

# Information Technology at Cirque du Soleil: Looking Back, Moving Forward

*Teaching Case*

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## **Abstract**

*What do information technologies (IT) have to do with running an artistic organization such as Cirque du Soleil? It turns out that they are critical to the success of the organization. The case is situated in 2008 when Cirque had developed an IT infrastructure supporting the entire process value chain from show creation to production and design, casting, and logistics needed for running its 17 shows around the world. The case illustrates how IT can support different processes of firms, even those relatively ill-structured and which rely heavily on creativity. It also generates discussions on the notion of IT strategic alignment and brings students to reflect on the challenges associated with sustaining alignment over time.*

**Keywords:** Case study/studies, knowledge management, strategic alignment, business processes, business value of information technology

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*If you only knew how many times I've been asked what on earth an IT specialist does at Cirque du Soleil? "Oh, come on," people say, "You don't need that. You're a circus."*

Danielle Savoie – Vice-President of Information Technology and Knowledge Management at Cirque du Soleil – has heard this comment not only from people not familiar with the activities of Cirque du Soleil, but also from Cirque employees.

Cirque du Soleil has its international headquarters in Montreal. It was founded in 1984 by a group of public entertainers, led by Daniel Gauthier and Guy Laliberté, who wanted to reinvent the concept of the circus, which had barely evolved since the 1800s. The audience and the critics were conquered by the very first show of Cirque du Soleil, which was dramatically different from the traditional circus: it featured spectacular costumes, a modern original music, dramatic theatrical elements and no animals.

The growth of Cirque du Soleil was most rapid. After touring within Quebec and Canada in the first few years that followed its creation, Cirque performed in California in 1987, in Europe in 1990 and in Japan in 1992. In 2000, when Danielle Savoie became Vice-President, the organization was employing close to 2000 people. At the time, Cirque had three permanent shows: *Mystère*, which had been presented at Treasure Island in Las Vegas since 1993, *Ô* presented at the Bellagio in Las Vegas since October 1998, and *La Nouba* presented at Walt Disney resort since December 1998. Cirque du Soleil also had five tours on the road, which moved every two months. An office in charge of managing the fixed Las Vegas and Orlando shows was established in Las Vegas, and three regional offices – Montreal, Amsterdam and Singapore – were supervising the road shows.

Upon Danielle Savoie's arrival at Cirque du Soleil in April 2000, some members of the staff and even managers were wondering about the role that information technology (IT) could play in an organization where creativity, imagination and inspiration were paramount. Some even considered IT as useless and too expensive. Danielle Savoie's first mandate had been to find effective ways for IT to support the upcoming substantial growth planned by Cirque. To achieve this, she had to convince the top management team that IT could be more than just a cost center.

Eight years later, Danielle Savoie was pleased with what had been accomplished. Indeed, by early 2008, when Cirque du Soleil was presenting five touring shows under the big top, seven resident shows in North America and two arena shows, giving a total of over 5 000 performances a year in more than 40 cities around the globe, IT was playing a critical role in the organization, and in more ways than one. For instance, for each of the touring shows, a touring IT team supported an average of 45 IP phones, six servers, three routers, dozens of Ethernet connectors and at least half a kilometer of optic fiber, with a minimum of 175 other devices hooked up to it. They had to maintain service at the site, keep the bank of 75 computers in good running order and provide the various users with all the support they needed. Yet, the touring IT experts were not on their own. They were in close contact with each other and the IT teams in Montreal, Las Vegas, Amsterdam and Melbourne and, in the near future, Macau. In fact, the links were so tight, they could all work together if any major problem arose. Cirque had nearly 200 servers, for a total capacity of several terabytes. The employees had worldwide access to over 175 applications, mainly hosted in Montreal, and the creative teams had the wealth of Cirque Memory to draw on.

As a keynote speaker at the International Conference on Information Systems in Montreal in December 2007, Danielle Savoie recounted the IT success story at Cirque du Soleil. She was thrilled by the great IT-enabled advancements that had been achieved in only eight years since her arrival, despite initial doubts about what IT could do in an environment where creativity played a key role in each process. She told a story of a Brazilian athlete from a modest family background who quickly became a rising star at Cirque, and who was supported in each step on the way through Cirque's IT-enabled processes. Before Danielle Savoie started her presentation, the audience was eager to discover how IT contributed to a creative enterprise such as Cirque du Soleil. Later, as the audience was captivated by this success story, other questions surfaced in everyone's mind: "How did they achieve this? What issues and challenges did they have along the way?"

