Doshisha University

# Naniwa  Hitech: Implementing  ERP

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## Introduction

Toshi Kikuchi sat in his chair in the eight floor of a decidedly modest Osaka office building contemplating his situation. He has been dispatched four years ago from his corporate position at a major Japanese manufacturing company to an important subsidiary, Naniwa HiTech. He serves as Vice president and General Manager of the Production Division. His initial mission was to lead the implementation of Enterprise Resource Planning (ERP) a major software application initiative designed to unify enterprise-wide information systems. He was also expected to use this implementation as a basis for corporate renewal. As the hard driving executive that he is, he was still unsatisfied with the progress that Naniwa HiTech had made over the last four years. Nevertheless, he believes that the firm had indeed succeeded in accomplishing many of its corporate goals through introducing ERP, whereas many other Japanese corporations have faltered or even refused to try. As a reward, he was being called back by the parent company to oversee similar initiatives throughout its major subsidiaries.

In his new job, Kikuchi-san would be required to evaluate these last four years and figure out what Naniwa HiTech had done right in implementing ERP and what mistakes they had made that required new approaches. Moreover, he realized that the template for implementing ERP wasn't a "one size fits all" solution. Different approaches are required in different companies; indeed; even at Naniwa HiTech, he had found that what worked in one plant didn't always work in others. Nevertheless, in his new job, he would need to draw out the major lessons of the Naniwa HiTech experience so he could effectively help get them applied throughout other subsidiaries.

In fiscal year 2002, Naniwa HiTech did 325 billion yen in sales in printer products. It produces its own line of branded printers including a small printer for mobile phones. It has particular strength in high resolution laser beam printers whose markets have grown over recent years especially in Asia. The firm has 6,000 employees spread over manufacturing facilities in Japan, China, Thailand, Singapore, Italy, U.K. and the U.S. It has sales offices in 23 countries and regions besides Japan. Its overseas sales ratio is 45%. The company has many corporate customers with whom it works closely to provide customized solutions. Naniwa HiTech's markets are volatile and rapidly changing. This puts a premium on accurate and timely sales projections and an ability to promptly respond to changing conditions as well as creating the need for close coordination among its geographically distributed facilities. Both domestically and internationally, the industry has been experiencing rapid growth as printers have become linked to workgroup and network printing solutions. At the same time, it is a fiercely competitive market with falling market prices and many producers vying for market share.

## Background on Information technology (IT) Evolution Worldwide and in Japan

In the 1970s and 1980s, Japanese manufacturing managers honed their capabilities in plant level optimization. During this period, there was ongoing commercialization of software development and various tools became available to firms (database forms, entry reports). Data base software plus software tools were used to build custom applications. As these custom Information Technology (IT) tools were developed, they were used to support plant level optimization. Using these methods, alongside their focused factory approach, many Japanese manufacturing firms achieved great success during these years; they leveraged their decentralized decision making down to the shop floor ("genba shugi") strategy to great effect in foreign markets.

As we entered the 1990s, the global competitive environment changed. Old and new competitors began to match many of Japan's operational efficiencies at the plant level. At the same time, system-level optimization became increasingly important as firms sought enterprise-wide efficiencies. It wasn't enough to focus on how an OEM managed its suppliers but instead one had to look for how it managed its whole supply chain. It wasn't enough that one had an efficient production process but it was critical to better coordinate it with the sales process. It wasn't enough that one had strong optimization in one's domestic operations, one needed to tightly coordinate those operations with one's foreign operations. Tremendous savings could result from corporate-wide volume purchasing policies but that required standardization of parts used in different plants and consistent product codes across plants to reflect that standardization. Similarly, the optimization of the whole supply chain had tremendous potential for reducing inventory, increasing the number of inventory turns and

improving customer satisfaction through shortened delivery times. This requires, however, that each of the business units not simply think in terms of their own optimization.

Such conditions were seldom met in the 1980s especially in Japanese manufacturing where plant level optimization had been the focus; Naniwa HiTech was no exception. As a result, in many large manufacturing companies, there were lots of problems with data integrity across plants; even if two plants were seemingly using the same part, they were often describing it differently. Only when firms have centralized access to data, common data definitions, uniform product code and part number definitions, and standardized processes and parts could they expect reduced system-wide costs and an enhanced ability to make good and speedy decisions. Moreover, this applies to customers and suppliers as well since they often use different part numbers from the OEM. One needs to standardize in order to get the benefits from centralization. This is a very large challenge as different partners, plants and departmental cultures collide.

The spread of distributive processing in the 1980s, for all its advantages over centralized processing, actually made the situation worse in that it led to the decay of corporate level management information as it spread customized applications for meeting specific user needs.[1] In keeping with this direction, software suppliers in Japan created customized applications that built on single proprietary platforms (Fujitsu, Hitachi NEC, etc.). In this environment, individual companies, plants and departments had their own hardware and software and data consolidation was made via a time-consuming tangle of interfaces.

It was around 1988, that ERP- like applications started to become available to corporate users worldwide and it was in late 1992 that SAP announced the introduction of R/3, ERP's first integrated application suite. Beginning around the mid-1990s, corporations got access to the Internet and they now had a place that they could store data centrally to which all employees and even partners had access, regardless of what proprietary system they were using. The Internet provided a much cleaner and more manageable technology environment for running highly distributed systems based on standard communication protocols (TCP/IP) and low-cost hardware and software. Browser-related systems simplified and lowered the cost of the desktop and made training and administration much easier as well as increasing deployment options. All firms needed was a browser, though security especially for inter-firm transfer is still an issue.

