within the company. "In order to survive in today's business environment and to become a global leading high-tech company," he continued, "we urgently need to strengthen **Research** and **Marketing**, which would contribute significantly to our core business competencies. Therefore, we propose changing from our current spindle structure, which focuses on manufacturing, in the middle part of the spindle, to a dumbbell structure, which focuses on research and marketing at the two opposite ends of the dumbbell."

Based on an analysis of the information gathered from the interviews, the team delivered an IT vision report outlining the enterprise environment, business strategy, IT vision, and alignment between business strategy and IT vision.

Phase II: Understanding the current business

"One of the most important objectives of Phase 2," emphasized by Mr. Ziqiang Pan, the project manager of consulting company A, "is to identify the critical business process of

Figure 6. Strategic Information Systems Planning Process
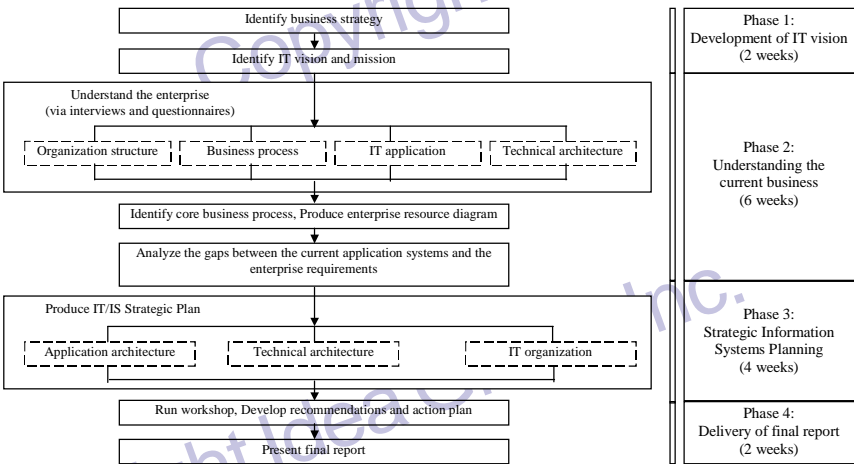
Sbell." He continued to explain, "Core business processes are those activities flowing through the value chain of the company. They are stable and not easily affected by the external environment. Identification of core business process is the foundation for understanding the current business needs and the gaps between those needs and the functionality provided by existing IT applications. We can therefore determine the potential application opportunities and priority of application development portfolio."

Starting the middle of April, the project team was divided into five groups to conduct a six-week survey, which included a series of interviews and a semi-structured questionnaire. The objectives of this survey are two-fold: (1) to identify the current business process, and (2) to gain a better understanding of the organization, and its technical architecture and application systems. The five groups corresponded to the five business areas:

(1)   manufacturing and procurement;
(2)   research and development;
(3)   sales, marketing and service;
(4)   functional departments; and
(5)   business divisions.

Each group, comprising one or two consultants working jointly with several Sbell employees, conducted interviews and administered questionnaires in the specific business area. These employees played an active role in bringing the consultants and Sbell employees together.

A series of interviews were conducted at the middle management level. Several meetings were held between the project team members, and the managers and representatives in the respective departments. The interviews provided the planners with an understanding of the core business process within each department, the functionality provided by existing application systems, and the future IT/IS needs of the departments. Communications between the planners and the employees also provided opportunities for employees to clarify the purpose of SISP and its approach.

The planners also administered a semi-structured questionnaire to representatives from each department. The questionnaire comprised four major parts:

(1)   *Business process*—concerned with relationships between processes, average execution time of each process, number of participants involved in each process, available IT support, major activities, and input and output information of each activity.
(2)   *Organization and management*—concerned with department objectives, organizational structure, human resources and IT resources, as well as the relationships and cooperation among units within and outside Sbell.
(3)   *IT application*—concerned with limitations of existing information systems, cost of each IT application, development methods (in-house or out-sourced), names and functions of each module, the scope and boundaries of business processes supported by each application, and interfaces among those applications.
(4)   *Technical architecture*—concerned with current IT infrastructure, platform, database and network.