## Information Technology at the Heart of Cirque du Soleil

Rather than simply automating existing processes, the role of IT during Daniel Savoie's tenure was one of supporting knowledge management at Cirque in order to capture, leverage, and transfer knowledge across processes and across projects. In her speech, Danielle Savoie described the role of IT as follows:

*I suppose it's the popular view that a show is an ephemeral event, but we're unique in that all of our shows and events are inherently high-tech, nomadic, and long-lived, a unique combination that sets Cirque du Soleil apart. Cirque's shows have a lifespan of 15 years, so we had to find ways of preserving the knowledge involved, not only to enrich Cirque's memory, but also to handle changes in the show and its personnel. Knowledge Management and IT thus end up being the keeper of an incredible amount of information gathered throughout the show creation process<sup>i</sup>.*

To help integrate all of the data from various activities, a key contribution of the Knowledge Management and IT group was the design, implementation, and ongoing improvement of Cirque Memory. Cirque Memory is a knowledge repository used to store all relevant information on artists' make-up and costumes, sets, and staging. It has been described as an all-encompassing "bible" for the entire organization. Cirque Memory is accessible online in five different languages. It was developed using Microsoft Windows 2000, IIS 5.0, and SQL Server 2000, and it has a series of modules, including casting, make-up, costume memory, Medi-Cirque, Kin-Cirque, and Act Management.

To understand the scope of Cirque Memory, consider that for a show like [Kooza](#) alone there is an inventory of over 75,000 documents stored in Cirque Memory. While the Memory is used for all processes at Cirque (e.g., it can be used to save and reuse the images, videos, sketches and notes that served as sources of creative inspiration in the creation phase), it is especially relevant in the design stage, since all of the design activities draw heavily on the information stored in this central repository. In Danielle Savoie's opinion, "It goes without saying that carefully storing these creative components is critical, since they constitute a corporate asset that helps us grow and preserve our heritage. At Cirque du Soleil, keeping a record of our creative work allows us to ensure a long life for our shows and for our many sources of creative influence."

The screenshot displays the Cirque Memory software interface for a scene titled "ALL YOU NEED IS LOVE (CURTAIN CALL)". The interface is organized into several sections:

- GENERAL DESCRIPTION:** Includes a video player showing a stage performance with several acrobats.
- COSTUMES:** Lists costumes for various roles, such as "Dead Clown" (White) and "Petit Ange" (Loyal Whistler).
- WHO:** Lists the names of the artists involved, such as Mauro MOZZANI (Sunday Best) and Igor Isakovic (Clown Blanc).
- MUSIC / MUSIQUE:** Lists the music used in the scene, including "All You Need Is Love" by BEATLES.
- SETS / DÉCOR:** Lists the sets and decor used in the scene.
- MOVEMENTS ON STAGE / DÉPLACEMENTS SCÉNIQUE:** Lists the movements and positions of the artists on stage.
- ACROBATICS / ACROBATIQUE:** Lists the acrobatic elements of the scene.
- COSTUMES / COSTUMES:** Lists the costumes used in the scene.

On the right side of the interface, there is a stage floor plan diagram showing the layout of the stage and the positions of the artists.

Figure 1. Cirque Memory

The database of Cirque Memory includes photos and detailed instructions on make-up applications. It also features over 5,000 costume designs and 4,000 alteration notes. Overall, it helps ensure that the quality of each show is consistent despite unforeseen events and replacements.

Yet Cirque Memory is much more than a repository. It is also a series of applications that guide artists at every step on their path, from submitting their resume to stepping on stage. Danielle Savoie comments that Cirque Memory has changed, facilitated, and tangibly affected the work of everyone in the creation division, from the designers, directors of creation and performers to the artists who work backstage: the artisans.

## Tour Life Cycle

At Cirque du Soleil, IT supports the entire process value-chain, from show creation to production and diffusion. Figure 2 depicts the life cycle of a touring show, highlighting Cirque's key business processes; each process is described and the role of IT is delineated. Although many of Cirque's processes are knowledge-based, ill-structured, and heavily dependent on creativity, IT is used to enhance the efficiency and/or effectiveness of each of the underlying processes.

