Working in the Virtual Space: Sonae Imobiliária, the Parque Dom Pedro Shopping Mall, and beyond

INTRODUCTION

Sonae Imobiliária (Sonae) is a Portuguese real estate company, based in Lisbon, which designs, builds and operates shopping malls. After several years of successful development projects in Portugal and Spain, Sonae began its international expansion in 1997, and took on the ambitious task of developing a new regional shopping mall in Brazil in 2000. In order to meet the strong local competition, Sonae needed to differentiate their project. Sonae decided on the Mills concept as the best strategy to deliver a large shopping mall on a low budget and to provide a strong identify for the mall through bold graphic design.

Sonae was unable to relocate senior staff to Brazil to manage the project due to obligations to several other projects. Therefore, in addition to tackling a new market in an area with cultural, social, and economic differences, Sonae had to create an effective international organization. The use of information technology was critical to the process, allowing a geographically dispersed team to collaborate smoothly with minimal investment in technology. The technology employed also allowed Sonae's leading architect to head up this virtual global team and retain control of the entire project from his office in Portugal.

PROJECT BACKGROUND

Sonae Imobiliaria

Sonae's goal is to take a global perspective of the shopping and leisure business and to introduce new concepts through local partnerships based on a long-term view of investments.[1] With the objective of sharing the risks and the return on investment (ROI), the company has maintained a partnership approach and has established joint ventures for the development and investment of their properties. Sonae actively participates in the development, investment, and management of its projects, and by 2004 owned or co-owned 26 shopping malls and 2 retail parks in Portugal, Spain and Brazil with a total gross leasable area (GLA) of more than 1.5 million m^2 with more than

[1] Sonae Imobiliária website, http://www.sonaeimobiliaria.com/, accessed on 11/10/03 at 5:10 pm

Doctoral of Design Candidate Burcin Becerik and Julie Walleisa, MArch'01, prepared this case under the supervision of Professor Spiro N. Pollalis as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation, a design process or a design itself.

The author acknowledges the assistance of the lead architect Jose Quintela, the design architect Ed Jenkins, lighting designer Theo Kondos, project manager Francisco Salles and Maren Mueller of Conject.

5,000 tenants. Sonae's shopping malls had more than 377 million visitors in 2002. Sonae currently has 17 major projects under development in Portugal, Spain, Italy, Germany, Greece and Brazil with a total GLA of 585,000 m^2.

Sonae's development role does not end upon project completion, as the building is kept in its portfolio and managed by the company. This long-term commitment to a property distinguishes Sonae from its competition and avoids the conflicts of interest that can exist between developers, designers, managers, and investors on these types of projects. This approach requires greater effort in ensuring project profitability and problem-free management in order to permanently increase the project's market value and the company's value. It also encourages high quality design, low maintenance solutions, and professional management: to avoid creating problems that Sonae will need to resolve later. Moreover, the specific and complex nature of shopping malls requires working with multi-disciplinary design teams with complementary skills. Sonae's designers attempt to see the project through the eyes of a developer, a retailer and an architect, and must have strong coordination and communication skills to deliver a successful project.

Shopping Mall Design

The *"Shopping Mall"* concept is one of the most successful commercial property models, and a building type which has a large effect on everyday urban life. Mall designs must respond to user needs, climate, design and planning trends. Shopping mall developers face significant financial risks because malls are buildings without an alternative use: unsuccessful projects burden developers with large financial losses and cities with unusable interruptions in urban fabric. Financial viability based on the market and budget restrictions and potential return on investment (ROI) are the main concerns regarding the design and the development of shopping malls. Given the significant amounts of capital required to develop and redevelop shopping malls, the developer needs to be confident that the project will achieve an appropriate ROI. Even successful projects can incur significant losses: tenant losses incurred when stock purchased in advance becomes obsolete are passed on as owner penalties, and postponed rents and extra interest payments on construction loans may result in decreased owner revenues.

Developers conduct feasibility analyses to identify potential changes of market conditions and competition in order to minimize risk. In depth market analysis is used to define the size and character of the building based on the population of its area of influence, as well as existing and expected competition. Design strategies can be used to differentiate a mall from its competition, and ensure economical, problem-free operation in the future. Thorough cost analysis is needed, first to establish the project viability when compared to its expected net present value, and then on an on-going basis vis-à-vis the foreseen future cash flows, and residual value in order to obtain an

internal rate of return coherent with the assumed risks.[2] Because malls require large initial investments, most mall owners are committed to a financial return over a long period of time.

Parque Dom Pedro

The owner of the Parque Dom Pedro Shopping Mall (PDP) is a Brazilian-incorporated company called Parque Dom Pedro Shopping S.A, a Special Purpose Vehicle (SPV) company founded to own a single asset. SPVs provide high levels of independence and protection as well as opportunities for future partnerships without the influence of the mother company. The SPV's shareholders are Sonae Imobiliária (Portugal) with 95% and Sonae Enplanta with 5%. Sonae Enplanta is a Brazilian equal shared joint venture between Sonae Imobiliária (Portugal) and Enplanta, a local shopping mall management and development company. As Sonae Imobiliária owns 97.5% of the SPV, it supervised all financial matters and the overall project process through either its Portuguese headquarters or its local Brazilian representative.

The Parque Dom Pedro Shopping Mall is located on the outskirts of Campinas, Brazil, on the highway loop known as Dom Pedro after the Portuguese king who left Portugal to become the first Emperor of Brazil. The 500,000 m^2 site's hilltop location along the highway provides great visibility and easy access.

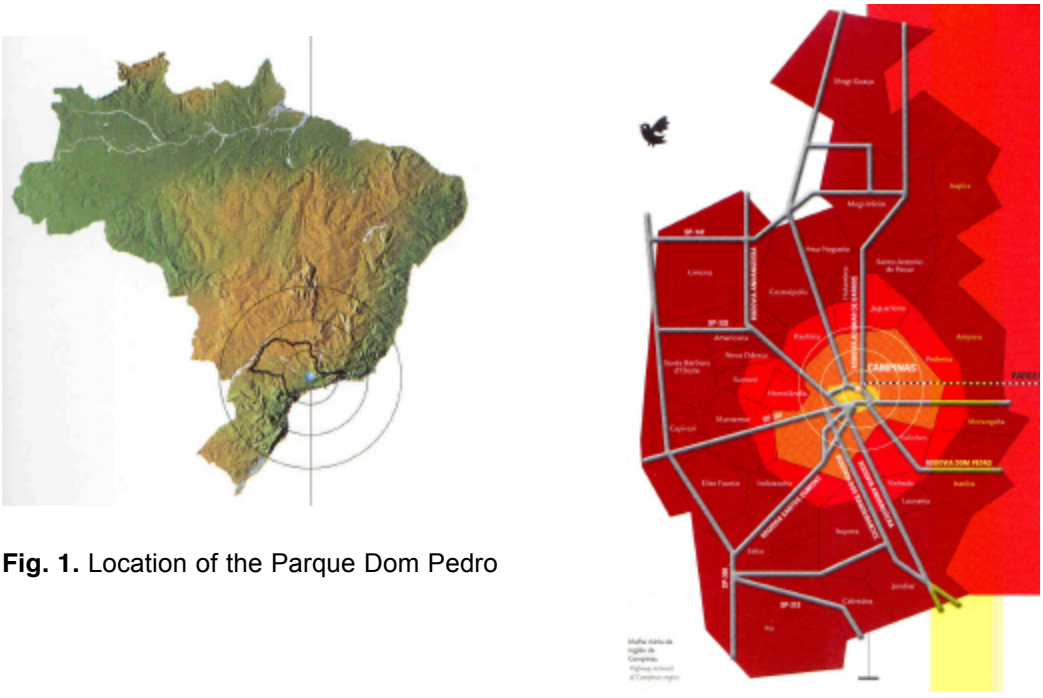

Fig. 1. Location of the Parque Dom Pedro

[2] Market, financial, construction, operational and country risks.

