A Tale of Three Bins

A Waste Reduction Case Story through a Systems Thinking Lens

A case study produced for Sabre Holdings by:

Presidio Graduate School:
Jenny Hoang, MBA, Dwight Collins, PhD, and Dariush Rafinejad, PhD
Leilani Latimer, Senior Director, Global Sustainability Initiatives, Sabre Holdings

July 2012 Copyright © 2012 Sabre Inc® and Presidio Graduate School. The works, ideas, and notional concepts discussed and developed here, apart from works cited, are copyrighted by the authors under California common law copyright principles.

Important Notice
The contents of this report may be used by anyone providing acknowledgement is given to Sabre Holdings and Presidio Graduate School. This does not represent a license to repackage or resell any of the data reported or the analysis presented in this report and therefore if you intend to do this you need to obtain express permission from Sabre Holdings or Presidio Graduate School to do so. Sabre Holdings and Presidio Graduate School prepared the data and analysis in this report based upon interviews and makes no representation or warranty, express or implied concerning the fairness, accuracy or completeness of the information and opinions contained herein.
Foreword

The day I stood elbow deep in garbage, donning plastic gloves and sorting types of waste, two things came to my mind: I have to send a picture of this to my Mom with the title “career highlights” and ... you really learn a lot about when people when you sort through their trash!

That latter insight made me realize that our “tale of three trash bins” was less a story about sustainability, (or waste reduction and diversion to recycle and compost goals), and more a story about systems thinking and behavioral change.

Never did I think I would learn so much, nor be so interested in rubbish! It’s not the actual trash of course, it’s what it represents that got me excited because I quickly realized that as a company, as individuals and as communities, we can make a positive impact toward solving big, global problems simply by understanding our systems better, which in this case meant being smarter about the products we choose and the way we dispose of them.

There are many stories within stories in this tale, so I asked the uniquely talented team of faculty and students at Presidio Graduate School to document our story from a systems thinking perspective, with the goal of sharing it with other Sustainability professionals or students. My hope is that by providing some real “hands on” (or “hands in,” if you will!) examples, we can provide a basis of learning - and some inspiration - for those looking to undertake business transformation initiatives for sustainable value.

Here are a few of our key insights:

1. People first
People are at the core of business systems, and change cannot happen without people. Systems are made up of interacting and interdependent components – and each person relates and interacts with non-living systems very differently. Focusing on people first as the primary “users” of our systems is vital to the success of the initiative at hand.

2. Listen to the music
“Culture” is the background music of a system; it’s one of the most vague yet prevalent words you hear when people explain the success (or failure) of any business initiative. It is hard to explain, to quantify, to assign merit or blame. It’s like background music – sometimes you hear it, sometimes you don’t – but it’s always there. It can be a distraction, making everything feel out of synch or overpowered, or it can bring people together in a harmonized and collaborative environment.

3. Tune in to feedback
Effective feedback systems are essential for the successful implementation of any initiative. Systems and people are dynamic and can change in response to feedback, so it’s important to allow for flexibility in a plan to incorporate changes along the way. Feedback mechanisms help us gain new insights, gather new ideas, and communicate a sense of possibility towards achieving our goal.

4. More than 20/20 vision
Framing a business initiative within the perspective of systems thinking means taking a holistic approach to change, analyzing not just the immediate department, area or process, but all of the dependencies and connections as well. This doesn’t mean changing everything – it means understanding what other systems are impacted by the proposed change and then defining a goal with a better chance of successful achievement.

5. Systems never rest
Just when you think you’ve discovered every last cog in the system, you will discover a new one. This could be a new group of employees who have not had the benefit of the original education, or a new compostable material that hasn’t been tested yet – or any unintended consequences that could hinder or improve progress. That means we have opportunities for continual improvement, and ultimately that equips us with new tools for future transformation initiatives.

Leilani Latimer reports to company CEO, Sam Gilliland. Her position entails setting the strategic direction for sustainability across the business, identifying emerging opportunities in the industry, and leading the implementation of Sabre’s global sustainability programs.

Positioning the company’s sustainability leader as a direct report to the CEO creates increased visibility and catalyzes needed support for successful initiatives.
Introduction

This case study focuses on the use of systems thinking\(^1\) throughout the planning, implementation, and analyses of diverting waste away from landfills and toward more recycling or composting. It documents the success of Sabre Holdings’ “Less-to-Landfill” initiative that began in April 2010 through its results in April 2011. The success of this initiative was made possible through ongoing analysis of the waste system and its feedback loops. These analyses instigated changes to the physical and human elements of the waste management system and the points of interconnection; all of which contributed to continuous improvement of the waste management system.