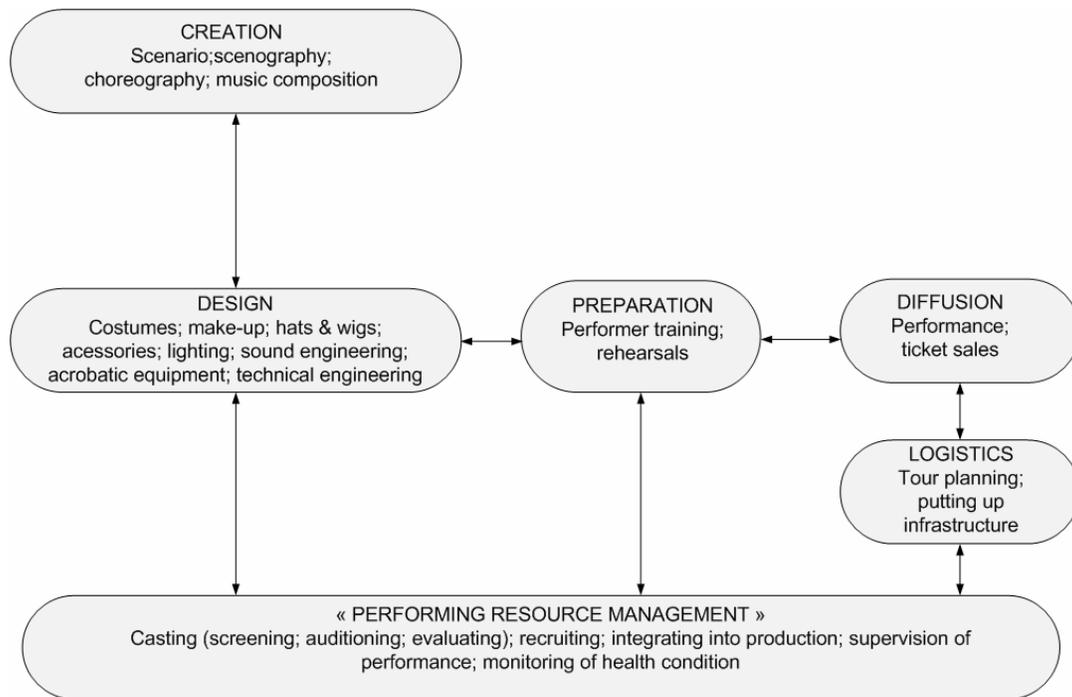


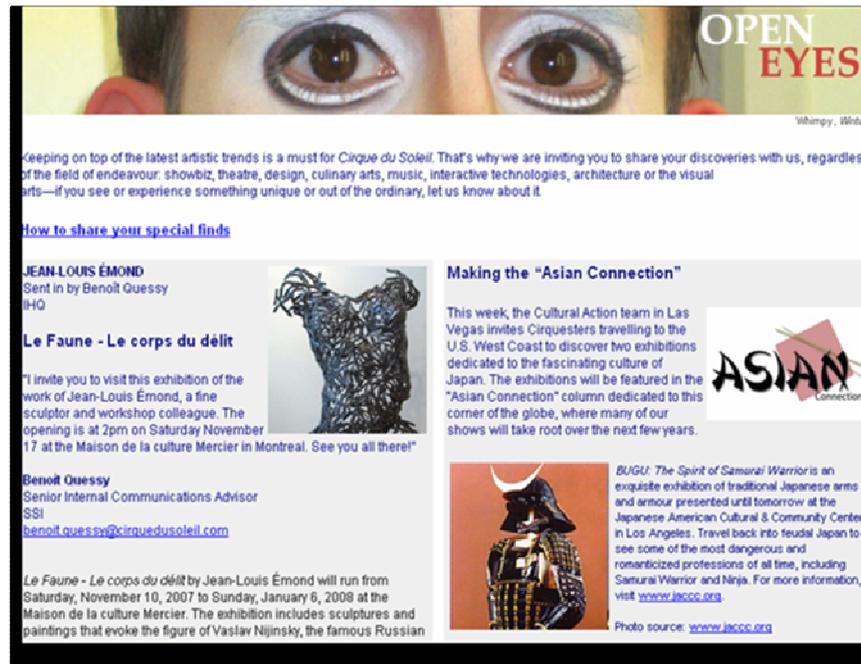
Figure 2. Tour Show Life Cycle

### Creation

The creation process involves all aspects of show creation, such as scenography, choreography, and music composition, as well as creating a central theme and a storyboard for each show. Although this is the most creative part of Cirque's processes, IT is still used in an effective way to nurture and enhance the process. In particular, Cirque Memory records such valuable information as the intentions behind the work, comments from the creative guide, the director's kick-off information, the storyboard, character and costume descriptions, among other things.

Most interestingly, Cirque's Intranet allows 4,000 employees to access Planète Cirque from anywhere in the world. The Intranet also feeds into Cirque's creativity watch, through the Open Eyes application, another component of Cirque Memory (Figure 3). Savoie comments:

*Imagine 4,000 pairs of eyes, 4,000 ways of looking at the world. Our employees are invited to share their discoveries under the heading 'Open Eyes.' Staying ahead of the latest artistic trends is vital for Cirque du Soleil, and what better way than to have 4,000 passionate, curious 'circustors' exploring new artistic horizons with their eyes wide open, surprising their co-workers. Be it in showbiz, the performing arts, design, food, music, interactive technology, architecture, or the visual arts, any unusual artistic experience, any one-of-a-kind artistic work can now be shared by all, reinforcing the Open Eyes message.*