Corporate adoption of ERP grew rapidly in the 1990s, though initially the growth was limited to Europe and then the United States, with Asia and in particular Japan lagging behind. As indicated in **Exhibit 1**, by the late 1990s, Japanese firms were

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[1] Doane, Michael, 5th edition 2002. <u>SAP Blue Book</u>, Michael Doane.

well behind not only their Europeans and American counterparts in adopting ERP, but even their counterparts from other leading Asian economies.

Many reasons have been given for this laggard behavior. It has been argued that Japanese firms were used to customized software that exactly satisfied their rich information needs. Packaged software applications were often seen as too crude or immature to meet these needs. Moreover, ERP software providers, SAP, Oracle, PeopleSoft, were all Western companies relying on Western lead users to define best practice. Japanese companies often complained that this software did not fit their unique organizational structures. At a minimum, it was the case that ERP marketing took place initially mostly in Europe and the U.S., the home base of these companies. That this marketing was so successful was a result of the somewhat  coincidental ongoing adoption of business process reengineering by large companies especially in the U.S. These fortuitous conditions were not met in Japan at that time where the pressure for restructuring was not felt as strongly by managers. Moreover, that there are no Japanese ERP providers is itself a telling indicator of Japan's lagging status both as a software producer and user.

Perhaps more convincing than all these explanations, however, is that Japan's 1980s manufacturing success was based on their "genba shugi" strategy and as is often the case, firms are slow to give up or modify their winning formulas even after they become insufficient. It is not a matter of simply changing the trade off between corporate-wide efficiency and plant optimization. The challenge is to preserve those elements at the plant level that really contribute to competitive advantage while changing others to achieve system-wide efficiency.

Meeting this challenge requires that one be able to identify what really contributes to effectiveness and efficiency at the plant level versus those processes that users are simply accustomed to and would like not to change. The question becomes when should one customize the ERP application to fit current work processes (and risk losing some of the benefits advantages that would result from implementation "as is") versus changing the work process to fit the application (and risk losing some efficiency where there was insufficient functionality in the software). See **Exhibit 2** for some comparative regional data on this point. This, in turn, raises the issue of what are the criteria one should use in making customization decisions. These decisions are important because the costs of customization are very high in terms of maintenance costs as well as the costs associated with updating to new versions.

Despite a number of "early Japanese adopters of ERP," there have been no great widely publicized success stories in the Japanese business media documenting the claimed benefits being trumpeted by ERP vendors. This has inhibited the diffusion of ERP in Japan as reports of individual corporate successes often underlie the rapid spread of new management innovations. Strong management leadership is said to be required for successful ERP implementation but ERP vendors claim it is difficult to find such leadership in many Japanese companies.

## ERP Implementation at Naniwa HiTech

In April 1998, The Board of Directors at Naniwa HiTech approved an important proposal from the IT group, working in close collaboration with top company managers. The President of the firm strongly supported the initiative. The IT group recommended adoption of Oracle's e- Business suite; the parent company had gotten a company-wide license and that entitled Naniwa to an excellent price. The proposal to the Board elaborated on eight themes:

1. Company Circumstances
2. What is ERP package?
3. Features of ERP package
4. Why choose Oracle's e-Business Suite for our ERP solution?
5. Functions of Oracle's e-Business Suite and its impact on the relationship among business functions
6. Key Points of  e-Business Suite Adoption
7. Key Factors for success (KFS)
    - Business process reform
    - Eliminate non-value added work from customer perspective
8. Ways of Moving Forward
9. Analysis of Oracle's e-Business Suite Proposal

For an elaboration of each of these points, see **Exhibit 3**. Naniwa managers felt increasingly trapped by the existing proprietary legacy systems with their unique architecture and lack of a publicly defined open interface. Each department seemed to have its own applications and its own data; tremendous effort and time was required to access data from one unit to another and to interact with key clients. An ERP system promised an open network with immediate and transparent data across all operations and an open interface to clients. Thus, a major appeal of ERP was simply that it would provide a modern infrastructure on which to build the business. The parent firm recently had hived off a number of units and consigned them to Naniwa.  This created large integration problems thereby also enhancing the appeal of ERP as a unifying focus.

The proposal to the Board of Directors, however, wasn't limited to emphasizing the building of new infrastructure or enhancing firm-wide integration.  It heavily stressed that adopting ERP would enable using information technology for strategic purposes. These strategic purposes included rationalization of the order fulfillment process including both the financial payment system and the process by which sales projections were created through to the production and delivery of the product to customers. It was envisioned that ERP could be used to integrate the various business cycles from sales projections to delivery of the product by shortening each cycle and performing them simultaneously.

Interestingly enough the original presentation to the Board did not include a cost estimate. However, before starting each module installation, the implementation team presented a cost estimate for top management approval. See **Exhibit 4** for the company's estimate of the distribution of implementation costs.

Once the proposal was approved by the Board of Directors, the architects of the ERP proposal moved quickly to set up the infrastructure for implementing it. The plan was to carry out a phased adoption of specific modules (financials accounting, sales, production control, inventory control)   at successive locations focusing initially on domestic facilities.