The initiative was not an insulated event but itself a part of a larger system. Its success was rooted in a corporate culture that valued sustainability, innovation and improvement.

Sabre Holdings

Sabre Holdings (Sabre) is a privately held company headquartered in Southlake, Texas. With more than 10,000 employees in 60 countries, the company is a technology leader in providing software to the travel industry through its four major businesses: Sabre Travel Network, Sabre Airline Solutions, Sabre Hospitality Solutions and Travelocity\(^2\).

Waste Diversion at Sabre

In early 2010, Sabre was successful with its sustainability initiatives in energy and water, but found that, when benchmarked against leading companies, its waste diversion average at its corporate headquarters lagged by 36%. In a collaborative effort, Sabre’s head of sustainability, the Jones Lang LaSalle (JLL) facility management team, the head of corporate real estate and the local Eco Team\(^3\) performed an evaluation to ascertain if this diversion away from landfills rate could be improved. As a result of the analysis, the team launched “Less-to-Landfill,” a cross-campus initiative to increase waste diversion. Originally, the team proposed a target of 60% waste diversion, but the

---

\(^1\) Systems-thinking considers the whole and the interactions of its elements.

\(^2\) For more information on Sabre, see Appendix A.

\(^3\) Eco Teams at Sabre include about 60 employees who volunteer their time to share ideas, plan and implement activities and programs at the global locations.
CEO knew they could do better and pushed for 80%. Sabre’s headquarters was challenged with the goal of increasing the existing 36% waste diversion to an annual 80% diversion rate, and to do it in just a year’s time.

Sabre’s Headquarters Waste System

In researching the existing waste diversion process, the team analyzed the waste management as a system (see Figure 1). Using this method provided insight into the high-impact leverage points that could be altered to reduce waste and increase diversion. Within the whole waste system, four subsystems were identified: (1) campus materials entry; (2) waste sorting and disposal; (3) compost processing; and (4) waste hauling. The subsystems are delineated in Figure 1 by the gray boundary boxes.

System Feedback Loops

In the parlance of systems theory and feedback control, the team reviewed the whole system. Once the systems were identified, feedback loops within these systems were examined. While the definition of the term “feedback loop” is technical, feedback loops can simply be understood as a mechanism that conveys information on the interactions between the parts of a system.

At Sabre, the whole waste system had four main feedback loops, which are illustrated in Figure 2. The team’s characterization of the feedback loops is described below and further details of the actions taken are subsequently described.

Materials Loop

The first loop (“materials loop”) was a part of the campus materials entry subsystem, and was the interconnection between the flow of materials entering the Sabre campus and the stock of on-campus waste. It was a reinforcing feedback loop that would increase the stock of waste if the feedback loop were left unaltered. The team focused on

---

4 For more information about company culture, CR and sustainability at Sabre, see Appendix C and D.
5 Leverage points = A place in the system where solutions can be applied to create change throughout the system.
6 For a detailed list of system components and subcomponents, see Appendix E.
7 Feedback loop = A link within a system that causes an output of a stock to eventually influence the input to that stock.
8 Reinforcing feedback loop = A process that continually feeds back upon itself to reinforce growth or collapse.
this feedback loop for the purpose of overall waste reduction. First, they made changes to this feedback loop to reduce waste that was landfill-bound. Then, they altered it further by decreasing the amount of materials entering the campus.
Figure 2: Waste System Feedback Loops
Infrastructure Loop
The second loop (“infrastructure loop”) was a part of the waste sorting and disposal subsystem, and was the interconnection between the flow of waste sorting and disposal by employees and the stock of waste bins. It was also a reinforcing loop, the stock of waste bins when left unaltered would increase the flow of improperly disposed of waste.

Waste Diversion Loop
The third loop (“waste diversion loop”) was also a part of the waste sorting and disposal subsystem, and was the interconnection between the flow of aggregate waste and the stock of waste, both properly and improperly sorted and disposed. The stock of improperly disposed waste is contained within the “Landfill waste” as it generally became landfill-bound. It was a balancing \(^9\) feedback loop with the purpose of stabilizing the stock of waste that was properly sorted and disposed of before it entered the waste and recycling hauling system or the compost processing system.

