



Johnson & Johnson: Building an Infrastructure to Support Global Operations

Introduction

On January 1, 1995, Johnson and Johnson (J&J) established J&J Health Care Systems (HCS) whose mission was to provide J&J products to large managed care and provider organizations. HCS was a 1,200 person company representing the J&J U.S. pharmaceutical, diagnostic, medical/surgical and consumer companies to customers like HMOs, integrated delivery systems and hospital organizations. At the same time, it was a center of excellence defining the needs of this new breed of customer to the J&J operating companies. HCS was a response to the changing health care industry. Dennis Longstreet, Chairman of J&J HCS, explained:

The industry itself is reshaping and it's brought on by the desire for the payor to focus on the economics of health care. What's happened is that stand-alone hospitals and physicians, who had been our primary customers for health care products, are no longer the sole decision-makers. It's become an integrated delivery system, where the doctor and the hospital and the payor and insurance company are all becoming more connected to focus on delivering cost-effective quality health care.

J&J HCS was the second company that Johnson & Johnson had created to market products of existing companies to large customers. Johnson & Johnson's Customer Support Center was created in 1992 to sell J&J consumer products to large U.S. retailers like Wal-Mart and KMart. Jim Litts, President of the Customer Support Center, noted that his efforts to work closely with six different operating companies represented a counter-cultural approach to work at J&J:

J&J has over 100 years of history authorizing operating companies to manage all business facets to maximize their brands' P&Ls. Today, we are learning how difficult it is to break those paradigms and work together to leverage the strength of Johnson & Johnson with larger retail customers.

While HCS and the Customer Support Center were different from J&J's usual independent operating company model, Longstreet and Litts felt they were representative of how J&J would operate in the future. The two executives noted that the inter-company cooperation and coordination demanded by this organizational model had significant implications for J&J's culture and for the amounts and kinds of information that would be communicated and shared across J&J operating companies.

Background

Johnson & Johnson, with 1994 sales of over \$15 billion, was the world's largest manufacturer of health care products. Founded in 1886 as the first manufacturer of sterile dressings, the company had nearly doubled in size since 1987 and typically depended for one-third of its revenues on products that had been introduced within the prior five years. J&J sold products ranging from baby shampoo to treatments for

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leukemia and from disposable contact lenses to stents that could be inserted in arteries to improve the results of balloon angioplasty. In 1995, J&J had approximately 80,000 employees in about 160 operating companies, with markets in over 150 countries world-wide. (See Appendix A for a representative list of companies.)

Johnson & Johnson had a long history of managing its operating companies as independent businesses. Corporate executives, dating back to Robert Wood Johnson in the 1930s, embraced operating company autonomy as a path to increased flexibility, accountability and creativity. Independent analysts also credited the decentralized J&J management approach as largely responsible for the corporation's consistently strong financial performance¹. The independence of the individual units, however, meant that J&J employees tended to view themselves as employees of a particular J&J operating company rather than of the corporation. There was rarely any movement of employees between operating companies, and operating company executives were compensated based on the performance of their company, not the corporation as a whole. Consequently, J&J companies often regarded one another more as competitors than as members of the same team.

By the early 1990s, top executives noted that J&J's autonomous operating companies were not well-positioned to service customers who were trying to limit the number of their vendor interactions. Each operating company had its own marketing and sales arm that worked directly with its customers. Matthew Martin, Vice President of Information Services for HCS, explained one consequence of this arrangement:

Prior to the formation of Health Care Systems, each of the operating companies had a national accounts representative. Johnson & Johnson did not focus as a single corporation on its top customers. We could have up to 18 representatives from different J&J Companies calling on a customer. Eventually, we listened when the customer said, "Time out! Why can't Johnson & Johnson send me one person to deal with to negotiate a contract. It's more efficient for me and it must be for you too!"