A steering committee, the Production Management Standardization Committee, was set up at each facility to set strategic directions, monitor project progress, deal with emergent problems and obstacles and keep things on track. Seven strategic objectives were laid out:

1.  Adjust supply and demand and strengthen the function of production planning;
2.  Shift production system from planned production (build to stock) to build to order
3.  Construct seamless information system for the firm
4.  Reduce lead time in production and procurement
5.  Rationalize logistics
6.  Integrate product models, standardization of design, reduction in number of parts
7.  Speed up payment of accounts receivable.

Committee membership on the steering committee for the Shizuoka plant included 5 management officials (**buchos**) from the most relevant divisions of the plant, 3 from corporate and 1 division head. This was a fairly typical makeup used at other Naniwa facilities as well.

An implementation team known as the Operational Working Group was also set up at each plant. In its key Shizuoka plant it was composed of 24 members: 4 from Naniwa HQ and 20 from the Shizuoka plant. The Shizuoka members were key people from the major functions.   Eight of the 20 were the active core members: manufacturing (2), production planning (2), and procurement (4).   Again this was a fairly typical committee makeup used in the other Naniwa facilities.

In addition to the implementation team, 22 IT staff were assigned fulltime as programmers to the project.  Ten of these were from the Shizuoka plant IT staff and 12 were from the parent firm's IT staff.

The twelve from the parent company had been involved in carrying out an ERP implementation at the parent company and although these efforts were not fully successful, they nevertheless provided critical knowledge to Naniwa's implementation. Indeed, it was through their presence that Naniwa avoided needing to adopt the typical Japanese practice of hiring a system integrator to lead the ERP implementation. As

Naniwa was a relatively early adopter in a broader Japanese business environment in which knowledge about successful ERP implementations was quite limited, these parent company executives played an especially important role in educating them. Naniwa executives themselves saw themselves as playing a pioneering role in introducing ERP. Their "first mover" role, relative to their Japanese competitors, promised great strategic advantage. Consistent with this pioneering role, however, Kikuchi acknowledged that when they started implementing, they did not really know the key success factors (KSF).

In addition to the IT people from the parent company, a few Oracle personnel also worked closely with the implementation team. They brought important knowledge to the effort because of their understanding of the functionality of the ERP package. They made clear it would be difficult to develop the system as "plain vanilla" (as is) because of some critical areas where the ERP modules adopted lacked the functionality needed by Naniwa's business. This meant considerable customization would be required.

The challenges were huge. Just implementing the ERP package within a tight schedule was a major challenge that many companies had failed. On top of that, Naniwa aimed to integrate implementation with the 7 strategic goals outlined above. Moreover, the implementation process was complicated by the parent firm's decision to restructure at this time, both spinning off plants to Naniwa HiTech as well as removing one.

The firm, after having had some success in adopting the sales module and inventory control module at the Service Parts and Sales Group, committed to implementing ERP at the Shizuoka plant starting in Jan. 1999. An aggressive timetable called for the plant to adopt the production planning module and "go live" in October of the same year. **Exhibit 5** shows the actual implementation milestones. To be sure, managers had been anticipating the go ahead and had started their planning in the final two months of 1998. So they were ready to "hit the ground running" once they got the go ahead signal for January. Much of that preparation had involved consulting with those sites in the parent firm that had already adopted ERP.

The quickly established Steering Committee announced key strategic objectives comparable to those described earlier. By virtue of the Board of Director's approval, it was believed that all employees would support the implementation. To buttress understanding by the broader management group, a half day's conceptual training on ERP was provided to the management class in July (mostly **kacho** and some **bucho**).

The Operational Working Group (implementation committee) was also quickly set up. Following the kickoff of the project, they set immediately to work on developing a sample prototype and doing an ERP function study. This included setting up a "Conference Room Pilot." This was designed to serve as an evaluation site to show the Naniwa IT team what ERP could do and what was required to make it happen. It served to provide validation of the ERP module. It was a vanilla application in which some key parameters (operational attributes) were setup and they verified a small pilot model

thereby providing validation for the ERP production planning module. This prototyping was done only with the IT team to confirm the package functions.

The test server installation included configuring the software. This involved initially setting the key parameters. The process involved close collaboration between the IT team and the key managers on the implementation team. It involved issues like choosing discrete continuous manufacturing rather than continuous manufacturing and determining the degree of security they wanted. (Configuration is about adjusting the system without customization per se and it doesn't affect future upgradeability. All configuration is fully supported by vendors such as Oracle).

The next step was system design (describing the required functional processes). This required defining the scope of ERP coverage, identifying system requirements, and the scope of extensions (extensions included add ons and customization) to be developed. Critical to this effort was making judgments about how much they would need to modify the production planning module. It was a key step with profound consequences for achieving their goals. It was determined early on that because of the lack of functionality of the Oracle production planning module in some key areas, some extensions (customization) and set up work would have to be done.

The process of defining system requirements involved first getting a list of requirements from the implementation committee members on what kinds of functionalities were needed. Members were instructed to go back to their units and solicit the necessary information from their constituents.

Some members did a very conscientious job collecting this information while others decided they knew what their units needed and simply reported their perceptions. The head of the implementation team, Yoneda-san reported that the problem with relying on end users for a list of requirements was that they answered with ways to make their job easier to do. In practice, this meant customizing the ERP package to preserve current work processes and at best produce modest "kaizen" gains.