Composting Loop
The fourth feedback loop (“composting loop”) was a part of the compost processing system, and was the interconnection between the flow of compost processing and the stock of compost. It was also a balancing loop that served the purpose of processing all compost-bound waste through this system.

These four feedback loops served as the cornerstone of decision-making during the Less-to-Landfill initiative. The analysis process, rooted in feedback loops, enabled the team to iterate and continuously progress toward the waste diversion goal.

Less-to-Landfill Initiative
The Less-to-Landfill initiative kickoff event was symbolically set April 22, 2010, Earth Day. The team examined the materials loop for discrepancies that created barriers to appropriate disposal of waste. While the team knew that improvements could be made, they wanted to verify that the ambitious 80% waste diversion goal was achievable. Sabre headquarters had three streams of waste: waste bound for landfill, waste bound for recycling, and waste

\(^9\) Balancing feedback loop = A process that self-regulates to stabilize conditions at a given level.
bound for composting. The evening before Earth Day, the Eco Team retained fifteen garbage bags that were bound for landfill and inventoried their content. They sorted all fifteen bags and discovered that indeed only two actually contained waste that should have been landfill-bound. The waste that filled the other thirteen bags should have been diverted to recycling and compost.

The Eco Team realized that one of the primary discrepancies in the system was improper sorting and disposal of waste on campus and decided to address this by adding an education and communication component to the waste diversion loop. This included adding signage by waste bins and announcements running on campus monitors. The expectation was that providing employees with information about proper disposal of materials used on campus would minimize the landfill-bound waste stream.

**Decking out Main Street**

On the morning of April 22, 2010, employees at Sabre’s headquarters walked into work and found the garbage bags with the divertible waste – sorted and with signs marking where the waste should have been disposed – lining the main hall of the building. Known as “Main Street,” this hall was the main vein to offices, the cafeteria, the gym, and other campus areas. As the first act of creating awareness around waste diversion and proper sorting, the garbage bags were kept overnight as a symbol for the Less-to-Landfill initiative kickoff.

In addition to the garbage bag display, Main Street was lined with environmentally-themed booths to get employees in the spirit of Earth Day and excited about Less-to-Landfill. There was a “Guess Which Bin” game to teach correct waste sorting and disposal in a fun, interactive way and the CEO participated by encouraging employees to play the game.

The initiative was given a lot of visibility. The CEO made an announcement introducing the project as part of the company’s overarching environmental reduction and efficiency goals. The employees were also informed by communications posted across the campus.
The Three Bins Debate

Two months later, in mid-June, the Eco Team analyzed the waste diversion loop again and learned that there was no major change to the waste diversion rates. During the Earth Day “dumpster dive” analysis, the team had identified that the biggest culprit of improperly sorted waste was from the bins at employees’ individual workstations. Employees had two bins at their desks, one for landfill and one for recycling. Many employees who ate at their desks were accustomed to tossing food waste and take-away containers in the landfill bin. The team determined that in order to reach the 80% diversion goal, education and communication alone would not be enough. This discrepancy with the individual workstation bins had to be addressed.

The team had also determined that given the high percentage of compost waste as a percentage of diverted waste, there were not enough composting disposal bins, and that some of the compost bins at the break stations did not have openings large enough to accommodate the compostable “clamshell” take-out containers from the cafeteria.

Although not unique to Sabre, success depended on providing proportionate disposal opportunities to waste types, as well as changing the habit of many employees who were conditioned to dump potential recyclables and compostables into the landfill-bound waste stream. Success would require a change in infrastructure, providing employees the motivation and the means to properly dispose waste conveniently.

On July 10, a choice had to be made on how to change the infrastructure loop of the waste sorting and disposal system. The food waste at employees’ desks could be addressed in one of two ways. The first choice seemed obvious: place a third bin for composting at every workstation for the food waste. The second option was less conventional: take away the employees’ desk bins all together and replace them with centralized recycle, compost and landfill bins. Sabre headquarters had adopted a “Flexspace” model two years earlier that organized workstations into “neighborhoods”\[^{iii}\]. These centralized bins could simply be placed in convenient locations such as in the neighborhoods’ shared printer locations.