Over time, corporate management introduced a variety of structures to mitigate the limitations of the decentralized management approach and increase inter-company cooperation. For example, the operating companies were organized into three groups: Consumer, Pharmaceutical, and Professional, and the chairman of each group was given responsibility for identifying opportunities for leveraging services and expertise across companies in each of these markets. Franchise managers were assigned responsibility for coordinating cross-company sales of a family of products, such as the baby care products of operating companies like Johnson & Johnson Consumer in the U.S., Johnson & Johnson France, and Johnson & Johnson Pacific Pty. Ltd. in Australia. Finally, the introduction of HCS and the Customer Support Center represented radically new ways to organize work at J&J. These companies focused on working across U.S. companies to address the needs of U.S. customers, but they could eventually be expanded or similar organizations could be introduced in other countries.

When the operating companies had been completely autonomous, they had little need to share data. Most information flowed between a company and its customers, while financial data flowed from the company to corporate headquarters. Consequently, information systems, computing platforms, and data definitions grew up in J&J around individual company needs. As headquarters attempted to work across companies,

¹See Tanouye, Elyse, "Johnson & Johnson Stays Fit by Shuffling Its Mix of Businesses," *Wall Street Journal*, December 22, 1992, p. A1, and Weber, Joseph, "A Big Company That Works," *Business Week*, May 4, 1992, pp. 124-132.

management found that existing information systems and information system structures did little to facilitate those efforts. IS and business executives felt a need to build an information infrastructure that would respond to J&J's changing customer demands.

J&J's Information Technology Infrastructure

Consistent with J&J's decentralized approach to management, most information technology management responsibility was distributed to the operating companies. Each company typically had an independent information system unit responsible for systems planning, development, operations and maintenance. Operating company IT units also hired all their own IT staffs and were responsible for their compensation and professional development. While historically there had been little cross-company coordination among IT professionals, Group IT Vice Presidents were appointed in 1993 and IT directors from the operating companies had dotted line reporting responsibility to them. (See the organization chart for the Corporate Office of Information Technology in Appendix B.)

While most infrastructure support, such as LAN management, help desk, desktop support, and local computer and telecommunications operations was provided by operating company IS departments, a small centralized IT function was based in the corporate data center in New Jersey. Called Networking and Computing Services (NCS), this centralized unit was responsible for the data center, but its primary responsibility was for managing J&J's global network and providing mainframe computing services for all J&J businesses in the U.S.

J&J's global network was a traditional multiplexed T1 network providing telephone and dial-up data links between J&J headquarters, operating companies, and related facilities throughout the world. The fifty persons in the Corporate Network Services unit of NCS were responsible for contract negotiation and administration of telecommunications contracts, data network engineering and design, remote PBX and voicemail management, videoconferencing, and limited Internet support. NCS had not historically provided systems management or support for end-users and applications programmers, in part because the network environment was not conducive to centralized support. The operating companies had built a maze of subnetworks on a wide variety of computing platforms and Network Services did not have the network management tools, the breadth of expertise, or the charter to manage those subnetworks.

While most of J&J's operating companies received network support directly from Corporate Network Services in New Jersey, European companies (Western and Eastern Europe, Middle East, and Africa) received support from a regional center in Belgium. The European regional center managed a router-based, single transport, primarily TCP/IP network from one central location. This network was a subset of J&J's global network and supported 100 European J&J locations with a backbone of over one hundred routers. More than a thousand servers were connected to the network and European Network Services staff managed the routers for all the local LANs to ensure that no one at a company site could configure a LAN in a manner that would jeopardize someone else. The tightly controlled nature of the network enabled a team of eleven J&J employees and six contractors to offer centralized support to European companies.

This team not only managed the physical part of the network (telecom lines, routers, voice multiplexers) but had increasingly emphasized deploying enterprise network applications like e-mail, groupware, executive support systems, affiliate communication, and set-up. Jos DeSmedt, Director of European Network Services, noted some implications of centralized network management:

The design and management [of the European Network] facilitates very tight LAN and WAN integration. Since there are no subnetworks for individual companies or franchises anymore, the Network management becomes much more critical. On the other hand, we can automate the management more uniformly over the region from this central location.