Once the list of requirements was received and the gap between them and the packaged software specifications were identified, the second task was to evaluate the appropriateness of the requested requirements. In response to an overwhelming number of requests for customization, the committee spent much of their weekly meetings discussing how to respond. In March they calculated the working hours available before they were scheduled to go live and subtracted the time required for other tasks like product server installation, creating network and client environment, program development and testing, system construction, data upgrading and verification processes. This calculation largely determined the amount of time they could allow for customization and still stay on schedule. They calculated the time required for implementing each of the customization requests and then started making the hard decisions.

The prioritization was hard going. They had no simple criteria for distinguishing a reasonable customization request from a bad one. The actual decisions were made by the implementation team after intensive discussions in their weekly meetings. The IT developers fed input into these discussions

Later the firm was to discover that some seemingly minor business processes that they had agreed to customize, created major roadblocks to achieving their strategic goals. When making this observation, Kikuchi remarked "I couldn't be everywhere at once." The amount of customization they did also added hugely to the costs of subsequent upgrades and required very large numbers of man-hours to maintain the system. While they realized at the time, that excessive customization was a problem, because of their inexperience, they had no idea how large it was to become. They did 100% customization for 'screens" of the final users and 100% for data entry. With many older workers and contract and dispatched employees, they believed they had to make it easy for them to enter data.

The procurement department pressed hardest for customization because they had to deal with many external vendors and they argued that it would be a big job to explain all the changes to them. This was a unit that saw themselves as the "bosses of their processes;" they had little standardization in these processes. While they didn't get everything they wanted, they did get considerable customization. It clearly didn't hurt that four members of the core Operational Working Group were from procurement. In other words, just the unit that could benefit the most from standardization was able to resist it to a considerable extent. Kikuchi, reflecting on this undesired outcome, dryly observed that if you don't have a common language for describing required component attributes, then the potential benefits such as volume purchasing are severely compromised.

Naniwa learned from these experiences and indeed for each subsequent implementation after Shizuoka, they customized less and less. Indeed, in their new Shanghai plant, they did a vanilla application made possible by the improved functionality of subsequent upgrades of Oracle ERP suite as well as its increased configurability capabilities (extensible attribute architecture). The ability to do "vanilla applications" was also aided by the fact that the Chinese had no long standing work processes run by managers and workers with strong vested interests in maintaining them.

Another source of resistance to adopting the routines required of the ERP package, was that employees were accustomed to conducting what they considered efficient transactions via phone communications and informal meetings. Thus, they saw the time required for data entry and doing things in a prescribed way bothersome and initially claimed that efficiency was being reduced.

On the other side, implementation was infinitely easier for Naniwa compared to many other firms because Naniwa management decided to totally dispense with existing legacy systems. As a result they did not require a huge amount of time and resources for system integration between the old and new systems.

The next step required completing the interface and modification design. This meant doing installation of the application, modifying it, and developing the add ons (customization) that had been agreed upon utilizing standardized interfaces known as Application Program Interfaces(APIs) to connect to the module.

Successive iterations were required to get it right with lots of frustration on the part of all parties along the way. A major issue developed with the sales reps. With ERP, the sales reps must enter more information into the system. They see this as a burden. Yet, ERP connects everyone in the firm to the data so it is a major benefit for the firm in terms of transparency and speed. The sales reps, however, focus on their own individual burden. They needed to accept this cost as a price for the broader firm-wide benefit. Still, there are limits on how much burden should be placed on them. For example, in one of the early iterations of the system, the sales people complained the response speed was too slow. They said they couldn't sit and wait for hours in front of their PC to get the delivery due date information as they have to get back to customers in a timely manner. The team had many meetings discussing these kinds of matters and trying to draw the line between the benefits of system improvement versus the costs for the sales reps. Eventually compromises were reached.

With these customization decisions made, the company moved into the system construction phase (Steps: 6,8,9,10,11 in **Exhibit 5**). The task was to build a system that would work. This included completing the prototype setup which was undertaken before system design was complete. Up to this point, the project was right on schedule but completion dates started to slide when they moved to program development and test and procedure and end user documentation. The reason for their falling behind was incomplete work upfront and a delay in the preparation of user manuals. A month before going live, end users received 6 hours training for the new system spread over 3 days.

The system went live in Nov 1999. It was one month behind schedule but a remarkable feat notwithstanding. As in many companies, initially there was a decline in business performance at the Shizuoka plant; it took about a month to get back to previous performance levels. The decline was attributable in large part to the change from picking parts before ERP on a weekly basis to picking parts after ERP installation on a daily basis. This required a lot of adjustments to accommodate.

## Results

Of all the strategic objectives listed earlier, the one that had the highest immediate priority was to go from planned production on a monthly "product out" basis to a build to order system based on weekly "market in" information. Coinciding with going live in Nov. 1999, they switched to weekly "market in" production. This was a major achievement.

While planned production worked reasonably well for generic commodity products, it contained big risks for the company when it came to customized products for large corporate customers. Before introducing ERP, the firm had 100% planned production; by the end of 2003, they had moved to 50% build to order. This was a significant change in how they did business with wide-ranging implications.

Manufacturing people at Shizuoka were challenged by the shift to weekly production planning. They liked the old system of monthly production planning. From their point of view, moving to weekly production planning was not optimal because it detracted from the efficiency of their operation. They have to purchase raw materials and parts in smaller quantities raising their costs. With weekly production, they have to change schedule frequently, thereby raising changeover costs and increasing the probability of defects.