A financial tradeoff analysis was prepared to compare the two options. The centralized bins had a one-time cost of $20,293 which was higher than the one-time cost of $10,950 to add a third bin to all individual workstations. However, the bin liners and the housekeeping costs for the additional desk bin would add an additional annual cost of $49,000, while the centralized bins option resulted in a decrease in the current housekeeping labor costs, saving...

\[^{iii}\] Ongoing tracking and analysis of results generate visibility, uncover weak areas and identify opportunities for improvement - measurement and change are closely connected.
the company over $20,000 annually. The centralized bins option clearly presented the better financial return.

Although the financial choice was clear, there was concern that employees would react negatively to the change. Would it impact employee satisfaction and productivity? Would employees accept this new, less convenient system and change their behavior? However, after discovering that HSBC\(^{10}\) had implemented a similar approach successfully, the choice of centralized bins was adopted.

Knowing that change management would be an important part of successfully implementing the new centralized bins infrastructure, employees were engaged to usher in the change. “Trash Ambassadors” from the local Eco Team increased the education about waste diversion and posted additional signage that aided proper waste disposal. They created videos and held information sessions to share knowledge about the waste diversion program.

Additionally, infrastructure changes were made to break rooms, copy centers, and other shared areas to assist in waste diversion. The number of compost bins at the break stations was increased and the openings were enlarged to accommodate the compostable “clamshell” containers. A month later in August 2010, these collective efforts led to a rise in the waste diversion rate to 43%. While this was an improvement, they were still a long way from their goal.

**Digging deeper for leverage points**

On August 12, 2010, JLL revisited the waste diversion loop, now with the new centralized bins infrastructure. They conducted a comprehensive analysis of the trash received in all neighborhoods and break rooms from both buildings. In order to ensure they had a representative sample, they took the waste after the breakfast and lunch periods on a day when they knew more people were working from the office. The team again found a high percentage, 70%, of the waste in the landfill bags could have been recycled or composted\(^{iv}\). The biggest culprits this time were the landfill, compost and recycle bins from the break rooms. Plastic bottles with liquids, coffee grinds and filters, as well as wet paper towels, were incorrectly disposed.

From these insights, the team generated a number of suggestions for further improvements, which were reviewed

\(^{10}\) HSBC = Global financial organization headquartered in London.
with the head of Sustainability and the Eco Team leaders. The majority of the recommendations were further communication improvements: simplify the system by standardizing bin colors, bin positioning, and consistency in the signage; increase internal communications; and display a program goal “thermometer” in a visible place to track and display progress. One of the primary recommendations regarding the signage was to include actual items that came from the campus, not generic sample items. Since microwavable meals-from-home (such as Lean Cuisine, etc.) were one of the primary waste types that consistently ended up in the wrong bin, the team included components of the product packaging such as the external box and the internal tray on all of the signage, as well as yogurt containers, foil-lined milk and soup containers.

They also recommended improvements to the measurement system; both internally with the compost weight and externally with haul metrics from the waste management company. Finally, they recommended incentivizing employees through an awareness class that would earn wellness credits for the health programs.

Gateways to On-Campus Waste

Along with the waste sorting and disposal system, the team analyzed the campus materials entry system, or the goods and materials that came into Sabre’s offices. Figure 1, introduced earlier, shows the details of the inflow of materials onto the Sabre campus. The materials came from: (a) external food in external packaging from employees who brought their own lunches; (b) office supplies such as copy paper and batteries; (c) cafeteria and kitchen supplies, such as food, packaging, and compostable and washable food containers; (d) onsite vending machine food and packaging; (e) pizza boxes and other external food and packaging from food vendors; (f) bathroom supplies such as paper towels; and (g) break room supplies such as food, packaging, and coffee grounds and filters.

Using feedback information from the “On-campus waste” stock (see Figure 2), the team discovered ways to alter this system and its materials loop. As described below, they used the feedback to make changes to the incoming material stream, e.g., material reductions and substitutions. These changes helped increase the percent of potentially divertible waste that was actually diverted toward 100% and reduce the amount of true landfill-bound waste toward 0%.

Changes to the campus materials entry system required ongoing collaboration with their partners at JLL, the cafeteria caterers, Guggenheim, and the ABM Industries housekeeping staff; this partnership had successfully made
previous improvements at headquarters. As a team, the organizations recognized the power of systems thinking and feedback loops.