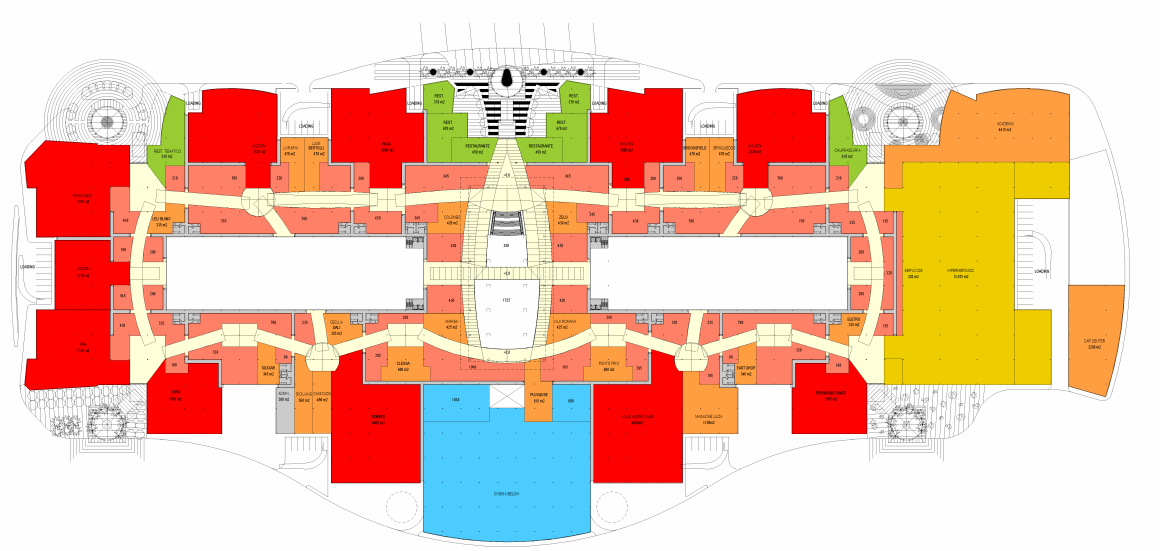

Fig. 2. Floor Plan of Parque Dom Pedro

Parque Dom Pedro is the largest commercial mall in Latin America. The mall provides over 120,000 m^2 of gross leasable area (GLA) on one level with a partial lower level housing the food court, cinemas and other entertainment venues *(*see *Exhibit 2. Data for Parque Dom Pedro).* The mall is served by five distinctly themed entries, with themes related to parks and landscapes which were carried into and through the plazas, squares, courts and corridors. 8m x 16m signs above each entry announce the shopper's arrival at PDP. (Fig. *3)* The gently sloping site provides parking for 8,000 cars, access to the five mall entries, and an Events Plaza for gatherings of up to 10,000 people.

Fig. 3. The first and the second entrances of the mall, respectively named "flowers" and "waters."

Inside the shopping mall, an undulating loop corridor connects all five-entry courts with other courts and plazas along a 1,200 m circuit. Each court, plaza, and corridor is filled with natural light and rich floor patterns in a variety of materials coinciding with the main retail groupings in the mall. The main plaza or mall court is a double-height space with soaring steel columns and trusses that mimic grand trees in a park-like setting. The lower level, where the food court is located, is filled with plants, trees and water. Future expansion of the mall will occur in the space reserved along the main internal north-south axis and will feature open-air, heavily planted streets and plazas.

Fig. 4. Pictures from inside and outside of the shopping mall

The design of the PDP mall benefits from Sonae's accumulated knowledge from previous projects, and demonstrates their emphasis on location-specific design. It is the combination of location, design, graphics, landscaping, and the commercial elements that make the mall unique.

PROJECT INITIATION

While another division of Sonae, focusing on Distribution, already owned 170 supermarkets and hypermarkets in Brazil, undertaking development and ownership of a large shopping mall represented a significant leap in achievement (*see Exhibit 1 Sonae Imobiliaria Organizational Chart for details on Sonae's corporate structure*). Sonae had considerable experience in the design, construction, and management of shopping malls in Europe when they decided to enter the Brazilian market. Historically Brazil was a pioneer in the field of shopping malls, mainly in the 70's and 80's when the market was perfect for this type of development. Sonae believed that common bonds of language and culture between Portugal and Brazil would help simplify the transition, but later realized that they may have overestimated the similarities.

Sonae's strategy required a simple building with low maintenance costs but with a strong visual presence to achieve a perception of high quality through graphic design rather than through expensive construction solutions and materials. Since design was intended to differentiate the mall from its competition, the building needed to use local materials and stand out from typical box-like construction. Sonae also wanted to consider potential building expansion strategies from the very beginning so that any future construction would not interfere with the normal operation of the shopping mall. Based on this criteria, Sonae selected the Mills concept for the mall, based on the work of the Mills Corporation, a Virginia based developer of large shopping malls. The Mills concept is based on selection of a strategic location near major population centers, a simple layout with an industrial structural system, very basic mechanical and electrical systems, extensive parking on a single level, and added design value based on graphics.

Challenges

Shopping mall success depends not only on accurate analysis of market demand and strategic selection of a site, but on a design that has well-planned circulation and tenant allocation, animated public spaces and functional operation, in order to attract strong tenants whose success in turn depends on the successful attraction of the final consumer. Sonae faced the additional complexity of entering a new market in a new country. They needed to create an effective international organization which could build on their previous success experience in European processes and close network of senior management. One natural way for Sonae to expand into a new market would have been to relocate senior staff from their Lisbon headquarters to build a local team that was experienced with Sonae's typical processes. However, this strategy was not feasible at the time given that the company was entering numerous markets simultaneously.

This left Sonae with the option of either acquiring local teams from other departments or hiring local individuals to build a team. The organizational success depended on giving the team members the autonomy to adapt their processes to the local techniques and incentives to improve their processes. The main challenge Sonae faced was how to establish efficient decision-making processes for budget, schedule and design issues that would successfully integrate local conditions, codes, and construction into a well-differentiated design.

Although there are some cultural similarities including a common language, there are considerable social and economic differences between Portugal and Brazil, as well as different financial and market risks. The project required tight cost control, economical design solutions, and innovative concepts. Therefore, another challenge was designing a differentiated shopping mall in a very tight budget and schedule: 180,000 m^2 built in 24 months, including major excavation and earth moving.

Sonae decided to create a mega-mall of an unprecedented size in order to create the necessary critical mass to attract new tenants from other states of Brazil. The desire to accommodate parking entirely on the ground level required an extended search for appropriate sites. The choice to build

a light industrial steel-structure mall provided cost savings compared to a traditional customized concrete structure. Supervising more than three hundred shop tenants in the final phase was another challenge. Each tenant had its own contractors and the process of simultaneously coordinating more than fifty direct contractors, and approximately 20,000 workers, without any general contractor in a fast track delivery system posed substantial risks in managing the project. As the project involved many participants from different countries and different backgrounds, the primary challenge was managing design and construction with a virtual team.