The European Network Services unit had evolved from the Janssen Pharmaceutical IT unit, which serviced the largest operating company in Europe. Because many European operating companies were small, there were sometimes just a couple IT people addressing the needs of entire countries. Over time, they had purchased services from Janssen, which had resulted in many operating companies adopting Janssen standards for hardware and software. Thus, when European Network Services was formally established in July 1994, much of the service it provided had already been centralized.

Although U.S. companies were typically larger and more self-sufficient with regard to their IT needs, Bob Chaput, Vice President of Networking and Computing Services, considered the European network a model for J&J. He anticipated developing additional regional network service centers in Asia and Latin America. More immediately, he intended to upgrade the services available from the corporate facility. He created a team in his unit to evaluate and support infrastructure applications as well as a team to develop new network services. (See the Network and Computing Services organization chart in Appendix C.) He noted, however, that for these teams to fully realize their potential, the Networking and Computing Services organization would have to take a more proactive role in defining networks within the operating companies:

We know that [centralized network support] will work because we've been successful in Europe. The difference is the companies in the U.S. are bigger and stronger. They have more people and they fight harder and longer to retain control and independence. But the businesses' applications people generally are happy to have some stability in infrastructure applications like e-mail and Notes to have something they know works and something they know is supported 24x7.

In early 1995 IT management identified four limitations with J&J's current infrastructure to help the company adapt to changing business conditions, particularly initiatives like HCS and the Customer Support Center. First, the amount of IS attention allocated to infrastructure management across the company was diluting the attention that could be focused on more strategic IT applications. Second, the lack of technology standards was inhibiting connectivity, aggravating attempts to service business needs, and costing too much to support. Third, the funding process for infrastructure projects was retarding efforts to build an enterprise-wide infrastructure. Finally, lack of data standards was impeding the meaningful exchange of data across companies.

Allocation of IS human resources

Bob Chaput estimated that 550 of J&J's approximately 1,500 IS professionals were engaged in supporting infrastructure technologies in the U.S. alone. He felt that centralizing functions such as telecommunications support, help desk, desktop and local area network management, and computer operations could cut that number in half, even if most of the staff remained physically located in operating companies. His goal was to free up IT resources to work on higher business value projects through increased centralization of infrastructure responsibilities in order to gain economies of scale and eliminate redundant work.

As a start, five major Professional Group companies in the U.S. had agreed to turn over responsibility for voice communications to Chaput's organization. In addition to its usual responsibility for working with

vendors to design and install connections, Networking and Computing Services would have continuing management responsibility for telecommunications tasks such as voice mail and PBX moves, adds, and changes for the Professional Group companies. Warren Koster, Vice President of Information Technology for the Professional Group, noted that the companies expected centralized services to yield significant savings as well as some less tangible benefits:

What we are driving to is leveraging the components of the infrastructure in Professional Group companies and driving costs out. At the same time, it's not just to drive out costs. It's to get people working on other projects that are more competitive and higher on the value chain and not worrying about the infrastructure parts.

Koster acknowledged that, despite the apparent efficiencies, there would be hesitancy to move towards shared services like this, because of concerns about potential personnel shifts and decreases in service levels. The Professional Group companies were preparing to centralize their distributed systems management, and some operating company IT directors expressed concern that this responsibility should remain local because it demanded more personalized service than telecommunications, which was viewed as a commodity service. But while some IT managers were anxious about increased centralization of infrastructure responsibilities, others were enthusiastic supporters. Carolyn McQuade, Vice President of Information Technology for the Consumer Group, wanted to leverage expertise:

We need to extend centralized management control of the infrastructure down to the desktop level. The amount of time that we all spend debugging software like WordPerfect 6.0 is just ridiculous. We all load the same software, discover the same bugs and go through the same experiences as many times as there are companies. It's a shameful waste. Some organizations have more talented people in that area than others. We really could do a much better job of leveraging what we know.