For example, in mid-2008, the decision was made to move from Styrofoam and plastics to compostable materials; hot and cold cups, clamshell containers and compostable napkins and cutlery. However, this change led to a rise in operating costs because compostable materials were more expensive. The partners managed this by encouraging employees to choose washable dishes, which reduced waste and helped offset the higher cost of the compostable boxes. The need to incent employees was recognized in this case as well, so the “I Care” card promotion was created. The “I Care” cards were punch cards linked to a discount program and were distributed to employees who purchased food at the cafeteria. The program incented employees to eat their lunch in the cafeteria and to bring their own coffee mugs to work. This was intended to encourage employees to take a break from their desks and motivate their choice of washable dishware and flatware over compostable ones. Additionally, changes to the type of food containers were also implemented. A variety of washable dishes were placed conveniently all over the cafeteria to increase use.

However, initially, a discrepancy in the feedback loop alerted the team that they had not fully prepared the infrastructure to make this practice work. The cafeteria offered a salad bar and other fresh foods that were sold by weight. The discrepancy was a setback at the cashier because they had not programmed the weight of all the different types of washable dishes into the food scale system. Therefore, when employees purchased food sold by weight on some of the washable dishware, the system often could not properly calculate the weight of food for payment. Upon this discovery, the weights of all washable dishes were entered into the scale in order to resolve this broken link in the system.

The group also made other changes to the materials entering the campus. Also in 2008, disposable beverage cups were replaced with compostable ones. The next year, in 2009, the Eco Team held an “Ugly Mug Contest,” which encouraged employees to bring in their old mismatched cups from home to be used in the office, thereby decreasing compostable cup use. That same year, bathroom towels were switched to compostable ones and sent to the compost bins. All of the material changes helped to increase waste diversion from landfill or reduced waste all together.
Compost Processing System

The Less-to-Landfill initiative provided an opportunity to increase utilization of the third system, the onsite compost processing system that was already well developed on the Sabre campus. This composting capacity had been installed as part of the campus’s original efforts to ensure a LEED certification. Compost from the campus was being processed and used for campus landscaping but the compost generating capacity of the headquarters complex had not been optimized.

Continued focus on this system and its composting loop surfaced a number of solvable problems. A major discovery from the August analysis revealed that the wax coating from the compostable cups was jamming the onsite pulper. This problem became linked to the fourth system, the waste hauling system. Since Sabre had the onsite composting system, it never needed to arrange compost-hauling services. Therefore, the immediate reaction to the jamming problem was to divert the cups away from the pulper and to landfill. Upon this discovery, JLL solved this issue by sourcing non-wax compostable cups.

Another composting system challenge was identified when it was discovered that the paper towels from the washrooms were partially sent to landfill. Although the paper towels were set aside for the compost bins, there were too many of them for the compost piles, which would result in an imbalance in the natural composting process because it would become too dry. Again, since there were no compost-hauling services for compostable materials, there was no other option but to send the extra paper towels to landfill. In developing a solution, the team evaluated whether compost hauling needed to be arranged with waste management. However, the team took a closer look at the system and realized that a change in the flow of the paper towels could solve the problem instead. The team reorganized the outflow of the paper towels to join the compost earlier in the process. It would be sent through the pulper along with the rest of the compost where the water already being used in the pulper process resolved the issue of dryness from too many paper towels.

Through ongoing performance monitoring and continuous improvement, the monthly waste diversion rate reached 75% by December 2010. In February 2011, it reached 83% and the team celebrated. By April 2011, exactly a year from their initial kickoff date, Sabre headquarters had reached their goal, an average annual waste diversion rate of 81%.
Summary of System Flow Changes
The Process Diagrams in Figure 1 (introduced earlier), and Figure 3 below illustrate the waste system before and after (respectively) all the changes were implemented during the course of the Less-to-Landfill initiative. In Figure 1, the pre-initiative diagram, there were five sources of landfill waste coming from individual workstations, copy centers, kitchen, bathrooms, and break rooms. In Figure 3, the post-initiative diagram, the landfill waste was reduced to four sources. The centralized bins replaced the individual workstation bins and the bathroom paper towel waste stream was converted from partially landfill-bound to completely compost-bound.

The waste diverted to compost and recycling increased by the end of the initiative. The centralized bins offered employees access to convenient compost bins, whereas employees had previously needed to walk farther to break rooms for composting. These changes doubled the compost waste stream sources from two to four. By adding recycling to the copy centers, the recycling waste stream sources increased from three to four. All of the changes to the materials, infrastructure and waste streams, along with increased education and communication, and collaboration with their partners enabled Sabre to successfully reach their waste diversion goal.