**Figure 3. Open Eyes**

These various applications were developed and supported by a creative, independent, and flexible team of IT experts. Danielle Savoie defined the role of IT experts as comprising five main sub-roles: *“Our team at Knowledge Management and Information Technology act as ‘liaison agents’ by establishing a knowledge network. Our technology watch activities make us ‘instigators,’ and we’re developing a taxonomy, which makes us researchers. We are also ‘integrators,’ by delivering business solutions. And our knowledge of business processes and change management roles make us ‘agents of transformation.’ Finally, we are ‘brokers,’ managing both information and our relationship with the outside suppliers who keep our daily operations running smoothly. To put it simply, we are partners for innovation and transformation in a rapidly growing organization.”*

## **Design**

The design stage is the core technical process representing the “manufacturing” component at Cirque. It brings together diverse experts who make costumes, make-up, hats, wigs, and accessories, as well as manage lighting, sound engineering, technical engineering, and acrobatic equipment. These activities require significant detail and expertise in order to be performed effectively by Cirque’s staff.

For instance, make-up sessions and costume fittings are all done internally. A typical costume fitting usually requires around 50 measurements taken at different points on each artist’s body. The initial production of costumes for the show Allegria alone required 10 rough drafts of each costume, 1,094 yards of braid, 1,586 yards of lace, 2,515 yards of silk jersey, 22 pounds of glitter, and 200 Santa Claus wigs redone to create the hair<sup>ii</sup>.

To better manage the costume-making activity, a Costume Application was developed in-house, using information from the various measurements to customize a costume pattern for each artist and store it in a database. This database contains over 6,000 patterns. According to Danielle Savoie, the main strength of the Costume Application is that it manages “*all pattern inputs and outputs for pattern-making and costume construction, as well as notes on the specific modifications for each artist, be they changes in fabric, due to allergies, or costume alterations to make it easier to do a particular act.*” The Costume Application is also linked with other applications for managing various aspects of the costume-making process, thus providing a consolidated view, from costume requirement planning to final show delivery. Previously, this consolidated view had not been possible, since the information was stored separately in different Excel files.

Similarly, before the advent of IT, make-up was applied on the artists and recorded via 35mm photos that were kept in local files. Forms were used that depicted the specific make-up products used, along with quantities and actual make-up recipes and procedures. This information was stored in large binders that make-up artists had to haul along on each tour. In addition to being cumbersome, this led to documents being lost as well as various inefficiencies due to the considerable amount of time spent retrieving information.

The Make-up Application developed at Cirque du Soleil changed all of this (Figure 4). The application stores every detail of the make-up process in a central database. It allows make-up artists to easily access all information from the convenience of their laptop, while ensuring that no information is lost, as it was previously. The database even matches the products used to the skin attributes of each performing artist. Two views are featured in this application: a detailed view that shows each step of the make-up process, and a consolidated view that shows a visual memory of a particular artist’s make-up, with a full list of the products used. What is more, the richness of the information held in the application’s database, coupled with the application’s ease of use, even allows performing artists to do their own make-up. This significantly enhanced the efficiency of the process and the staff’s productivity. Previously, this process took make-up artists a long time to perform, since on average they had to work on each artist for a full hour before each show.