Site Selection

After several years of abortive work, the project site was selected for its excellent location in proximity to two main potential competitors. The site is approximately 780,000 m^2, of which 280,000 m^2 were donated to the municipality for roads, accesses and parks. The land had an overall slope of 15%. More than 3,000,000 m^3 of earth and 150,000 m^3 of solid rock were excavated and moved within the site in order to create a sufficient platform for the mall and surrounding on grade parking. In addition, the location required Sonae to complete an overpass and significant infrastructural site work.

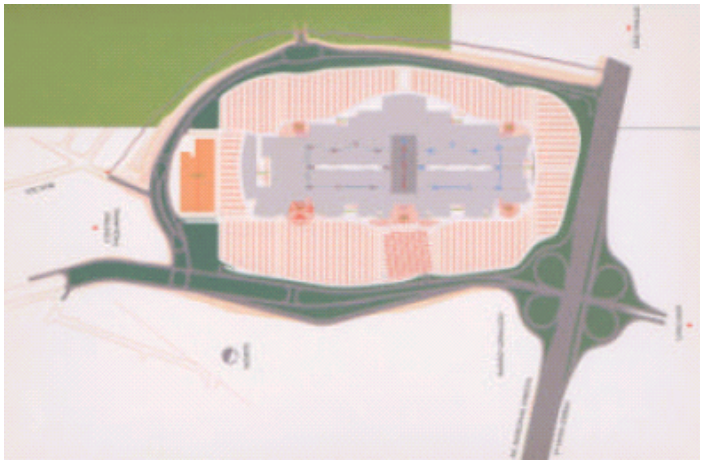

Fig. 5. Parque Dom Pedro site plan

Fig. 6. Arial photo of the mall

PROJECT TEAM SELECTION

Usually, there are three types of architects working on Sonae's projects (*see Exhibit 3 Team Members for a list of the firms and team leaders involved in PDP*). The first is the *lead architect* who follows through the entire project and carries overall responsibility. The lead architect is responsible for developing an initial concept that works well commercially, financially and architecturally. In personality, this person needs to be both flexible and humble, ready to listen to the opinions of all the specialists involved. The lead architect for PDP was Jose Quintela, Sonae Director for Conceptual Development and Design. Sonae chooses to have others complete the

design work, which allows them to develop several shopping malls at the same time[3] and focus on their core business. To Jose Quintela, this structure it is like having many design teams within a company, but it is more efficient and outsourcing costs less in the long term. Quintela considers the personalities more important than the companies at this point in the project. The collaboration starts with two to three day live kick-off meetings after the team has been established.

The two external roles are the design architect and the local architect, which both work under the lead architect. The *design architect* takes the initial conceptual design and develops it further, suggesting design alternatives to pursue. After evaluations, one alternative is chosen and developed according to the feedback from other team participants. The *local architect* is chosen after the design development phase is over, and his responsibility is to develop construction documents according to the local conditions, materials and regulations.

In addition, there are several consultants in every project. For PDP, the selection of the lighting and landscape designers began at the same time as with the design architects. Sonae's experience showed that lighting and landscaping have enormous influence on the project, and landscape and lighting designers should report to the lead architect rather than to the design architect. Therefore, together with the environmental graphics company, they were hired directly by Sonae. The management wanted to involve these disciplines early in the process as changes late in the design process had resulted in abortive work and high costs in past projects. Both Theo Kondos Association (lighting) and Mahan Ryiel Associates (landscape) had been working for Sonae for more than twelve years. Trust among the team members was critical, since they would work virtually from their offices in the UK and USA. In addition, Sonae wanted to prevent the design architect from bringing in his own landscape and lighting designers, which he might then want to control during design, especially if these disciplines would be in-house staff whose fee would be included in the design architect's fee.

Sonae's in-house group of architects created the initial layout and diagrammatic plan, which typically doesn't go beyond the 1:500 scale. Sonae's responsibility is the initial layout, checking economic feasibility and discussing the clients', such as an extra basement for the movie theater operators who wanted to have the largest movie theater in Brazil. Then this initial layout was tested against the capacities of the site and set the broad leasing outline from which the commercial plan would be developed. The responsibilities of the design architect was then divided into three phases: Concept Design I (develop alternatives based on the given program developed), Concept Design II (further development of a chosen alternative and incorporation of the mechanical, structural, lighting and landscape information) and Design Development (production of

[3] Sonae Imobiliaria was developing 4 shopping malls simultaneously with Parque Dom Pedro and 17 as of April 2004.

a coordinated and integrated package sufficiently complete to pass on to the local team to develop construction documents and specifications).

When the initial phase of in-house conceptual and analytical research was completed, Sonae needed to choose the design architect and graphic designer, who together would provide the spirit of the shopping mall. Design firms were evaluated according to their designs as well as their communication skills and working experience with Sonae. The trust, team chemistry, expertise, design talent, and ability to work with different cultures were the main selection criteria.

According to the evaluations based on these criteria, Sonae pre-qualified three design companies, HOK, RTKL and BDP. Selection was based on a cost-based bid, where each firm proposed a fee, a list of drawings, a human resources map, and a schedule for each phase. The contract was awarded to HOK with Pablo Laguarda and Ed Jenkins as design architects, both of whom had worked with Sonae and Jose Quintela before.

HOK took Sonae's initial plan and enhanced and altered it with new ideas such as a lower level food court and the movie theater. In addition, they evolved the design in order to increase the gross leasable area (GLA) and to make the plan work more efficiently. Their role as design architects was to interpret Sonae's program requirements and initial diagram layout and to use their expertise in this particular building type to add value to the commercial development through architectural design. During the process Pablo Laguarda and his team left HOK to incorporate Laguarda Low in Texas (USA). Sonae continued working with Pablo Laguarda, rather than HOK, in keeping with their philosophy of trusting in people rather than companies.

The same three phases were followed for the graphic design. However, the selection criteria were based mostly on design rather than price because the graphic design would provide differentiation and give the mall character. Sonae contracted a small company called FD2S from Austin, Texas. Although Sonae had never worked with FD2S before, the company showed energy, enthusiasm and a sophisticated approach to themes and environmental design. Jose Quintela decided to give this small firm a chance in the conceptual design phase. The results were so satisfactory that Sonae decided to keep working with the same company through the design development phase.

As in other projects, Sonae outsourced on-site design and construction administration to local designers to complete the team. Jose Quintela asked Sonae's staff in Brazil to identify companies to interview, and selected local companies worked for Sonae for a trial period before making the selection permanent. Botti Rubin Architects, a well-known design company from Sao Paulo, was hired to incorporate all legal requirements and prepare the tender packages. A second small team, comprised of Sonae employees and headed by Renato Falzetta, was responsible for following up on the construction details and coordinating the project on an ongoing basis. Both local teams were directly under the control of Jose Quintela (*see Exhibit 4 Design Team Organization*).