Establishing Information Technology Standards

Not surprisingly, the autonomy of the IT units at the operating companies had led to great variety in the technologies they employed. On the hardware side, there was variation in technologies like routers and bridges and small wars between MacIntosh and Windows computer users. On the software side, J&J had nine different email systems, frequent debates about desktop products, and a variety of network operating systems. Jan Fields, Director of Corporate Network Services, noted that enforcing a limited set of standards was key to enabling centralization of infrastructure services:

You can't possibly build the skills for half a dozen different kinds of routers and bridges, for example. It's foolish to do that. Managing nonstandard equipment when you have a problem, trying to sectionalize and troubleshoot it, and get the correct vendors involved—all of those kinds of things add a tremendous amount of time to solving any kind of problem.

The need to integrate different companies' systems and provide communication links for J&J HCS and the Customer Support Center highlighted the limitations of diversity in technologies. Networking and Computing Services had established standards but operating companies were not always quick to adopt them. Nonetheless, the Customer Support Center's Jim Litts noted that he expected IT to establish standards and affiliated companies to conform to them:

In my mind the IT community ought to come out and talk about the hardware and software to run this stuff. I think we ought to stop giving the operating companies votes. My point is, the software doesn't matter. Everybody will complain about it anyway. So let the IT guys make the economical, efficient choice, understanding, of course, what the user requirements are.

Funding Infrastructure Investments

Infrastructure development efforts by both Corporate and European Network Services were requisitioned by operating company management, who had to pay for whatever services they received. This charging mechanism sometimes acted as a deterrent to infrastructure investments. Bob Chaput provided an example:

We'll have a franchise manager sitting in our Consumer business in New Jersey asking for manufacturing information from our plant in Singapore. Well, guess who's not connected? And so, the franchise manager will say, "Well, just go knock on their door and tell them you're here to install it." So we dutifully go out and knock on the door and say, "We're here to install your network connections at \$1000 a month." And the local management says, "Time out, I don't have a thousand dollars a month."

Jan Fields noted that individual operating companies did not always see the benefit of infrastructure investments. Start-up businesses, in particular, might feel that limited funds were better spent elsewhere:

They can say, "We can dial up for email and if we get it a day later or two days later it doesn't matter." They want to put their money where it is going to impact their customer. They may say to us "For five different countries, I expect to pay a total of no more than \$2000 a month." You can't deliver service for that. But if that's what it is worth to them, then that's what it is worth.

Cross-company organizations like HCS and the Customer Support Center required that operating companies make changes for the good of J&J, even when the cost to the company seemed high. Funding processes that charged individual companies for infrastructure development could negatively impact investment levels. Chaput was trying to move discussions on infrastructure funding to higher organizational levels:

When I go out into an operating company, I do a proposal, you react to it and we go back and forth. When you finally get the money, I get to start the project. We want to get out in advance of that. We want to build the interstate highway system. We want to be judicious about it, but we want to move towards the model of getting a congressional appropriation bill through and starting the project.

Creating Data Standards

The limitations of the existing infrastructure for addressing the changing needs of the business were exposed by the creation of the Customer Support Center and J&J HCS. When the Customer Support Center attempted to sell for national accounts, differing data definitions hindered efforts to understand how much total business any one customer did with J&J and what services J&J could offer. Jim Litts explained:

If you go to a mass merchandiser as Johnson & Johnson, you can walk in there as the number one or number two non-food manufacturer on that account. At the same time you can bring things like pharmaceutical, professional, and pharmacy information and counsel and advice and ideas from our other J&J companies. If you do that together as J&J, you have a tremendous ability to start opening doors that you cannot do if you're one company selling sanitary protection products. You can go in there as J&J and have this story. So the guy says, "Okay, good. Give me some help." You turn around and you say, "Good grief, none of this stuff adds up." You spent an inordinate amount of time just trying to get the information together. Then you take it in there and they ask three questions, and you've got to go back and do it all over again.