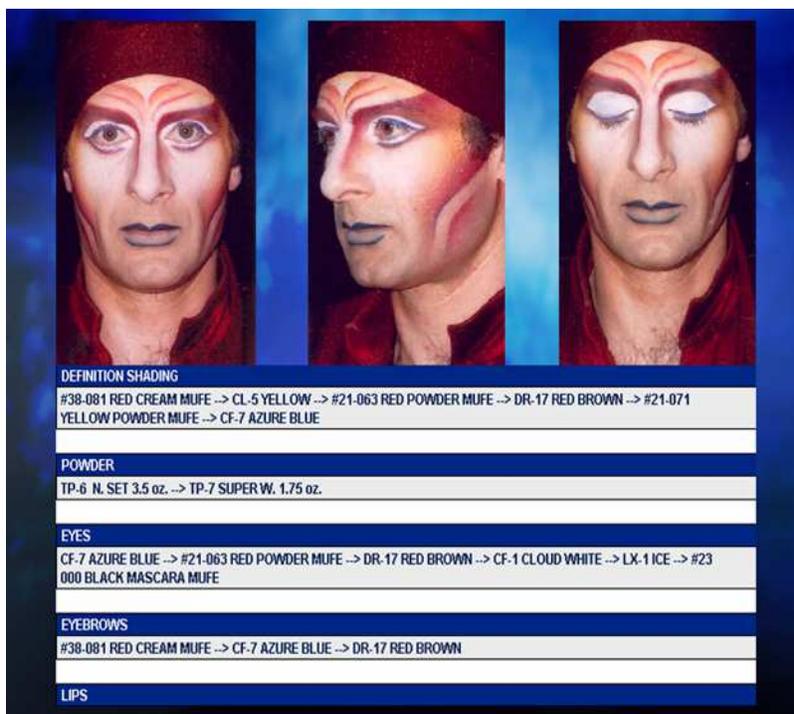


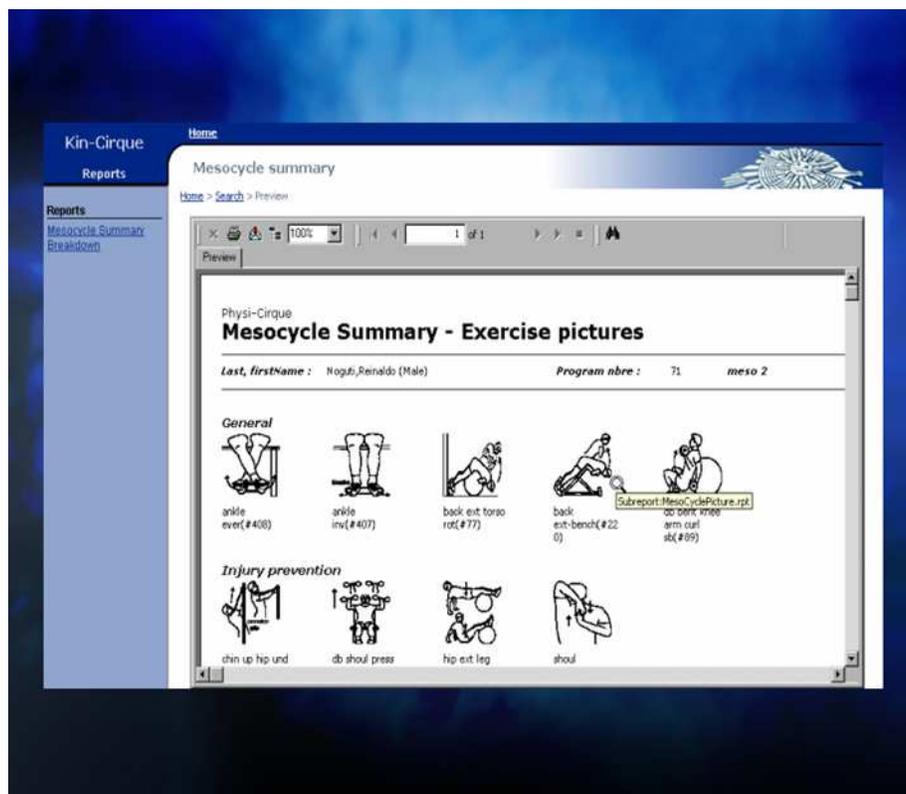
Figure 4. Make-up Application

Another component of the design process that has been enhanced by IT is the making of plaster heads. Plaster heads are used to facilitate the making of masks, wigs, and hats. Sometimes three plaster heads are made for each artist, with a total of over 1,500 heads representing Cirque's artists. Previously, information on the location of the heads was stored in the performing artist's file and the actual plaster heads were located in the costume workshop. With IT, this information is now recorded in a database and linked to other applications, which greatly facilitates locating and retrieving the plaster heads as required.

### **Preparation**

The preparation stage involves helping the artists prepare for a big show. It includes all aspects of performer training and rehearsals, with specific training courses specified for different acts. Artists have to follow special and rigorous physical fitness programs before they are deemed ready to perform in a show.

To help support this task, the IT team developed an internal application that greatly enhanced the artist's training experience. The Kin-Cirque Application (part of Cirque Memory) allows physical fitness specialists to closely monitor each artist's optimal muscular development. This application is integrated with other applications used by the production staff to ensure that the show equipment is tailored to the exact physical measurements and needs of the performing artists. Before implementing this application, this type of close coordination was not possible.



**Figure 5. Kin-Cirque**

### **Diffusion**

Downstream in the value chain we find the diffusion of Cirque shows. This activity mainly involves ticket sales and the actual performance. As with the other processes, the introduction of IT had a significant impact, enhancing the customer's experience.

The IT team's most critical contribution to this activity is Cirque's website, which is a constantly evolving global gateway to Cirque du Soleil. This site has had a tremendous impact on visitors and organizational members alike. It also confirmed that many people were interested in Cirque du Soleil. Also, by providing a forum that places contests, special promotions, press galleries, multimedia experiences, as well as artist and employee recruitment within everyone's reach, it extends the playful Cirque experience. The number of visitors to the site is constantly growing, and membership in Cirque Club, a club that offers advance ticket sales and preferential access to a host of information, quickly outstripped the most optimistic predictions. In early 2008, Cirque Club had over 1.5 million members, with approximately 300,000 new members signing on each year since its creation.

Use of the Internet also prompted Cirque to review its marketing approach and its connections with fans and the press. Through Cirque's website, fans can purchase tickets to the shows touring North America and Europe and enjoy a fresh, new experience in the process. In addition to presenting all the relevant information on a show, from ticket prices to directions on how to get to the site, the Web box office allows visitors to watch videos of past performances, receive special offers and personalized email alerts and news, and examine views of available seating in a dynamic, three-dimensional environment.