Maintaining High Performance
In June 2011, the diversion from landfill rate had dropped from the peak of 83% to 77%. This was attributed to the influx of new employees who had not been trained in the waste management procedures. In order to rebalance this feedback loop, the Eco Team offered education to new employees by giving campus tours every Tuesday as a part of New Employee Orientation. The team also communicated to new employees the values of Sabre company culture, including sustainability, health and wellness, and pride in the beautiful campus.

Centralized bins in neighborhoods

Integrating values and practices in the new employee onboarding process will preserve the impact of change management initiatives, further institutionalizing it within company
Figure 3: Post-Initiative Process Diagram
Figure 4: Summary of Changes to Feedback Loops

- Compostable cups without wax replaced compostable cups with wax that jammed up pulper.
- Bathroom paper towels moved earlier in compost processing to eliminate excess dryness.
- Information about appropriate waste sorting conveyed through signage, announcements, emails, videos, and sessions increased waste diversion.
- “I Care” card program increased use of washable dishes over compostable ones.
- Health and wellness credit granted to waste diversion workshop attendees increased knowledge about waste diversion.
- Disposable materials replaced with compostable & recyclable materials increased potential divertible waste amounts.
- Washable dishware placed in cafeteria encouraged choice of these over compostable dishware.
- Centralized bins in neighborhoods replaced individual workstation bins to increase proper sorting.
- Larger bins in break rooms replaced bins that did not accommodate size of disposed waste items to increase proper sorting.
The waste diversion and reduction efforts did not end with the Less-to-Landfill initiative. Sabre values continuous improvement and the team have identified more opportunities. JLL meets with Guggenheim regularly to discover additional ways to improve the campus materials entry system. For example, in the first quarter of 2012, the group added single napkin dispensers and replaced single-serve packets with bulk ketchup and mustard dispensers. These two initiatives reduced the volume of the initial waste stream. In a third initiative, they instated the practice of providing recyclable bags for coffee grounds in the break rooms in order to reduce the volume of the mixed waste stream. Guggenheim also offers many in-house item's such as fresh breads and potato chips, which results in less packaging material waste coming from the kitchen.

Education and communication were critical to their success. As such, the Eco Team continues to create and update signage regularly. Corporate Communications updates employees on the company’s sustainability initiatives. The CEO and other senior managers make regular announcements in emails and during town halls about successes and goals to encourage ongoing sustainability practices.

Waste Diversion and Reduction Results

At the end of 2011 Sabre reached an annual average of 80.3% waste diversion; with high months hitting over 85% and lows around 69%. The company sent 44 tons less waste to landfill in 2011 compared to 2010, and diverted waste (recycle and compost) increased by 122 tons, 61% versus 2010. About 55% of the total diverted waste was compost, which added to the cost savings because it reduced landfill-hauling fees, and instead was used for campus landscaping.

Conclusion

Through the application of a holistic, systems thinking approach, identification and use of feedback information sources, and tracking of progress to permit ongoing adjustment and re-adjustment, the sustainability management teams have systematically addressed virtually every factor affecting the waste stream. The Less-to-Landfill initiative was not only an example of success in reaching the goal of waste diversion but also in change management. The combinations of a top-down initiative with senior management support with bottom-up action through stakeholder and employee engagement, collaborative partnerships, ongoing education and communication, and dedication to continuous improvement are key components to the continued success of sustainability at Sabre.
APPENDICES

Appendix A: Sabre Corporate Overview

Our mission is clear – to connect people with the world’s greatest travel possibilities. As a world leader in the travel marketplace, Sabre Holdings merchandises and retails travel products and provides distribution and technology solutions for the travel industry.

From building the first computer reservations system in the 1960s, to blazing the trail for online travel in the 1990s, to delivering the sophisticated, cutting-edge travel solutions of today, Sabre Holdings has made innovation its business.

History
The Sabre Computer Reservation System (CRS) or GDS was developed in the 1950s through a business venture with American Airlines and IBM. The Semi-Automated Business Research Environment (SABRE) system electronically linked airline passengers’ names with seat reservations. The system was installed in the first travel agency in 1960.

Sabre Holdings became a wholly owned subsidiary of AMR Corporation in July 1996. In October of that same year, Sabre Holdings completed a successful initial public offering of 17.8 percent of the company. On March 15, 2000, Sabre Holdings became an independent company owned by Sabre Holdings shareholders. AMR Corporation distributed its majority ownership stake in Sabre to AMR - now Sabre - shareholders. In March 2007, Sabre Holdings was purchased by private equity firms Silver Lake Partners and TPG.