To optimize under the new system, they found that they had to move toward a Toyota-style production system, shifting from a linear assembly line to cell manufacturing. They also brought some work back into the firm from subsidiaries to better coordinate. This shortened production time and reduced defects. In support of these efforts to streamline production, they also needed to persuade engineers to standardize parts and reduce unnecessary variety—to distinguish between variety designed to meet real customer needs and the variety that satisfied their own needs and professional predilections. They made considerable progress in this area as well. These were all hard-won achievements. Many of them occurred after going live as the Naniwa managers sought to fully take advantage of the new IT capabilities. The company made a commitment in 1986 to learn from the Toyota system and had been working on it ever since that time.

With their focus on plant-only economies, the manufacturing people had sometimes resisted the directions pushed by Kikuchi and this staff. Kikuchi's vision, however, was to optimize the whole production chain. As a result of the changes that have been made, firm-wide inventory costs were reduced by over 39% from 2000-2003. The inventory turnover rate and Return on Assets (ROA) improved 30% and 25% respectively from 1999-2002. Kikuchi believes these improvements show the effect of ERP implementation and work restructurings not only at Shizuoka but at the other domestic facilities as well. Put differently, Kikuchi fully believes that ERP provided the "backbone" that made these improvements possible as the firm began to optimize the total enterprise and not just given subunits. Before implementing ERP, sales, manufacturing, and inventory information was stored in each department using different IT systems. It took multiple days to tally up firm-wide figures. Now the same information is instantly available everywhere in the firm. Kikuchi had little sympathy for those experts who were now publicly saying that IT added little to productivity over the last decade; he believes they are victims of the unduly high expectations in the late 1990s.

Still there are many battles to be fought. Extending these principles to all operations and to include the worldwide network of production, sales and marketing sites remains a major challenge. The sales people have only partially bought in to the new total enterprise-wide perspective. Sales people want product in the warehouse so it can be sent to the customer at a moment's notice. This is a very expensive policy to maintain. It doesn't distinguish between those products that a customer is willing to wait for a week or even longer as opposed to those they want tomorrow. Because sales people don't trust manufacturing to keep to its delivery time commitments, they try to stock product in advance. These are all problems that need to be worked on.

For now, however, Kikuchi-san is reflecting on what he has learned from his experience with implementing ERP at Naniwa. He wondered how to respond to some critics who said he could have achieved the results he did without using much IT or by building a customized package. Most of all, however, he wondered what he should do the same and what he should do differently when he is called on to implement similar initiatives at the parent firm's other major subsidiaries.

**Exhibit 1**
**International Comparison of Rate of Introduction of IT-Related Applications**
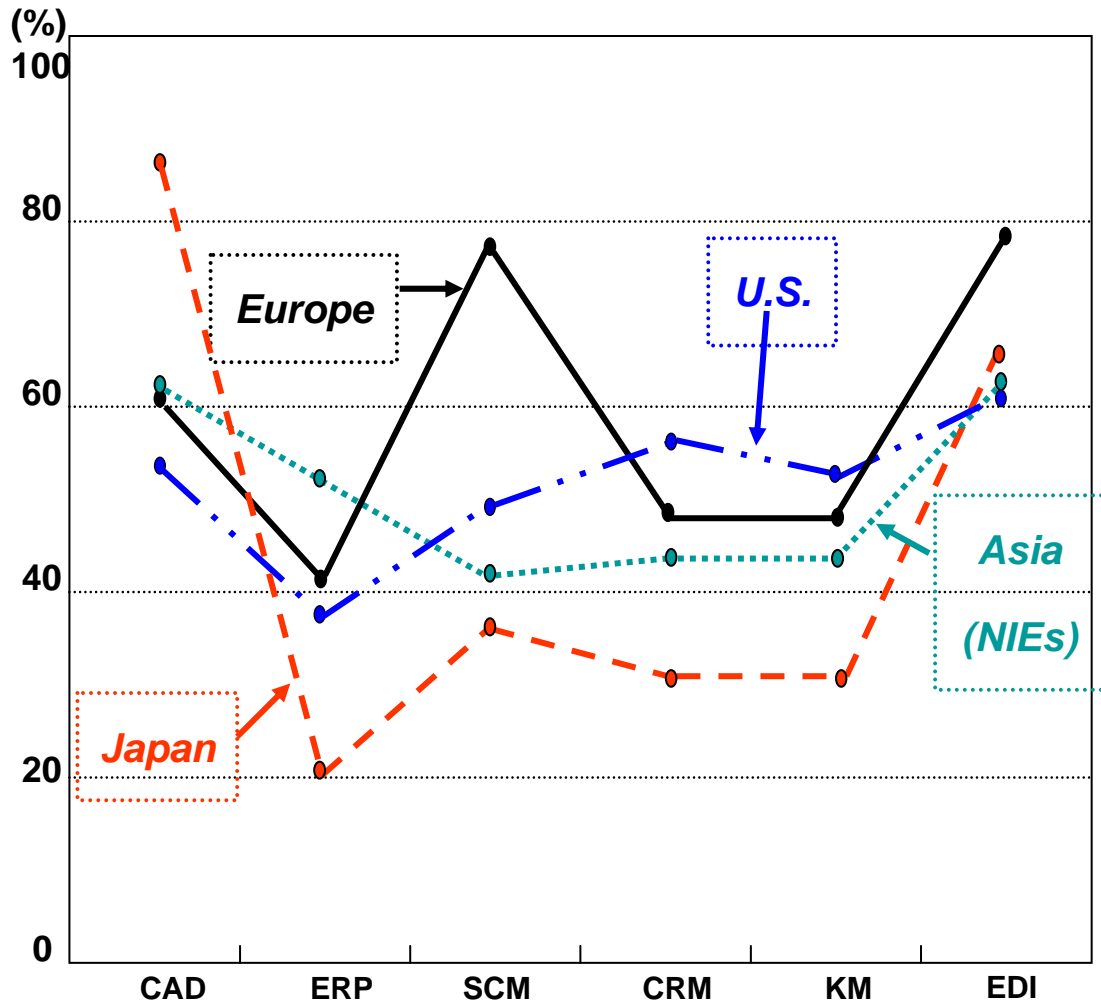