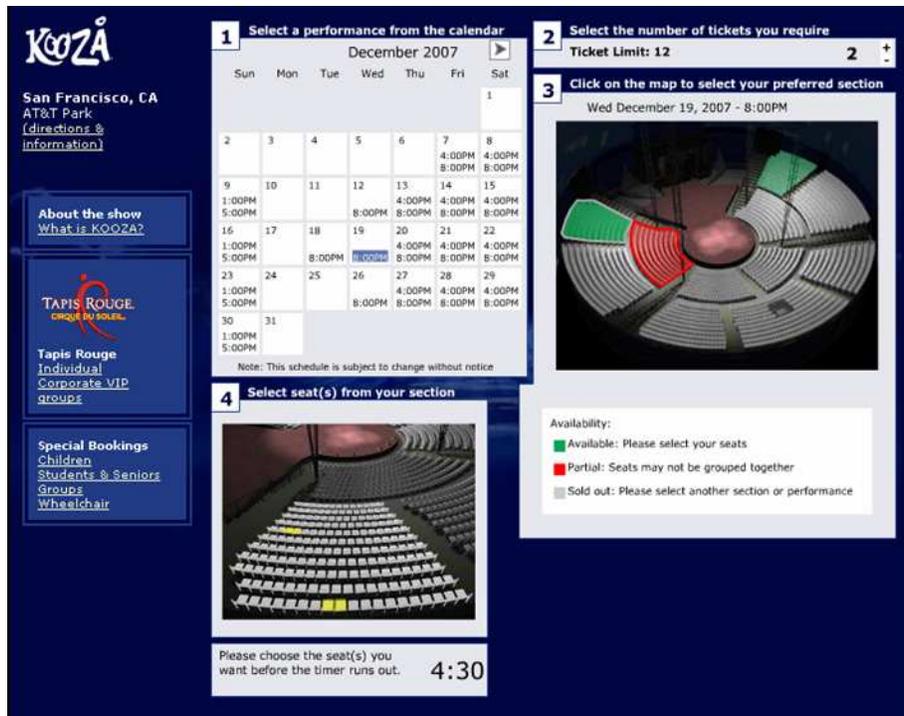


Figure 6. Cirque's Website

This website experience is interactive, easy to navigate and intuitive to use. It has elicited enthusiastic comments from visitors who report that it has enhanced their overall experience as a customer. The website was launched in 2006; two years later, more than 80% of the tickets were purchased online.

### Logistics

Logistical activities at Cirque involve tour planning and developing the show's infrastructure. For example, the Travel Group has to handle all the logistics associated with receiving new artists from all over the world and facilitating the procedures for their arrival, such as plane tickets, visas, immigration papers, travel arrangements, work permits, accommodations, and even translation services, if necessary. Moreover, Cirque uses over 20,000 categories of equipment as part of show infrastructure. Danielle Savoie gives the example of a touring show:

[...] when we raise our big top, in some field out in the middle of nowhere, what we're actually building is a village and it needs electricity, phones, water, offices, Internet and, of course, a computer network. A tour is a little village travelling from city to city; a village that is practically self-sufficient, with its own kitchen, its own workshop for maintenance and repairs, its box-office, its heating and air conditioning system. It's a village of about 150 people, and it needs the very best technology to meet their needs, which range from basic bandwidth requirements, to ticket sales, payroll and phone systems. And this is a village that moves every six or seven weeks, which means the village has to be constantly torn down and set up again. Everything has to be precise and methodical. Every part, hose, wire, piece of rigging and bolt has its place to make everything supremely efficient. So, if you think assembling Ikea furniture is complicated, imagine what it's like setting up and tearing down a big top that seats 2 500. Imagine the logistics when over 55 trailer-loads of equipment have to be hauled from place to place, and at each site, it all has to be in working order within 30 hours.

To manage this vast range of activities, a great deal of technical documentation is needed to process information on the show's equipment and ensure compliance with international standards. The IT team developed an Electronic Document Management System and powerful linguistic software to standardize and harmonize over 150,000 terms used to describe the myriad of equipment used at Cirque, and they integrated it with other technical information in Cirque's databases. The Document Management System is also used to adjust the show's equipment to the particular physical measurements of each artist.