The local landscape and lighting designers acted as consultants for market conditions as well as local conditions. In addition, local architects supervised the manufacturing of all items. Hiring local expertise made the design management process more efficient in difficult geographic circumstances *(Fig. 8).* For example the pre-cast façade of PDP was very expensive in Brazil, so they joined with a local concrete supplier which reduced the cost by half. Sonae also used its presence in other countries to the project's benefit, such as importing all the marble for PDP from Spain, with significant advantages in pricing.

Fig. 7. Some of the graphic designs examples from the mall

All local design participants were hierarchically dependent on the project manager for the contractual and documentation delivery issues and functionally dependent on the lead architect or his delegate for design and conceptual issues. The international and local participants responded to the lead architect in the conceptual design phase and to both the lead architect and the project manager in the design development phase.

While there were different levels of design management with different importance depending on the phase of the project, all parties reported to the lead architect. Jose Quintela managed the design development phase through LaGuarda Low, the preparation of the legal documentation through Botti Rubin, and the construction phase through Renato Falzetta.

Fig. 8. Geographically dispersed project team

WORKING WITH VIRTUAL TEAMS

As Jose Quintela emphasizes, in today's world people no longer need to be in the same building or even on the same continent to work together. Groups of people can work independently for a shared purpose across space, time, and organizational boundaries with the help of technology.

In traditional teams, members are all either located regionally, or involve international team members meeting at specific meeting dates. Although this gives the opportunity for strong interaction, it becomes inefficient and unrealistic due to time and money wasted in travel and non-relevant meetings. The project team instead created the possibility of continuous interaction with more regular 'virtual' meetings than traditionally possible. In this team, one had no designated workspace or had multiple workspaces. Time zones were used as an advantage for shifting work when the project schedule became tighter.

With the assistance of technology, the project team became more flexible, adaptive and competitive by improving performance. Working as a virtual team reduced costs by cutting travel expenses and creating new *"e-economies"* of scale. In addition, the time cycle was reduced as the information flow became faster and continuous communication was established with accurate data.

Jose Quintela played a critical part in this virtual team's success. He indicates that managers who are willing to reevaluate the way work has been done are more likely to be successful than the ones who want to continue working as they used to do. He adds that virtual managers need to be

excellent communicators in person as well as through multiple media, and success depends on careful planning, organizing, and coaching. *Communication and collaboration technology* becomes very important in virtual teams to improve the speed and the quality of the information flow.

Besides the advantages of working virtually, there have been also bottlenecks such individualism, attachment to power, and desire to be involved in everything. In order to avoid these problems, Sonae defined the roles and responsibilities among the team members very clearly using organization charts. In addition, the goals, the plan of the tasks, and the targeted result were set from the beginning and updated as the project progressed so that each person new knew exactly what his/her responsibilities were.

The team members observed a gap between the organization's current culture and virtual culture due to the differences in the characteristics and backgrounds of the people in the core project team. The organizational culture influenced the virtual work environment, and the virtual work environment affected the organizational culture. Working with a wide diversity of knowledge and skills from all over the world brought a broad range of viewpoints and expertise to the project. However, working with different cultures was one of the challenges the team had to face.

Key to Success: The Trust

To Sonae, trust is the most important issue in a virtual team. As the world becomes more complex, faster and global, the need to make the organizations smarter results in added complexity. Among the PDP team members, trust was gained through experiences in which the team chemistry, the competence of the people, and the ability to work virtually were tested. Jose Quintela realized that trusting teams converge more easily, organize their work more quickly, and manage themselves better. He indicates that the relationships among the team members were the bonds that tied the team and the networks together. Positive relationships and high trust among the team members were important especially in this project team as they weren't able to have face-to-face meetings whenever needed, which might have allowed the team might to clear up misunderstandings faster.

The technology supports communication and information sharing but cannot drive commitment and trust. Therefore, Sonae tried to choose people who had high integrity, people who kept their promises, people who performed competently, and people who displayed concern for the well being of others. According to Ed Jenkins, the design architect, trust was achieved through constantly open lines of communication, by having a strong and knowledgeable overall project design director in José Quintela, and a history of working together for a common goal.

COMMUNICATIONS & REPORTING: THE USE OF TECHNOLOGY

Communication and reporting was very important in this project to reinforce the atmosphere of trust. *"Glass box"* networks, where the outer boundary of the whole network is transparent, were

used instead of traditional *"black box"* model. To become a virtual team, the team members had to find synergies as well as communication and reporting methodologies.

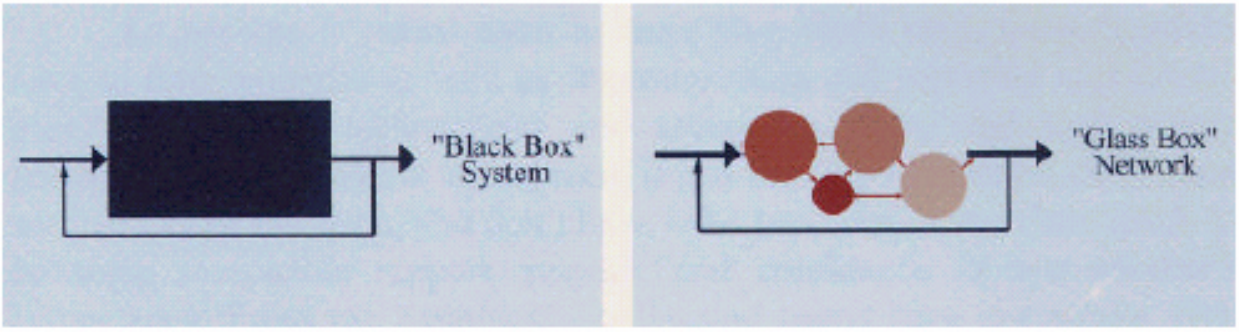

Fig. 9. Black and glass box approaches

The main question Sonae faced was *"How do you keep connected on a continuing basis when you are working with people that span the whole world?"* Advances in Information Technology (IT) made this increasingly possible. Sonae used three main methods for communication in both PDP and other similar projects: virtual asynchronous, virtual synchronous, and face-to-face. E-mail, telephone, fax, File Transfer Protocol (FTP) mobile telephone, and videoconferencing were all used for communication and reporting. The key characteristic of all of these methods is simplicity: they are inexpensive, readily available, and relatively easy to use. Jose Quintela points out that using cutting-edge IT can actually create obstacles in the early stages of the process, as most people might be unfamiliar with and reluctant to use new systems. Therefore, it was important to have an IT system capable of integrating people and documents together in a way that allows participants to quickly enter the virtual team without a complicated training process.

Virtual Asynchronous

Text documents and small files were exchanged via email. Drawings and larger files were exchanged through external servers, which the participants accessed over the Internet via FTP. This FTP site was managed by the Lisbon office, and was experiencing problems during the project. Nevertheless, every document sent or received was stored in the site, which allowed the team to have the full story of the project at any moment with different levels of access. Documents, drawings, presentations, and codification of documents were standardized to ease the flow of information.

A German extranet service called Conject[4] has been used for all of Sonae's projects since 2002 . However, this service was not used for PDP because it wasn't yet completely tested and it was decided that the team in Brazil was not organized enough to use this technology. Videoconferencing and emails were used in place of the extranet. Sonae assigned one person to

[4] http://www.conject.com/en/home/index.html accessed on 04/20/2004 at 4:20 pm

coordinate all of the documents sent via email and they had only three on-going projects at the time, which allowed the process to proceed smoothly.