Note: CAD figures are for the manufacturing industry, SCM figures are for the manufacturing, wholesale and retail industries, and the others are for all industries.
Source: *International Survey of Corporate Management Strategies* (METI).

**Exhibit 2**
**International Comparison of Organization Reform Undertaken**
**In Parallel with Introduction of IT**

**(%)**
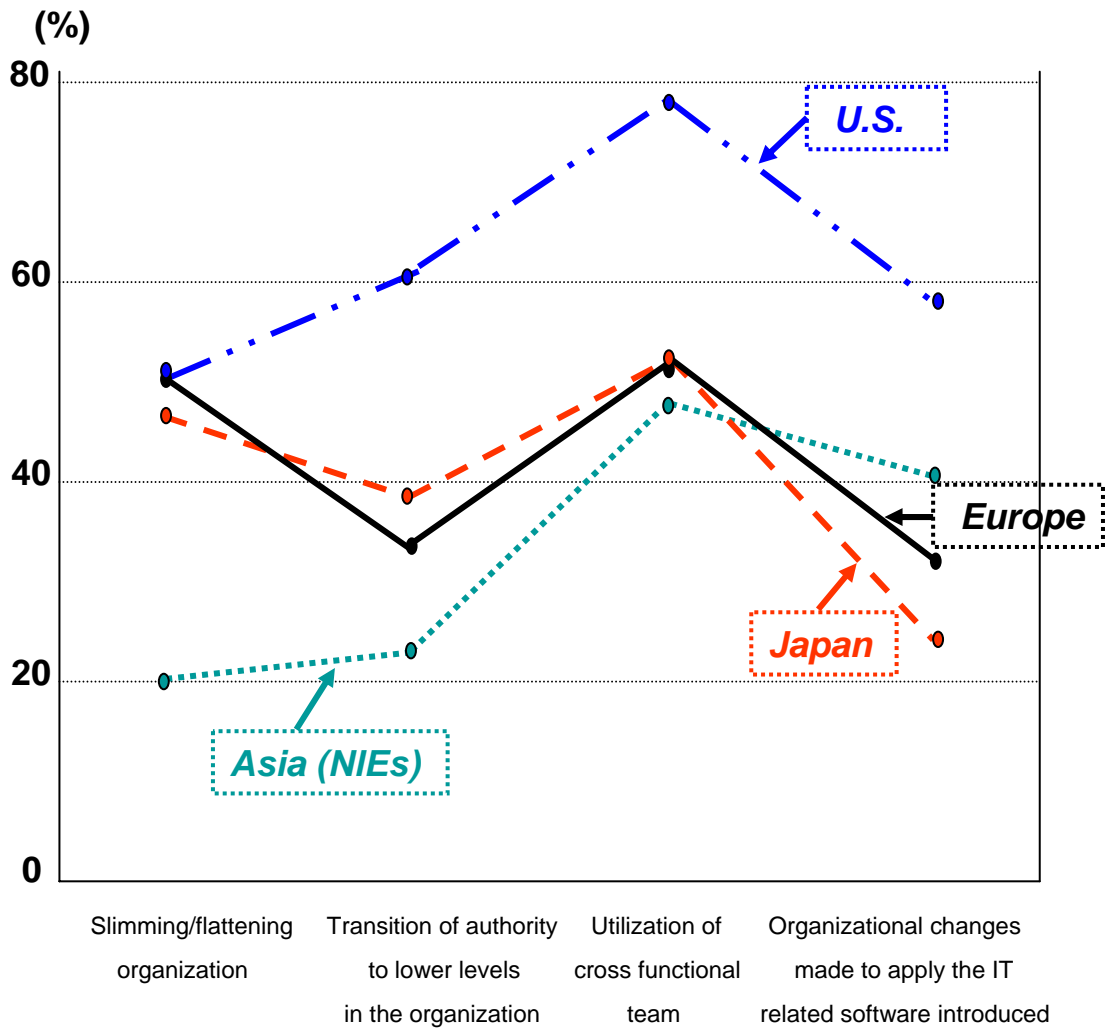


Note: Figures include all industries.

Source: *International Survey on Corporate Management and Information Strategies (METI).*

**Exhibit 3**
**Summary of ERP Proposal for Naniwa HiTech**
**Submitted by Information System Division**
**April, 1998**

### 1.  Circumstances around the Company

In our rapidly changing business environment, we can not  survive without continuous change!!!

### 2.  What is ERP Package?

ERP (Enterprise Resource Planning) is a technique/concept of total management to use resources effectively and efficiently with the view of "effective management."  It is a new business integration system from manufacturing to sales which covers whole supply chain.