At this stage, the planners spent a lot of time on collecting documentations of business processes, seeking information on undocumented but critical activities, and then combining information produce an overall view of the enterprise. This work was labor intensive and time-consuming. On one hand, the planners had to take much effort to check for accuracy of the core processes since inconsistencies might exist between the process presented in the "official" documents and those carried out in practice. On the other hand, the planners had

to communicate frequently with on-site employees to seek information on undocumented but critical activities, and then produced a formal documentation (business process diagrams) based on the employees' description of their day-to-day operations.

Day-to-day operations in such a big company were so complex that the planners met many challenges. First, they found that the business processes were unstable with respect to ownership. Because of frequent organizational adjustment, work that was done by department A today might be carried out by department B tomorrow. Second, the more in-depth the survey, the more they found unclear boundary and ambiguous relationships among some of the processes.

Facing these problems, the planners decided to take a break and to discuss these issues. First, was it necessary to depict ownership as part of the business process? Organizational structure (people) is easily affected by the external environment and internal innovations, while operations, especially the core business processes of the company, would remain stable no matter who does it. Therefore, analyzing activities by ownership is not worthwhile for obtaining a stable view of the enterprise. Second, how in-depth should the planners analyze these processes? At what level of detail was it sufficient for producing the strategic plan? Realizing that the objective of analyzing business process in this case was for IT/IS strategic planning, rather than to produce an implementation design, the planners felt it would sufficient to identify the core business process, capture the general activities for each process, and more important, realize activities not supported by IT applications. Third, how should planners deal with those problems, such as information conflict and process redundancy, found in the analysis procedure? Considering that this was an SISP project, not a BPR (business process reengineering) or BPI (business process improvement), the planners decided to document the problems and provide recommendations to the company for future improvement. In this way, the planners could save time and avoid being involved in political issues such as power struggle.

By the end of May 2001 (after six weeks of hard work), the planners presented an enterprise information resource diagram showing a snapshot of the existing information resource of the enterprise. Eight core business processes were identified, including manu-facturing, procurement, research and development, marketing, service, sales, human re-sources and finance. Among them, manufacturing, procurement, finance and part of sales & marketing were supported by the ERP system; human resource was supported by an out-sourced software; and research & development almost gained no support from application systems.

The enterprise information resource diagram is a two-tier model (shown in Figure 7).

Figure 7. Enterprise Information Resource Diagram

Business
Process
(First layer)

Application
Architecture
(Second layer)
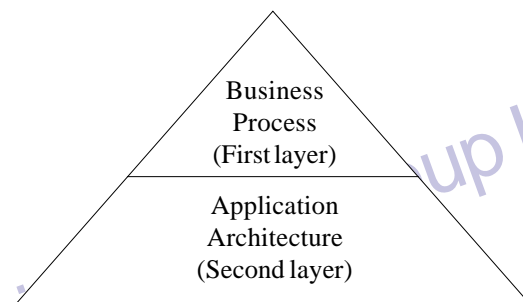
The first layer of the enterprise information resource diagram depicts business processes that were identified through the survey. Application architecture, the second layer, describes the application systems that support specific business operations. Different colors were used to indicate different application systems that provided support for specific business processes. Therefore, from the two-layer diagram, it became fairly easy to identify the business processes that were covered by the application systems, and those that were important but only partially supported or not supported by any application.

Phase III: Strategic Information Systems Planning

At the beginning of June 2001, it was time for the planners to produce a strategic IT/IS plan. The project team was divided into three groups to work on the following three areas: application architecture strategic planning, technical architecture strategic planning, and IT organization strategic planning. Much emphasis was placed on the application strategic plan; since it was considered the most critical area that needed a lot of work, nearly two-thirds of the team members participated in this group.

Application Architecture Strategic Planning

Application architecture comprises the set of IT applications (bought or built) that delivers the business process, and the technology (i.e., middleware) that integrates the various applications and links them with a coherent data model.

The enterprise information resource diagram was represented on "post-it" notes and stuck onto the walls of a conference room for others to view, critique, and make suggestions for modifications. Several employee representatives were invited to comment on the correctness and accuracy of the diagram.