Virtual Synchronous

The team also used mixed meetings (virtual and real-time) for some charettes which had participants in two continents. The meetings lasted for hours, using teleconferencing, videoconference, and fax transmittals to communicate. Sonae has video conferencing (VC) equipment in all of their offices, and can use two or three VCs simultaneously, mainly to work with their UK-based consultants. This access is of paramount importance during construction, when hundreds of pictures of details are taken, sent to Sonae, and approved, corrected, or altered on a daily basis. Videoconferencing is used for personal presentations at the end of each phase and *"charrette"* sessions throughout the process. Quintela found that one of the most important communication facilitators was the simple technology of the mobile phone. According to the project director, different kinds of technologies complete each other and should be used according to specific needs and situations.

Face-to-Face Work Session/Charettes

Sonae considers face-to-face meetings the fastest way to build trust in a project team. Periodic on-site face-to-face *"charrettes"* were held approximately once per month either in Portugal or in Dallas in the first phases of the project, and later in Sao Paulo, Brazil. The first charrettes were two day meetings and the later charettes were longer meetings. For the longer sessions, Ed Jenkins usually stayed for a full week and Jose Quintela attended the last two or three days.

Those work sessions were divided into three types:[5]

In the first type of the charrettes the designers were admitted without the project managers, who met only with design leaders after the main sessions. These meetings sometimes lasted several days. During these sessions, ideas were discussed, brainstorming sessions took place, and previous work was revised and corrected. A design consensus was reached to start the next part of the charrette. The vision of the company was shared, and the work later checked to verify that it was interpreted and developed correctly.

The second type incorporated the project managers, engineers, and people from marketing and operations departments. Previously agreed design solutions were presented to the larger group for feedback. In these meetings, final decisions were made and the team spirit was strengthened.

In the last part of the session, either separately or as a group, Sonae Imobiliária worked with local teams to inform them about the decisions and to assign the work. Local work sessions were an important part of the extended virtual working group.

[5] Quentela Jose, "Virtual Teams: A new Approach to Shopping Centre Design", Advanced Management Development Class 1, 2001/2002, Harvard Design School

The team was dispersed among three continents and several time zones. Jose Quintela thought face-to-face meetings were needed to allow everyone to communicate at the same time and build trust, particularly because of the newcomers like the graphic designer and the local participants. He believes that nothing that can take the place of face-to-face interaction, where you can build or strengthen trust in as little as a single hour.

CONJECT AS A COMPANY SOLUTION MODEL

Although the extranet service Conject wasn't used for Sonae's early projects or PDP, the company standardized the usage of Conject in all of their projects as an enterprise solution beginning in 2002. Jose Quintela indicates that the use of an extranet, and the availability of project personnel by phone, is vital for the company's success. Conject gives the team an opportunity to form a collaboration platform for continuous and accurate communication, immediate access to the project information, and provides a central communication and project management interface with all information stored in a virtual project space. The goal is to have better communication, more comprehensible documentation and optimal control regardless of the location through fast and accurate information flow, secure document availability, and continuous reporting.

Working with Conject

In this system, all of the project participants have user names and passwords to log into the system. The access levels are preset by the administrator according to the groups established. There are five groups[6] of permissions in Conject for Sonae projects: owner, editing, downloading, read-only, and none. The *owner* of a document or directory has permission to edit, move or delete, and can assign permission for his document or directory. *Editing* gives the user the right to edit, version and load documents, send notifications, and make documents read-only to prevent simultaneous editing. *Downloading* permission grants the right to download documents, to view them and save them to a local system. *Read-only* permission just lets you read or print documents but not save them. The *"redlining"* of documents can also be viewed, along with the document history. Each project participant with viewing permission can assign viewing permission to all documents to other participants, unless the document is labeled *"confidential". None* means that no permission is granted to view the documents.

Conject provides better ways to facilitate communication and immediate access to the project information. For example, Conject gives every user a project mail directory that is project specific and personal, and shows document status to provide optimal support for the document approval process. Status is represented on the platform by traffic light symbols. The directory tree therefore shows you at a glance the status of each document.