### 3.  Features of ERP Package

> Equipped with business process functions which meet global/worldwide standardization

①  Business integration system
   → Integrate functions in real time → Strengthen supply chain
②  Realization of in-house Business Process Reengineering (BPR) by using  ERP
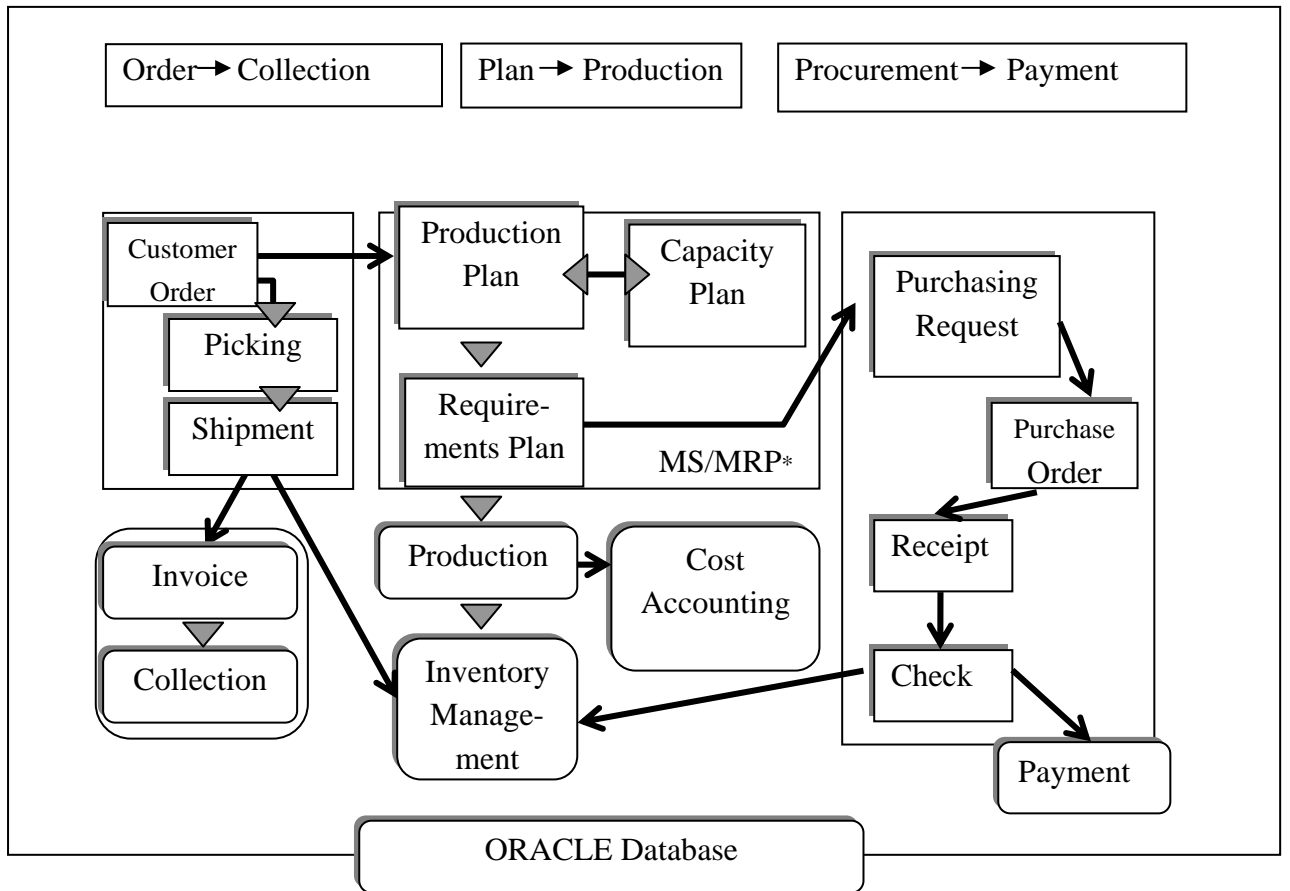③  Short-term implementation/development by setting parameters
                   ↓

Available to cope with future changes in business environment. Oracle's e-Business Suite scalable to enable handling of future company needs.

### 4.  Why Oracle e-Business Suite?

♦  Easy to transfer business operations globally
♦  Provides open interfaces (ready for EDI and EC)
♦  Breakout from existing one-section-one-application system to network
♦  Integration of Information Systems (IS) sections across sites.

**5. Function of Oracle e-Business Suite and its Relationship to Business Functions.**



| Order → Collection | Plan → Production | Procurement → Payment |

Customer Order — Picking — Shipment

Production Plan ⇄ Capacity Plan

Requirements Plan — MS/MRP*

Purchasing Request → Purchase Order → Receipt → Check → Payment

Production → Cost Accounting

Invoice → Collection

Inventory Management

ORACLE Database

＊MRP(Material Resources Planning)

＊MS(Master Schedule)

**6. Key points of e-Business Suite Adoption**

Change consciousness of top management to set directions for lower level employees so that they will know: what they should aim for, what to do to achieve their objectives, how to do it, and by when.

Commitment to Business Process Reengineering (BPR)

Utilization of IT tools as strategic management weapon by adopting ERP

**7. KFS (Key Factors for Success) of Oracle e-Business Suite**

① Global Optimization
② Standardization of business processes and systems
③ Reformation of people's mind and business organization.