First, the planners tried to identify potential application opportunities from the enterprise diagram. They found that finance and human resources were well supported by the application systems. Although manufacturing and procurement were generally covered by the ERP system, information inconsistency existed, thus system optimization was needed. Sales, marketing and service were partially supported by the ERP system and some isolated small-scale systems; research and development obtained almost no support from the IT systems. It seemed Sbell was in urgent need of the following: application for R & D (Collaboration Product Commerce or CPC), and application for sales and marketing (Customer Relationship Management or CRM), and optimization of the ERP system. Other application systems, such as e-procurement and knowledge management were also potential applications. CPC is a new type of software and services that uses Internet technologies to tie together product design, engineering, sourcing, sales, marketing, field service and customers into a global knowledge net (Aberdeen Group, 1999). CPC can facilitate management of product life cycle and cooperation with external partners. CRM is an integrated customer-oriented system concerned with sales management, marketing information acquisition and service improvement. Since service and support would become the competitive edge of Sbell, developing CRM would provide opportunities for Sbell to establish a closer collaboration with partners, suppliers and customers. ERP optimization includes integrating current stand-alone systems, developing additional modules, improving user training, and strengthening ERP support team. These ways can greatly increase the efficiency of the SAP R/3 system.

Next, prioritization of projects was considered due to the limited resources. The key question is: Which project was the most urgent for Sbell and should be implemented first,

and which should be implemented next? The planners considered many factors in making a final recommendation. These factors included the business strategy, alignment with Alcatel (the potential merger), IT vision, budget, cost, time, technical complexity and technology trends.

Among the potential application systems, CPC was regarded as top priority for the following reasons:

(1)   Lagging behind in advanced communication technology, Sbell faced the danger of decreased market share due to increased competition from both foreign companies and rapidly-growing local companies. Therefore, increasing the capability of research and development became crucial for survival and future development of Sbell.

(2)   There was a high likelihood that Alcatel would acquire Sbell by becoming a majority shareholder and develop Sbell as one of its major global information technology research centers. Therefore, Sbell should build an advanced R & D platform to meet the anticipated challenge.

(3)   Compared to marketing and sales, R & D was considered more urgent and crucial in its needs for IT support. Sbell has a well-organized sales force. Some operations in sales were supported by isolated or shadow systems. Although the functionalities provided by IT applications were inadequate, the system can handle basic operations. In comparison, R & D obtained little support from IT and was considered the weakest part of the company. Therefore, improvement of sales & marketing was necessary but not considered as urgent as improvement of R & D.

Other issues were also addressed in application architecture planning, such as application development alternatives (e.g., buy or build), application vendor selection, budget and implementation schedule.

Technical Architecture Structure Planning

The technical architecture is the foundation upon which the application architecture was built. The technical architecture should be further decomposed into "layers," such as application systems, database, IT service, network and platform.

Based on an in-depth survey of the current technical infrastructure conducted at the earlier phase, the planners collected detailed data and information in computing infrastructure, network infrastructure, and enterprise IT service.

A workshop was held with IT managers and users to develop a technology specification for Sbell's strategic architecture. The topics included: IT principles, platform/operating system(s), network infrastructure, middleware infrastructure, systems/network management, security infrastructure, and IT services.

After several discussions and changes, the group conducted a review session to finalize the written report detailing the IT mission, business drivers, IT principles, technology standards, and specific technology frameworks that would guide Sbell in the implementation and deployment of enterprise-wide technology and its next generation application systems.

Organizational Strategic Planning

The organizational architecture is the remaining component, which is important but often ignored in practice. The organizational architecture refers to the IT organizational structure, as well as the set of management processes or governance rules.

A series of interviews were conducted to understand the organizational and management processes in order to align the IT organization and management processes with the business strategy. The group first analyzed the current IT organization and compared it with other advanced IT organizations, and then presented a series of suggestions for IT organizational structure and project management. A workshop, which was primarily attended by management personnel, was held to present and discuss the results. The review was one day in duration and was held at Shanghai Bell's headquarters.

Phase IV Delivery of Final Report

Several review sessions were held among the consultants and the employees of Sbell to achieve consensus of the final report. A vote was taken by the top management during an application strategic planning workshop to determine the priority of potential IT applications.