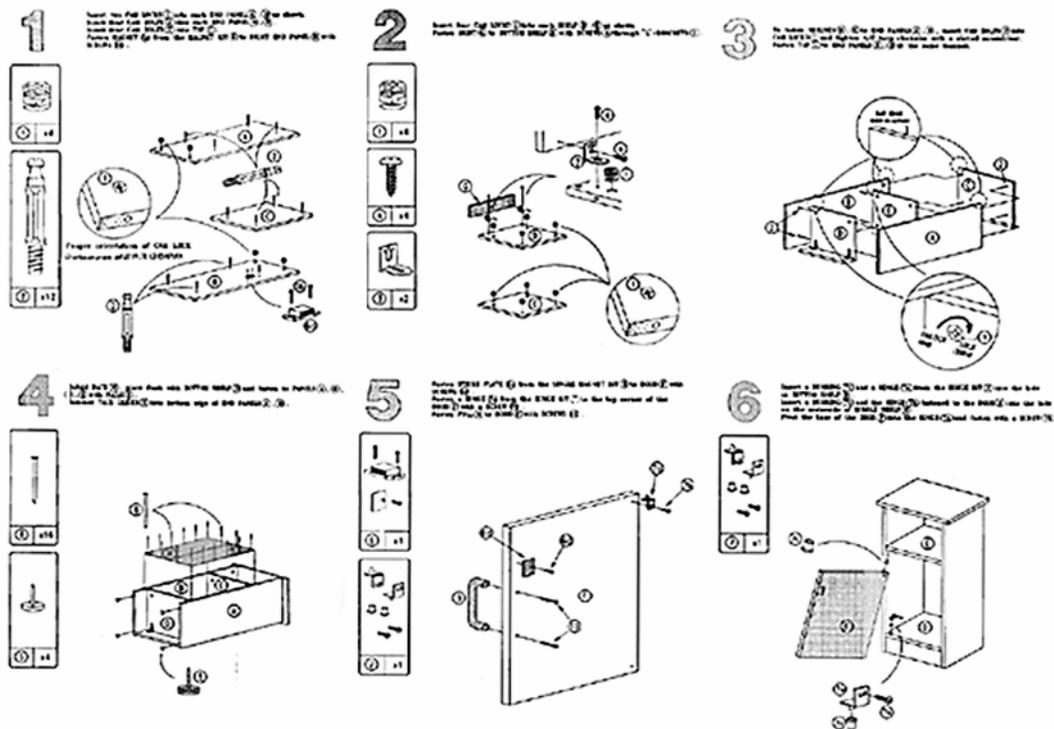


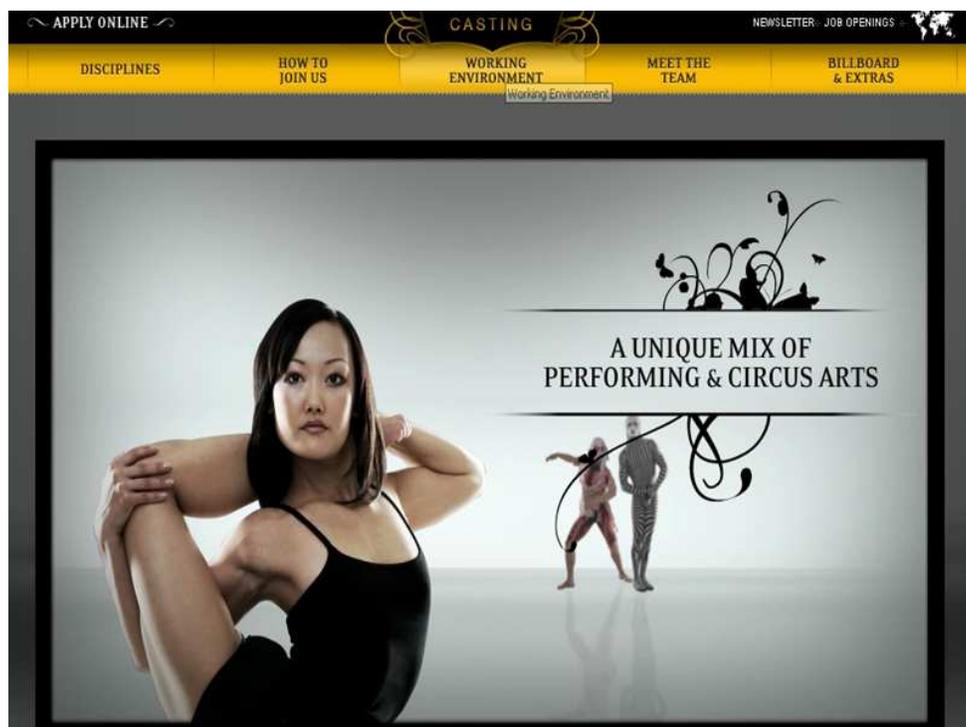
Figure 7. The Electronic Document Management System

Furthermore, Danielle Savoie made sure that all servers and computer workstations were standardized and fully integrated. The computer equipment used for the tours is mounted on wheeled trunks called “IT roadcases” that are configured in such a way that servers do not have to be unpacked and reinstalled in each city on a tour. Rather, the roadcases transport the IT equipment from city to city and, upon arrival, only two cables need to be connected in order to start using the computers and phones. Finally, Cirque switched to using VoIP technology and replaced their copper cables with fiber-optic ones, which are much lighter and which support both data and voice communication on a single cable. Together, this led to a 25% reduction in the time required to set up the touring infrastructure<sup>iii</sup>.