♦ **Work process Reform Needed**

**CURRENTLY** **Linear Process**

Policy → Sales projection plan → Procurement plan → Production plan → Distribution plan

**AFTER REFORM** **Concurrent Process (and shortening of each process)**

Policy    → Sales Projection plan    →
      → Procurement plan    → Shortening of cycles
      → Production plan    →
      → Distribution plan    →

♦ **Eliminate Work which does not Give Value to Customers**

① Adjustments among departments
② Correct mistakes
③ Reports
④ Holding inventory

## 8. Approach to Future Advances

♦ Set management goals
① Shortening of lead times
② Reduce indirect personnel (e.g., middle management staff)
♦ Remove completely:
① Overlapping of existing organizations
② Management losses
③ Operation losses
♦ Analyze and identify existing business process, and imagine "to be process" for the future.

## 9. Analysis of Oracle e- Business Suite Proposal

Propose "project organization" in order to analyze production-management BPR and information system reconstruction.
♦ Project organization and missions
    ➢ Nagoya branch office… Working group
        ✧ 3 members from Supply/demand section, Procurement section and Manufacturing section, etc.

&#10022; 2 members from Information system section of HQ

 &#10095; Shizuoka factory…Already have setup a "Production-management BPR working group"
  &#10022; Participant(s) from Information system section of HQ
 &#10095; Missions… Determining "To be process" by analyzing existing process

&#9670; Production management Standardization Committee (Steering Committee)
 &#10095; Members:
    Director, Production section (Chief leader)
    General Managers of manufacturing plants
    Head of Information Systems Department of HQ
 &#10095; Analyze the standardization of:
    Business process
    IT systems
 &#10095; Determine the information systemization plan

## Expected Results

① Support whole supply chain management
Work closely with external suppliers and partners using information linkages (as a tool) and support the whole business from materials procurement to product sales.

② Support  real-time management
Enable grasping of status of global production sites (parts stocks, production status, etc.)

③ Integration of incoherent information systems.

**Exhibit 4**
**Estimate of breakdown of Implementation Costs**
**for Naniwa HiTech ERP Implementation**
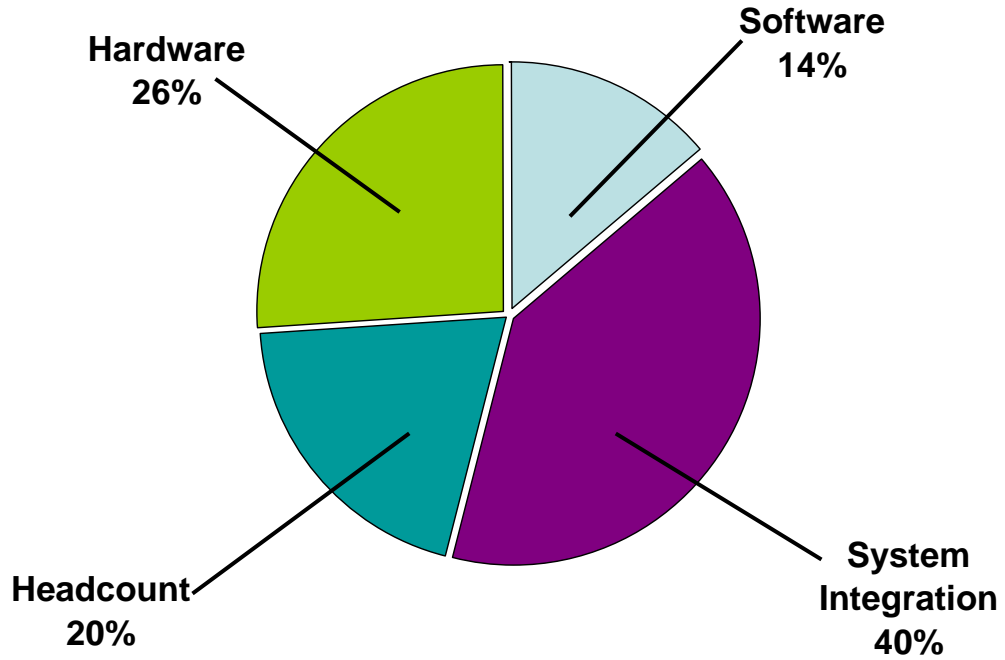


Note: The project budget estimate does not include the cost of Naniwa's personnel time beyond members of the core implementation team and the IT department members assigned fulltime to the project.

**Exhibit 5**
**Summary of Actual ERP Implementation Schedule**

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| | | |
|---|---|---|
| 1. | Project Kickoff | beg. Jan  1999 |
| 2. | Sample Prototype Complete | mid. Feb 1999 |
| 3. | ERP Function Study Complete | end. Feb  1999 |
| 4. | Test Server Installation | end. Mar 1999 |
| 5. | Functional Process Approval | beg. Apr  1999 |
| 6. | Prototype Setup Complete | end. May 1999 |
| 7. | Interfaces and Modifications Design Complete | end. May 1999 |
| 8. | Production Server Installation | end. Jun  1999 |
| 9. | Network and Client Environment | end. Jul   1999 |
| 10. | Program Development and Test Completed | end. Aug 1999 |
| 11. | Procedure and End-User Documentation Complete | end. Sept 1999 |
| 12. | Integration Test Complete GO/NO GO Decision | mid. Oct  1999 |
| 13. | Data Conversion Complete | end. Oct  1999 |
| 14. | Go Live! | beg. Nov 1999 |