The results of all phases were consolidated into a formal final report that documented the strategic and operational plans for IT development. The report addressed the following areas: business strategy and IT drivers, IT vision and mission, application architecture strategy, technical infrastructure strategy, and IT organization and management strategy. Application architecture strategy included a three-stage operational schedule for the implementation of information systems, including a potential list of applications, the priority of these applications, and recommendations on development alternatives (out-souring or in-house), vendor selection and budget. Technical infrastructure strategy and IT organization strategy provided recommendations for technical framework and construction of IT organization in Sbell.

In the middle of July 2001, after five-month of close cooperation, the project team presented a final report to Shanghai Bell's executive management at its headquarters. In summary, the suggestions included:

(1)   ERP optimization, CPC, and CRM were absolutely necessary for Sbell. Among them, ERP optimization and CPC were of the highest priority and needed immediate attention, while CRM was to be carried out next.

(2)   Establishing an independent and centralized IT organization (shown in Figure 8) is essential. This organization should be directed by the CIO and should comprise both an IT department and an IS department.

(3)   Building a distributed technical architecture that utilized advanced network technology.

CHANGES/PROBLEMS FACING THE ORGANIZATION

This case described the development of Strategic Information Systems Planning for Shanghai Bell Corporation, a high-tech company in China. Some of the key issues and challenges faced during the process are presented here for further discussion.

Issues and Challenges Faced in SISP

Issues related to evaluation. How should one evaluate a strategic IT planning project? What are the criteria for evaluating SISP success? These are hard problems with little

Figure 8. Sbell IT/IS Organization Chart (To-be)
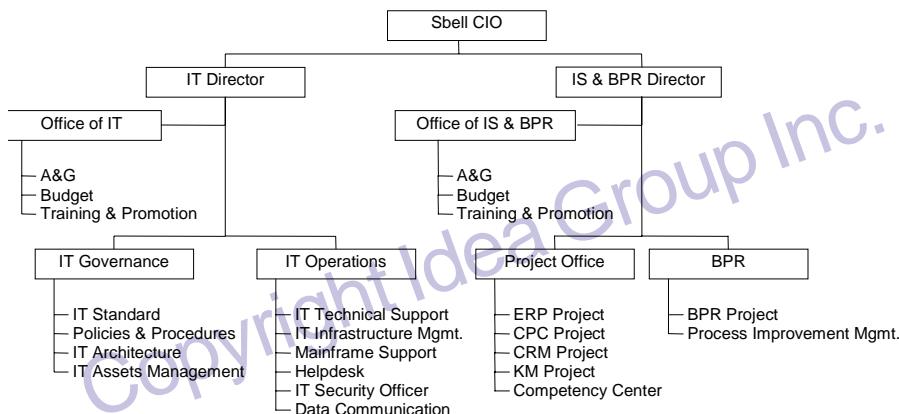
Source: Shanghai Bell Corporation

consensus in the literature. From a practical perspective, the objective of SISP is to produce a workable schedule for approved application portfolio. Therefore, the close relationship between the strategic plan and the subsequent implementations can be considered as a key indicator of the contribution of a strategic plan. Success can be assessed by the degree to which implementations were carried out according to the strategic plan. Another indicator of success is the advancement of IT/IS positions in an organizational hierarchy. In this case, a CIO position was to be established and a centralized IT/IS department was being planned. Further, a significant increase in IT investment was planned. Could this SISP project be considered a success? What are the relevant factors to be taken into account in evaluating a strategic planning process?

Issues related to politics. The SISP project was supported and emphasized by Mr. Xi, the chairman and CEO of Sbell, and directed by one of the VPs, who was responsible for R & D. The planners received full support from the middle management within R & D, but less interest and cooperation from some departments, such as sales and finance. Insufficient communication with some of the middle management is one of the weaknesses of this project. Although this might seem to have a subtle impact on the strategic plan, it may have unexpected consequences on the implementation that follows (i.e., lack of support from middle management may jeopardize the implementation). Such problems are common for many projects. What are the steps could be taken to reduce the effect of politics and to increase participation?