[6] Conject Project Space, LoureShopping User's Guide

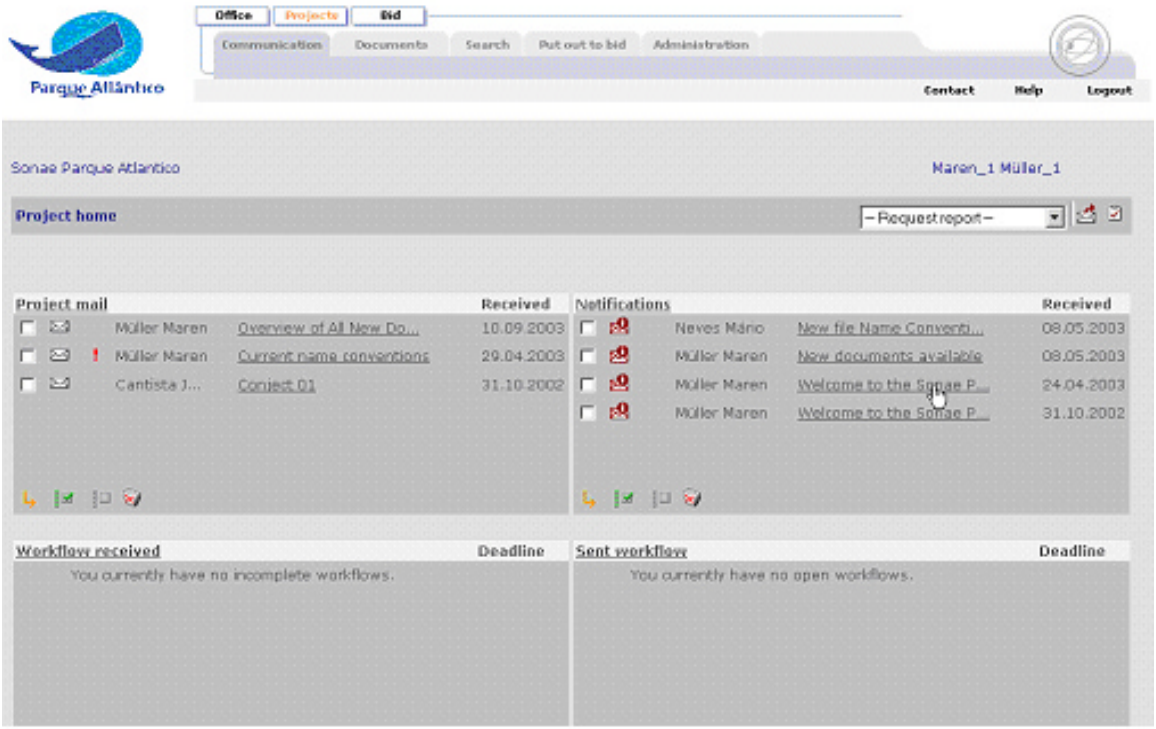

Fig. 10. Project mail directory

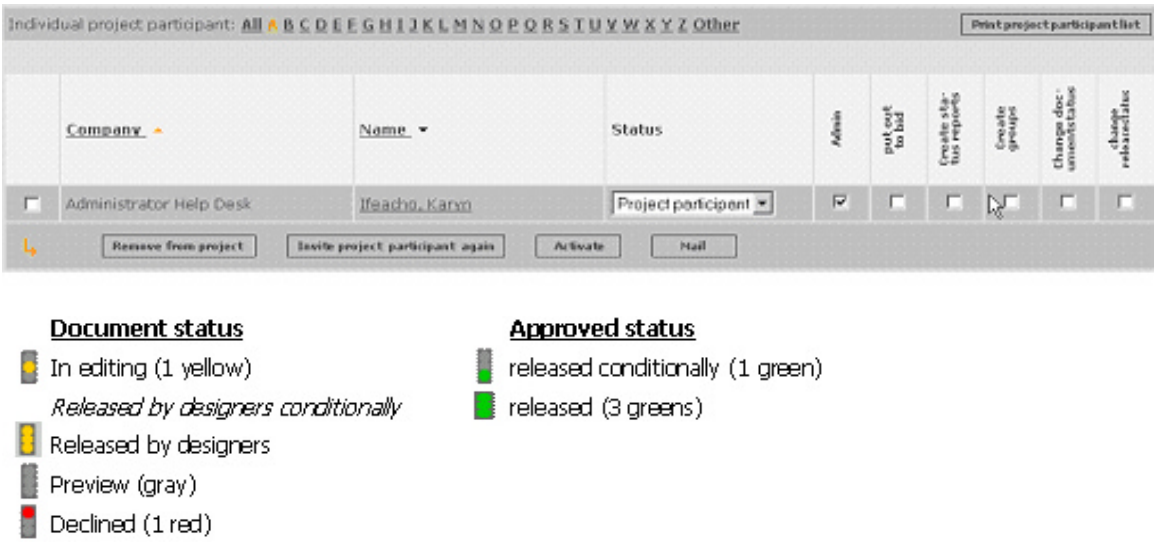

Fig. 11. Document status signs

As of April 2004, Sonae Imobiliária has one project space for the Development Department, and six active projects, which are in the planning and/or execution phases. Four of these projects are in Portugal, one is in Spain and one in Germany. Four languages (German, English, Spanish and Portuguese) support these projects. There are in average 40 to 80 people have access to each of these projects. The most used functions are Version Management, Communication (project mail,

notifications), Workflows, Plan Management and Reporting. Sonae Imobiliária utilizes Conject in all of their projects both for the design and construction phases.

There is one architect in Sonae's Lisbon office for each country, that is responsible for coordinating the information flow and communication. Although Conject is not currently used for the facility management of Sonae's shopping malls, the facility managers have access to the system. For example, if they want to locate ceiling utilities for maintenance, they know where to find the information in Conject. Sonae also uses Conject to facilitate communication with their shopping mall tenants, particularly with the large tenants who have been given full access to the system.

Sonae has used their power as owner to mandate that the outside participants use Conject. Jose Quintela says, *"IT is driven by the owner as the owner has long-term interest. Owners impose the IT and they select the team. Once you have people to work with there is no reason for them not to use the system if you make them use it as an owner. Service is very important. If you don't open the shopping mall on time, you are in trouble."*

Different Utilization Approaches

Sonae uses Conject in five different ways to accommodate the needs of the company. The first use is as a project space for projects under development. This is mostly used by the architects for studying design alternatives. The platform provides the latest versions of the information in a consistent directory structure to all Sonae employees that are involved in these projects.

After a concept is developed, there is a project space for *"conditional projects"* which don't yet have a license. In this phase, Conject is used for managing different participants such as planners, consultants and project managers that are already involved. Another project space is for *"unconditional projects"*, which are ready to go and have their own active sites in which all of the project participants have access to all project information.