### **Performing Resource Management**

The performing resource management activity supports other activities throughout Cirque’s entire value chain. This activity deals with all aspects of managing the various human resources needed to mount a performance, including casting (screening, auditioning, and evaluating), recruiting, production integration, performance supervision, and monitoring the artists’ health conditions.

The performing resource management activities make extensive use of IT capabilities. The IT team developed an application that allows the casting department to simultaneously manage the artist bank, the projects each artist is involved in, and even all the auditions that have been held, that are being held or that will be held around the globe. Using this application, talent scouts can better manage all aspects of the casting process, and they can even watch videos from applicants from all over the world to help them navigate through the recruitment process. What is more, the Virtual Talent Scout was launched in September 2007, making talent scouts much more productive and allowing them to meet the rising demand from artists who want to join Cirque. Rather than having to laboriously search the world for rare talents, the Virtual Talent Scout allows the talents to come to Cirque through an interactive web experience. It is available in seven languages, and it has greatly expanded the pool of talent that Cirque can draw upon in the face of rising demand, artist injury, and turnover. In 2008, the casting service held records on over 35,000 registered artists. Applicants use the website to submit applications online based on their discipline of interest, and they attach notes, photos, and videos that are then stored in Cirque’s database and linked to their profiles.



**Figure 8. Virtual Talent Scout**

The program immediately analyzes the job applications received and tags the most promising ones, and it sends out emails to the applicants who have requested additional information or in order to schedule an audition. An audition module then manages auditions worldwide, in countries such as Russia, the Netherlands, Bulgaria, the Ukraine, France, England, Brazil, the USA, and of course, Montreal, among others. Over 150 auditions are held each year. All the information recorded during the course of an audition is added to the database and linked to the artist's profile.

In short, the Virtual Talent Scout application has significantly facilitated the discovery and recruitment of the most promising artists. The Director of Creation and talent scouts can scan the database and watch videos of artists who have successfully completed the audition process. The Casting Service Application then suggests the best candidates for a job. This application is also able to immediately find replacement artists for acts in which a main artist has been injured. This activity requires coordination between the casting service application and another application, MediCirque.

The MediCirque Application – part of Cirque Memory – enables the entry and/or update of detailed information on artist injury incidents. It generates medical statistics on all artists and analyzes typical injuries for different acts. It even establishes recovery times and relapse rates, and it has provided Cirque with an overall view for managing the risks of injury in their myriad acts. Prior to MediCirque, this information was recorded manually and kept in local files, which largely constrained access and managers' ability to analyze this information in order to make better, less risky decisions.

One clear advantage of MediCirque has been the capacity to quickly find replacement artists for those who are injured. From its database of over 24,000 MediCirque files, the application immediately suggests replacement artists whose heights and weights match those of the injured artists. In this way, Cirque du Soleil has been able to avoid downtime, in addition to eliminating costly costume redesigns<sup>iv</sup>.

Finally, the HR intranet is an IT tool of great help to Cirque employees. Various HR policies are stored on the Intranet, such as the internal box office, employee agreements, the corporate organization chart, expedition requests, job opportunities, linguistic service requests, management calendars, time sheets, and so forth. The Intranet is also linked with other databases that are, in turn, linked to the profiles of staff members.

## Looking Back, Moving Forward

During the eight years of her tenure as Vice-President of Information Technology and Knowledge Management at Cirque du Soleil, Danielle Savoie had been asked repeatedly how IT could contribute to an organization where creativity and imagination are “the name of the game!” In her opinion, although “IT is IT” no matter where you implement it, there are some applications that better fit an environment than others. “In the artistic environment, implementing [an ERP] for a technical crew on a show, it's not something easy in terms of culture fit. So, we have to deal with that.” She deemed that “taking care of the values of the people and of where they were in terms of maturity for implementing technologies,” had been instrumental to the successful deployment of IT at Cirque du Soleil. This success, however, could not be taken for granted. The IT team was now faced with questions such as: What's next? Where to from here? How can IT continue to add value at Cirque du Soleil?

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<sup>i</sup> All the quotes from Danielle Savoie are from: Savoie, Danielle, Keynote Address, *International Conference on Information Systems*, Montreal, December 10 2007.

<sup>ii</sup> <http://entertainment.howstuffworks.com/cirque.htm/printable>

<sup>iii</sup> [http://www.cio.com/article/31474/Rapid\\_Deployment\\_IT\\_at\\_Cirque\\_du\\_Soleil?page=2](http://www.cio.com/article/31474/Rapid_Deployment_IT_at_Cirque_du_Soleil?page=2)

<sup>iv</sup> <http://entertainment.howstuffworks.com/cirque.htm/printable>