Steve Piron, Vice President of Information Architecture, observed that franchise management also demanded cross-company information that was not available from existing systems:

J&J France, for example, defined for itself the information it needed about the French Consumer business. But when we moved to worldwide franchises, like our shampoo business, we were stuck from an information point of view because we had product codes and product costs and definitions around the customer defined on a country level, and not a region [e.g. Europe] or a worldwide level. So we had apples and oranges from an information point of view.

Even where companies used common systems, they had, on occasion, abandoned common data definitions. The Consumer companies, for example, had all adopted the same homegrown order entry system, but as Jim Litts explained, they did not all adopt the data definitions:

Sales reporting for [Consumer] companies all comes out of the Group order entry system and is passed back in a uniform kind of format and information display. Then every company takes that and alters it. So when you try to add it back up again, or if you take the order entry system numbers and then go down and have a conversation with the company, they're different.

Building the IT Unit of the Future

To support J&J's efforts to increase cross-company cooperation and coordination, Ed Parrish, the corporation's chief information officer, identified three initiatives intended to enable easy sharing of information across companies: (1) standardizing data definitions and formats for key data elements on a world-wide basis, (2) defining and establishing the information technology infrastructure needed to share data and information electronically, and (3) developing and applying IT expertise as a corporate rather than a company function. These internal IT efforts were expected to increase the effectiveness of the IS unit and allow more time and attention for strategic applications of information technology.

Steve Piron was heading up efforts to standardize critical data definitions and the methods for communicating them. Along with a team of IT professionals who would recommend data standards to higher level IT and business managers, Piron was working to develop a data warehouse accessible, as needed, by J&J decision makers. Piron's teams would be putting a process in place that defined standard data definitions in critical areas like customer, product, competitor, supplier, and then determine which would be shared on a world-wide basis, which was a regional data item, and which was a country data item. They would also define processes to see that the standards got implemented in transaction

processing systems around the world. HCS and the Customer Support Center had already specified some definitions and these would be presented to other companies.

NCS had started to define specific standards for hardware and software such as desktop office suites and LAN operating systems. Matthew Martin of HCS noted that these standards would be HCS standards, and that this expectation had been communicated to all eighteen HCS companies. Executives at each company had been asked to specify needed dollar resources, and time frames in order to "get up to speed." Ed Parrish noted that one company that was part of the HCS initiative had been adamantly opposed to standards, but quickly moved toward implementing them once HCS had made that commitment. Parrish said he would target 80% acceptance of standards, because by that point the other 20% would stand out and senior management would quickly bring them into line, if appropriate.

Parrish planned three efforts to position IT as a corporate function. First, he would initiate training programs in which IT staff throughout the corporation were taught what they needed to know about IT at Johnson & Johnson. Second, he would impact pay and performance by having Group Vice Presidents share their performance evaluations of IT directors with each IT director's company president. Finally, he would take over succession planning, so that when IT director positions opened up, the company president would receive a short list of candidates from which to choose a successor.

Conclusion

Johnson & Johnson had over one hundred years of experience in decentralized management practices, but the company needed to rapidly adopt processes that enabled it to share data across business units and practice cross-company cooperation. IT management identified several strategies to accelerate the process of implementing Parrish's initiatives:

Some managers argued for adopting common systems to help implement new data definitions. Others, however, felt that common systems would not meet individual business needs and that clear definitions guiding development of translation programs were key to creating a successful data warehouse.

Outsourcing was suggested as a means for forcing changes that consensus processes would be slow to embrace. Practices that involved personnel shifts and adoption of standards might be more easily accepted when mandated by external parties.

Parrish noted that communicating standards and data definitions to senior management would help implementation efforts. As business executives decided they needed new kinds of information, they could enlist support for standards and force agreement on data definitions.

Johnson & Johnson would likely employ all these strategies as it attempted to adapt to dynamic business conditions.