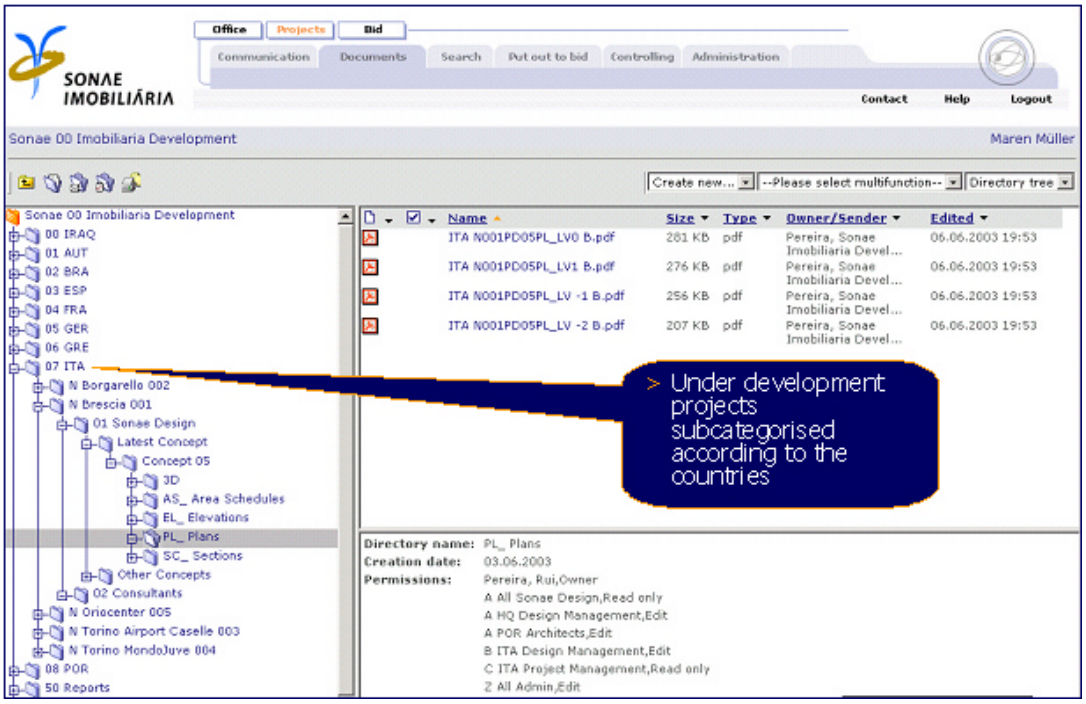

Fig.12. Project space for projects in development

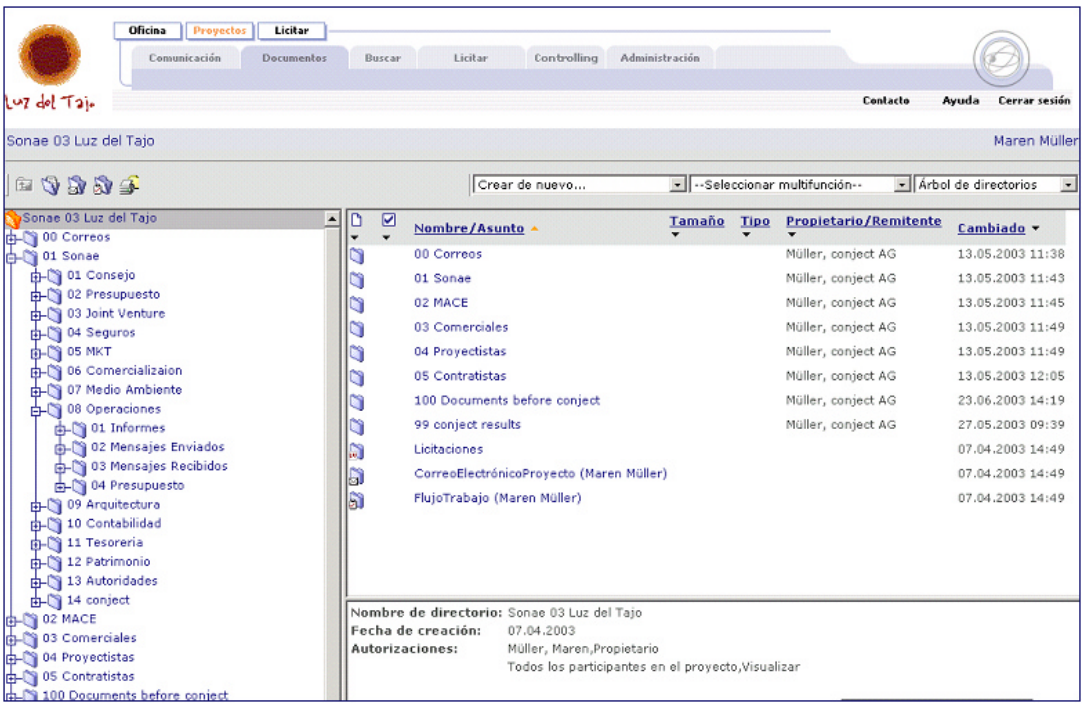

Fig. 13. Individual project space

When a project is completed all of the information regarding the project is archived in another virtual space, which serves as a database for all Sonae projects. This facilitates learning from past experiences. A knowledge management center called *"Forum"* is used as a central *"know-how-*

pool" where everyone can have feedback discussions with the project leaders of the different projects to find out what can be improved by organizing projects via Conject. In this platform, there is a regular exchange of information regarding the current projects where lessons learned are shared, examples are set, and guidelines and checklists are provided. A knowledge manager is responsible for the supervision of the platform .

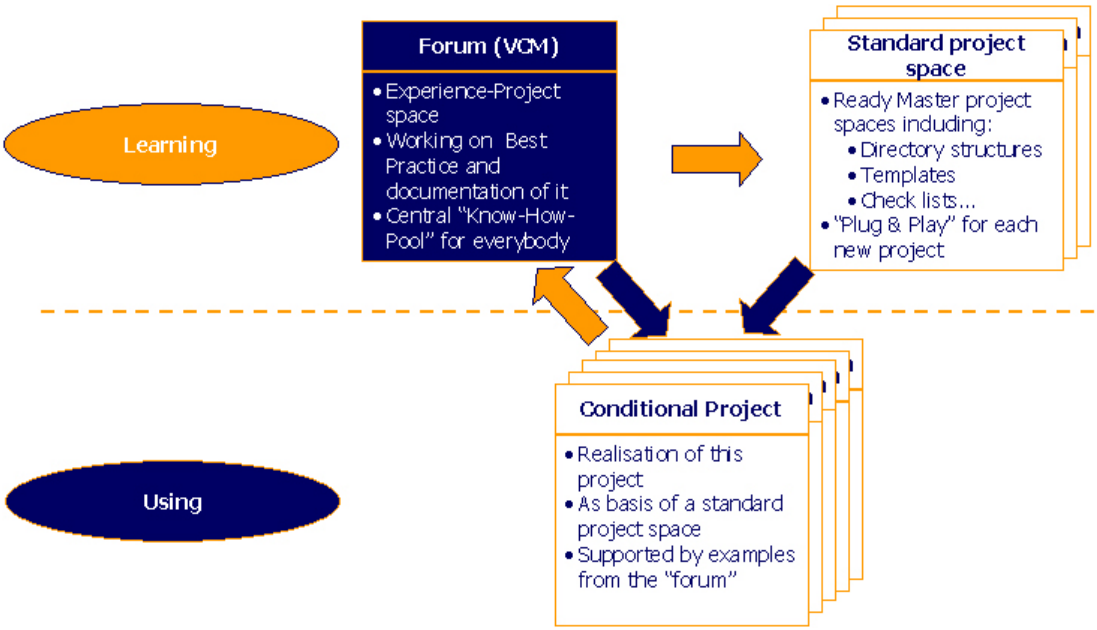

Fig. 14. Experience as a basis for the implementation of project spaces. (Courtesy of Maren Mueller Conject AG)

The final way that Sonae uses Conject is creating *"Standard Project Spaces"* as a basis for best practices. In this space, different project types (e.g. structured by conditional costs or project complexity) are defined, and a project space for each project type is created to provide detailed information. Standard Project Spaces consist of explanations for project core processes, templates (Memos, CAD-CAFM-Guidelines, Change Request Management, Accounting etc.), Directories, Permissions & Groups, Standard Workflows for processes, categories and views, master contracts (designers, general contractor), and examples for project plans, memos, name conventions for plans, decision templates, structure for jour fixes (weekly meetings, e.g. Planner Jour Fixe or Construction Jour Fixe). The Standard Project Spaces provide a consistent structure and defined templates and processes for the users.

Fig. 15. Diagram of Standard Project Space (Courtesy of Maren Mueller Conject AG)

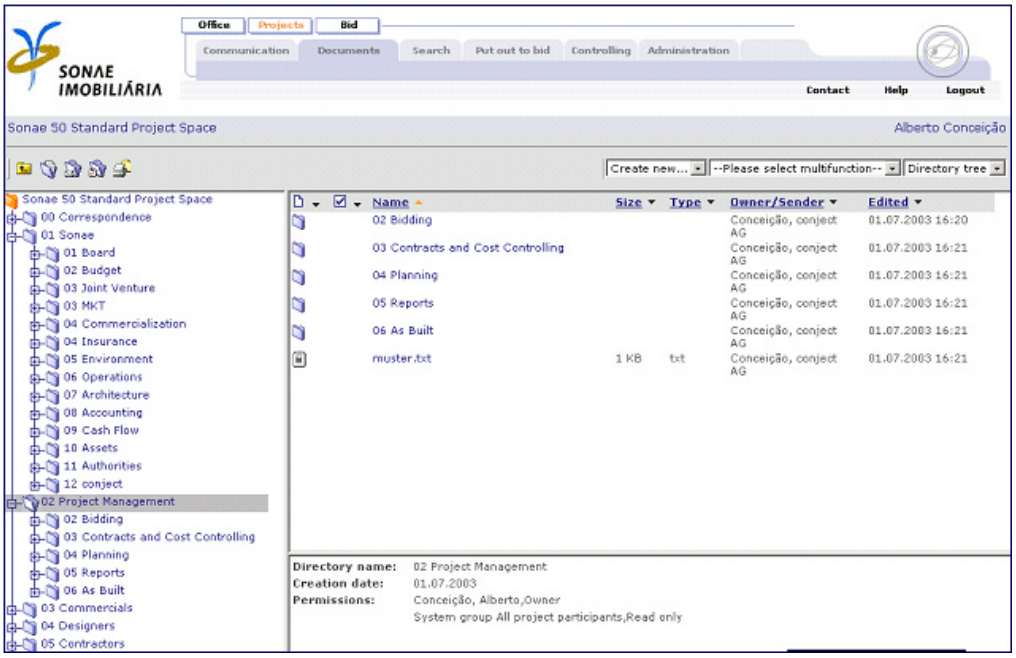

Fig. 16. Sample Standard Project Space

Benefits of Conject

Sonae has realized huge benefits by implementing Conject in all of their projects. The technology makes all the information available to everyone at the same time, increases accessibility and improves the communication lines between the parties. Jose Quintela says, *"If this technology didn't exist, Sonae Imobiliária wouldn't exist either, at least the way it exists right now."* He explains

that they would be designing and building one shopping mall at a time like their competitors are doing, rather than being able to design & build several shopping malls or manage several different teams concurrently.