Issues related to methodology. In this case, the strategic application architecture plan was based on the analysis of current business process. As we know, the business processes for a large company are very complex and it is almost impossible to capture these processes completely within a short time. At what level of analysis would it be considered sufficient? This seems to be a tricky issue to deal with. For example, if the business processes are captured at a high level of granularity, the planners might not be able to identify the key business processes, and the gaps between the business needs and the functionality provided by the existing application systems. On the other hand, if the analysis is too detailed, it would be extremely time-consuming, costly and unnecessary.

Support from top management. Support from top management is one of the critical success factors for any IT project, especially for a strategic IT/IS planning project, which primarily benefits the top management. The support from the CEO and VPs was very helpful to the planners in carrying out large-scale interviews and administering questionnaires within the company. Also, the commitment of top management is the decisive factor for subsequent implementation. Since obtaining commitment from the top management was not easy, the planners took the effort to seek opportunities to engage in regular communications with the top management. They also convinced the top management that the results have significant implications since they were developed based on a scientific methodology. What are some general recommendations and suggesting the seeking commitment from the top management? What could Sbell have done better?

Issues related to teamwork. A success factor in this case was attributed to the close cooperation among members in the project team. Three groups in the project—employees from Sbell, consultants from consulting company A, and consultants from company— worked closely together during the entire SISP process. The team leaders (two IT managers from Sbell) and the full-time and part-time team members from Sbell played an active role in the development of SISP. They were highly regarded employees and professionals in the different departments, and they knew the business very well and had excellent communication skills. Without their help, it would be hard for the consultants to receive a fairly high level of participation in conducting interviews and questionnaires, and to obtain first hand materials in such a short period of time. The consultants in Company A possessed experience in developing IT projects in Chinese companies; they have skills to manage cultural and political issues; they also have no language difficulty in communicating with employees of Sbell. The consultants in Company B have a strong IT consulting background and they have a sound methodology and a good reputation. The three groups have their unique characteristics, and a combination of these specific strengths contributed to the smooth development of the project.

The role of consulting companies. Companies might be reluctant to hire consultants because they are suspicious of what consulting companies can really do for them. In this case, the consulting companies played a key role in developing the strategic plan, in educating the internal employees, and in promoting the IT positions within the company. At the beginning, Sbell had no idea how to develop a strategic IT/IS plan. The consulting companies brought the knowledge into Sbell, and educated the company on a scientific development methodology. The training greatly benefited employees, especially those in the project team, by providing them a good understanding of SISP. These employees became proficient in applying the SISP methodology at the end of the project and would definitely be taking an active role in future development of IT within Sbell. The communication between the consultants and the employees also led to increased recognition of the importance of the role of IT within the company. Furthermore, it prompted the top management, middle management and the staff to pay more attention to the role of IT in achieving business success. Several other lessons can be learned from this case. With rich experience and a strong knowledge base, consultants may be inclined to draw conclusions from their previous experience, which may not fit a specific company. In this case, due to the limitation of time and resource, Sbell spent little time on issues related to technical architecture, where the consultants made most of the recommendations. In the subsequent implementation (CPC and CRM), some problems emerged and the company felt the need to modify the technical architecture. Hence, Sbell

learned that it should not completely rely on the consulting companies; modifications might be needed to better meet its needs before finalizing the plan.

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BIOGRAPHICAL SKETCHES

Yuan Long is a PhD student at the University of Nebraska-Lincoln, USA, majoring in Management Information Systems. She received her master's degree in Computer Science from East-China Institute of Computer Technology. She has published articles in Computer Technology and Management Science *(both in China). Her current research interests include strategic information systems planning and software engineering.*

Fiona Fuihoon Nah is an assistant professor of Management Information Systems at the University of Nebraska-Lincoln, USA. She received her PhD in Management Information Systems from the University of British Columbia. She has published in Communications of the ACM, Journal of Computer Information Systems, Journal of Information Technology, Journal of Information Technology Cases and Applications, Journal of Electronic Commerce Research, Journal of Software Maintenance, Business Process Management Journal*, and* Simulation and Gaming. *Her research interests include enterprise resource planning, human-computer interaction, individual and group decision-making, and theory building in information systems research.*

Zhanbei Zhu is a manager of information center and a team leader of CPC project in Shanghai Bell. He received his PhD in Management Science from Beijing University, China. He has seven year of industrial experience in information service, knowledge management, and business intelligence research and practice.