Sabre Today
Headquartered in Southlake, Texas, in the Dallas-Fort Worth Metroplex, Sabre Holdings has more than 10,000 employees in 60 countries. Full year 2011 revenues totaled $3 billion. Sabre Holdings encompasses four businesses, each focused on service to their respective customers.

• Sabre Travel Network offers the industry’s leading GDS and provides a broad range of products and services that enhance operations and traveler services for 198,000 agencies. The Sabre Red total travel solution for agencies drives customer loyalty and powers business performance
• Sabre Airline Solutions is the world’s leading provider of integrated solutions and services for airlines and airports. Sabre Airline Solutions helps companies generate more revenue by optimizing performance in 14 key areas of airline operations. More than 300 leading carriers and over 100 airports use Sabre Airline Solutions to better market their schedules, sell their products, serve their customers and operate efficiently.

• Sabre Hospitality Solutions leverages the strength and breadth of Sabre Holding’s technology, marketing and distribution tools to bring hotel suppliers a global end-to-end solution.

• Travelocity is a leading provider of consumer-direct travel services for the leisure and business traveler. It markets and distributes travel-related products and services directly to individuals through Travelocity and its various brand Web sites and contact centers, and Web sites owned by its supplier and distribution partners.

• Major Sabre Holdings brands include: cubeless, GetThere, Travelocity Business, Synxis, Trams Back Office, ClientBase, IgoUgo, World Choice Travel, Zuji, lastminute.com and holidayautos.com.

Leading Technology
Sabre invests hundreds of millions of dollars annually in our systems to stay ahead of the ever-increasing complexity of the travel business, and Sabre has been recognized as one of the top 100 most innovative users of technology. Sabre solutions run on equipment less than three years old and we run 8,000 open system servers. Sabre systems process 60,000 transactions per second at peak and 750 million XML, Web services and API transactions daily (putting us fourth in volume behind Google, Facebook and Twitter).

Appendix B: Company Culture, Corporate Responsibility and Sustainability at Sabre
Sabre has a longstanding “culture of caring.” There is ongoing communications and activity around volunteering, philanthropic efforts and employee health and wellness. Sabre employees have been engaged with the communities where they live and work through the annual Global Give Together fundraising campaign and Give Time Together volunteer campaign. Travelocity, Sabre’s consumer-facing brand, also hosts Travelocity Travel for Good™, a program...
combining green travel with voluntourism efforts. Health and wellness are incorporated into corporate culture through robust programs that include an onsite gym and chiropractor, and healthy living programs such as smoking cessation and weight reduction.

Sabre’s global offices garner recognition from the Great Place to Work Institute.

In late 2007, Sabre recognized the need to pull its sustainability efforts together across its four brands to build a more robust cross-enterprise program. A coordinated approach allowed the company to more successfully integrate sustainability throughout its business, and drive greater value to its key stakeholders.

While Sabre had been proactive in improving efficiency both internally and at the customer interface, the complexity and cross-functional nature of sustainability issues required a focused whole systems approach with guaranteed visibility and support of the company’s top management. Within this new centralized management structure, sustainability initiatives at Sabre could be developed in collaboration with business unit leaders across the company under the core assumption that these initiatives could bring significant business value to the enterprise.

Integrating sustainability within the business has created an exciting set of opportunities for Sabre. Much momentum has been generated in thinking about how sustainability could be incorporated into helping customers meet their goals, including working closely with the product development and marketing teams on environmental impact reductions, community engagement, or customer solutions uses multi-stakeholder participation to drive innovation, which is mindful of impacts on the environment and society.

The importance of sustainability is also seen in the support from senior management. While past Sabre CEOs were well-connected to its culture of caring, the current CEO, Sam Gilliland, is a visible supporter of sustainability at Sabre. He is also an active participant in industry initiatives. He is the vice chair of the Economic Sustainability Committee at the U.S. Travel and Tourism Advisory Board to the Department of Commerce, was appointed to the President’s Management Advisory Board by U.S. President Barack Obama, and is a member of the Energy Security Leadership Council. This council advocates for expanded US domestic energy production, while preserving strong environmental protections to make the US’s transportation system more energy efficient.
Environmental sustainability is highly visible at the Sabre headquarters campus. A place of pride for Sabre and its employees, the company owns a 154-acre campus on which there are two buildings totaling 470,000 square feet. The buildings are LEED\textsuperscript{11}-certified Silver and the campus showcases native grasses, wildflowers, and wetlands, which were built during construction and help to conserve water and minimize consumption of energy\textsuperscript{11}. Many other energy, water and resource conservation practices were employed during the building construction phase and have continued in ongoing maintenance of the facility.