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Appendix A

Representative Sample of J&J Operating Companies

Cilag — manufactures and markets products primarily discovered and/or developed by the R.W. Johnson Pharmaceutical Research Institute, includes products in areas such as fertility control, dermatology, and immunoregulatory peptides. Family of operating companies includes Cilag G.m.b.H. in Germany, Cilag-Medicamenta Limitada in Portugal, and Janssen-Cilag Pty. Ltd. in Australia.

Ethicon — develops and markets innovative products for surgeons. It produces thousands of sutures, ligatures and related products. Family of operating companies includes Ethicon, Inc. in the United States, Ethicon S.A. in France, Ethicon Endo-Surgery in Japan and Ethicon Limited in Scotland.

Janssen Pharmaceutica — produces a broad range of pharmaceutical products in areas such as allergy, anesthesiology, gastroenterology, psychiatry, and cardiovascular disease. Family of companies includes Xian-Janssen Pharmaceutical Co. Ltd in China, Janssen Pharmaceutica, Limited in South Africa, Janssen Pharmaceutica S.A.C.I. in Greece and Janssen Farmaceutica, S.A. de C.V. in Mexico.

Johnson & Johnson Consumer Products, Inc. — provides wound care, baby care, oral care and skin care products. These are manufactured and sold in companies throughout the world, including Johnson & Johnson de Venezuela, S.A., Johnson & Johnson Inc. in Canada, Johnson & Johnson Limited in Zambia, and Johnson & Johnson/Gaba B.V. in The Netherlands.

Johnson & Johnson Medical Inc. — provides products for wound management and patient care, such as intravenous catheters, disposable surgical packs, latex surgical and medical gloves, and wound care sponges and dressings. Family of companies includes Johnson & Johnson Medical Thailand, Johnson & Johnson Medical in the Philippines, Johnson & Johnson Medical in Ireland and Johnson & Johnson Medical AG in Switzerland.

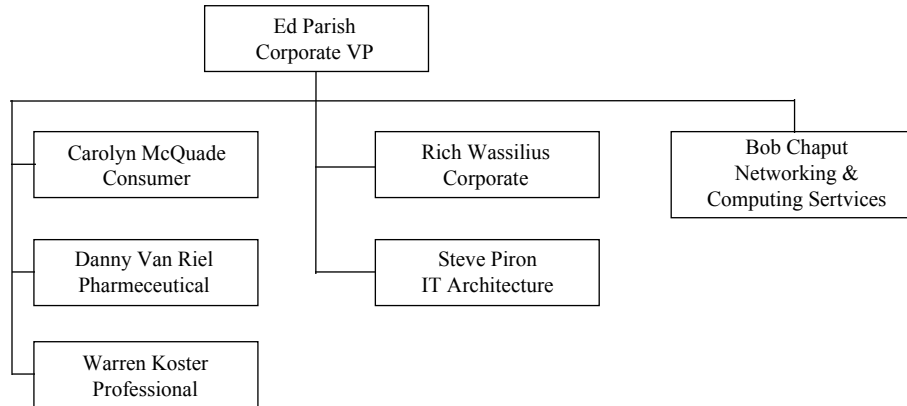
Johnson & Johnson Professional Inc. — develops and markets products under the CODMAN brand for the surgical treatment of central nervous systems disorders and under the J&J Orthopaedics brand for musculoskeletal system repairs. Family of companies includes Johnson & Johnson Professional Products Ltd. in England, Johnson & Johnson Professional Products in Sweden, and Johnson & Johnson Professional Products, G.m.b.H. in Germany.

Ortho Diagnostic Systems Inc — provides diagnostic reagent and instrument systems to hospital laboratories, commercial clinical laboratories and blood donor centers, such as diagnostic systems for coagulation, AIDS, hepatitis and other infectious diseases. Ortho Diagnostics is found in Canada, France, Japan, Spain and the United States.

Vistakon — produces and markets the leading disposable contact lens. This operating company is based in the United States.

Appendix B

Corporate Office of Information Technology



Appendix C

Networking and Computing Services