However, despite the advantages Conject provided to Sonae, extranet technology also has some obstacles. One is its dependency on bandwidth, but this is limited because downloaded documents can be worked on offline. Others include the need for training and the organizational culture boundaries. Jose Quintela indicates that in order to have successful results from usage of communication platforms, the team needs to be trained to have some proficiency in using it.

CONCLUSION

The Parque Dom Pedro Shopping Mall was a challenging project because of its magnitude and its location. Part of its success can be attributed to the use of IT that allowed the development of a virtual team and the control of the project from Sonae's Portuguese headquarters. Employed for the first time, the virtual team was based on very explicit communication protocols, good communications, and developed trust. According to Mario Santos, Sonae Design Manager, PDP was one of the most exciting projects they designed, not only because it proved to be a successful development in terms of business but also because it became a valuable vault of rich human relationships. According to Ed Jenkins, the design architect, working with virtual teams has a bright future and the technology should be embraced.

The success of the project seems due to the team approach of involving specialized disciplines early on, the trust developed among the team members, and the advantages provided by the IT. Although there is a need, and an associated cost, to update the system often to keep up with the latest technological advances, the technology provides great opportunities that enhance designers' abilities to work abroad. The ability to share data in-between the physical meetings made the project possible. As Jose Quintela says, *"It would be impossible to manage the quantity of people and the quality of design in the schedule the project had. The cost could be two or three times more, and the design schedule could have doubled and we wouldn't have the control we had all along the process."*

Another important aspect is the company-wide use of a communication platform, which enables the company's global operational model. Sonae was a relatively small and unknown company in Europe before it started to implement Internet communication technology. Now Sonae owns 26 Shopping Malls and 2 Retail Parks in Portugal, Spain, Italy, Germany, Greece, and Brazil. As Jose Quintela says, *"I am a sailor and I can work in my boat. IT enables me to do this and that is fantastic. I may be in the swimming pool working. The line between the work and fun is diminishing and it is much better now."*

EXHIBIT 1. SONAE IMOBILIÁRIA ORGANIZATIONAL CHART

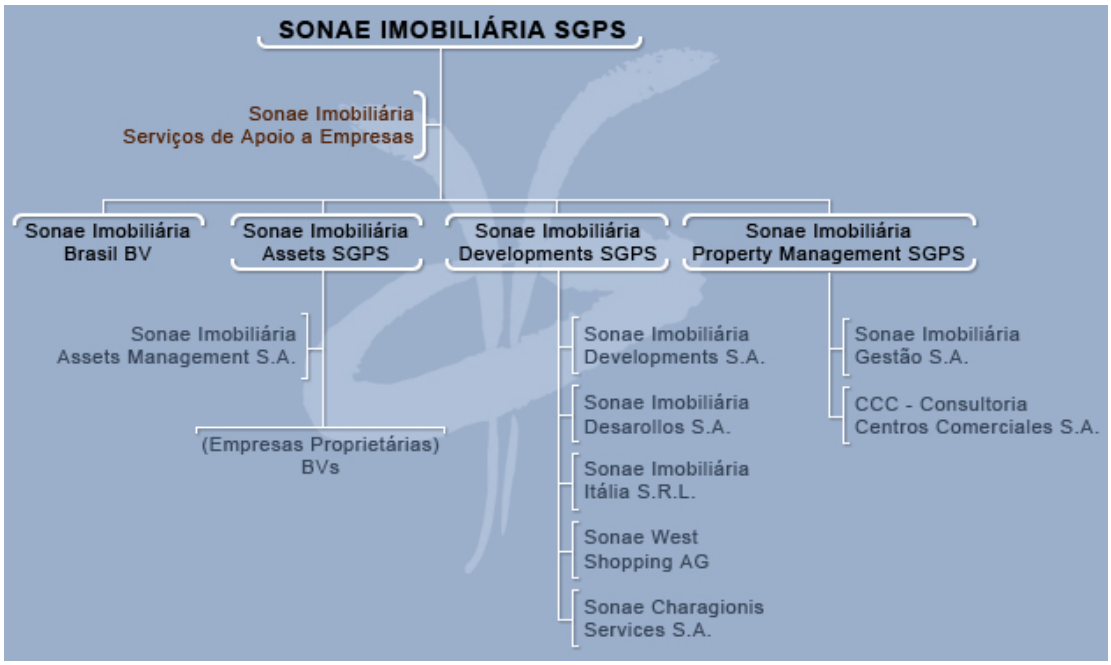

EXHIBIT 2. DATA FOR PARQUE DOM PEDRO

Country	Brazil
City	Campinas
Opening Date	March 2002
Construction Duration	24 Months
Plot Size	500,000 sqm
Gross Build Area	170,000 sqm
Gross Leasable Area	120,000 sqm
Park area	21 000sqm
Number of shops	365
Cinema screens	15
Direct jobs	6000 people
Number of parking places	7 800
Company Team On Site	
Project Management	6
Designers	3
Outsourced Team On Site	
Project Management	45
Designers	0
Design Companies Involved	
Foreign	5
Local	2

EXHIBIT 3. TEAM MEMBERS

SONAE IMOBILIÁRIA:

- ***JOSE QUINTELA -*** *Conceptual Development And Design Director*
- ***MÁRIO SANTOS –*** *Senior Design Manager - Eastern Europe*
- ***PAULO LUIS –*** *Junior Design Manager - Brazil and Spain*

SONAE ENPLANTA BRAZIL:

- ***JOÃO PESSOA JORGE*** - Board Member of Sonae Imobiliária and Brazil CEO (General Management)
- ***JOÃO MIRANDA*** - Development Vice-President (Project Manager)
- ***ANTÓNIO SÉRGIO BIANCO*** - Project Manager - Project Manager
- ***RENATO FALZETTA*** - Design Manager (On Site Coordinator – Local Architect)

OTHERS BRAZIL:

- ***FRANCISCO SALLES*** - Engineering Sa – Project Management
- ***ALBERTO BOTTI*** - Botti Rubin Arquitectos Associados Ltd. – Local Architects – Licensing And DD's
- ***ELISA VILARES DE FREITAS*** – H2E Design- Environmental Design CD's
- ***MARCELO FAISAL*** – Caminho Verde- Landscape Design- Local Adaptation
- ***CARLOS FORTES*** – Franco & Fortes Lighting Design – Lighting Design – Local Adaptation

INTERNATIONAL:

- ***PABLO LAGUARDA -*** Laguarda Low, Architects- Design Architect (Texas, USA)
- ***ED JENKINS -*** Laguarda Low, Architects – Design Architect (Texas, USA)
- ***THEO KONDOS -*** Theo Kondos Association – Lighting Design (London, UK)
- ***HERMAN DYAL*** - FD2S - Chief Executive Officer – Environmental Graphic Design (Austin, Texas, USA)
- ***SCOTT RYKIEL –*** Mahan Rykiel, - Landscape Design (Baltimore, USA)

EXHIBIT 4. Design Team Organization