**Appendix C: Sabre Holdings Corporate Responsibility Policy**

Sabre Holdings’ Corporate Responsibility Policy is defined as follows:

**Our Corporate Responsibility Mission**

By delivering innovative travel technology, we can help make the world a better place. We foster a socially responsible culture, provide environmentally sustainable solutions, and enrich people’s travel experiences, now and for generations to come.

**Our Corporate Responsibility Commitment**

Being a leader brings great responsibilities to innovate and advocate for a healthy and sustainable industry, to support the communities in which we live and do business, and to take care of our people and our planet. Sabre is committed to these responsibilities; it’s part of our culture – it’s what makes us who we are. We call these commitments, “Better travel, better world.”

Sabre Holdings is committed to providing our customers with products and services that help them promote responsible and sustainable travel; advocating for sustainable business practices in travel and tourism; making a positive impact on our people and the communities we touch; and minimizing the environmental impact of our global business operations.

**Corporate Responsibility Policy**

\textsuperscript{11} Leadership in Energy and Environmental Design
Corporate Responsibility is an integral part of our long-term plans to deliver ongoing value to our stakeholders. It is our policy to:

- Comply fully with the letter and spirit of all applicable social and environmental laws and regulations;
- Drive environmental efficiencies across our business;
- Manage a global procurement policy to ensure products and services purchased or contracted for will conform to the goals of our company’s Corporate Responsibility Policy and, where feasible, to purchase environmentally-preferable products and services that meet the company’s needs;
- Advocate for responsible and sustainable travel industry standards and for legislative and regulatory policies in travel that promote environmental and energy efficiencies;
- Uphold human rights policies and processes regarding workplace conditions and standards of conduct, equal opportunity in employment, and access for persons with special needs;
- Support and advocate for industry policies and practices that will end human trafficking and exploitation of children;
- Adhere to existing policies and processes in regards to ethical business practices, customer privacy and responsible marketing;
- Support local communities through extensive employee volunteer programs, economic contributions and local partnerships;
- Conduct regular executive governance reviews of all social and environmental initiatives and impacts to our business; and
- Strive for continual improvement and leadership in social and environmental performance.

Initiatives that Support our Corporate Responsibility Commitment

Sabre strives for continual improvement and leadership in social and environmental performance through initiatives such as:

- Reduce the environmental impact of our global business operations:
  - Energy, carbon, and water reduction goals in our largest global facilities
  - Data center consolidation, energy reduction, and virtualization plans
  - Waste reduction initiatives
  - Vendor scorecard and global procurement policy procedures
• Provide opportunities for our employees to be engaged with social and environmental initiatives that support our local communities and our business:
  o Education and awareness programs on applicable social and environmental requirements, the importance of corporate responsibility leadership to achieving our vision, and accountability for the initiatives that support our commitment
  o Global employee engagement teams that support environmental efficiency goals and connect with local community partners
  o Global annual giving campaign that provides support for local non-profit organizations through a managed process that typically includes a corporate match
  o Global, year-round volunteer programs for all employees to volunteer in their local community for company-sponsored activities
  o Disaster relief contributions involving employee participation
  o Ethics and data privacy training
• Work across the industry to promote responsible and sustainable business practices in travel:
  o Regularly engage our customers and stakeholders on social and environmental impact opportunities and cultivate partnerships to develop ongoing opportunities
  o Foster and inspire the development of innovative solutions for our customers in order to assist them in managing and meeting their sustainability goals
  o Advance and support global and local industry association engagement
  o Include economic, social, and environmental sustainability in our government advocacy initiatives

Corporate Responsibility Governance
• Sabre Holdings conducts a minimum of two annual Corporate Responsibility reviews with the Executive Steering Committee, which is comprised of: Chief Executive Officer, Sabre Holdings; President, Sabre Holdings; Chief Financial Officer, Sabre Holdings; Chief Information Officer, Sabre Holdings; Executive Vice President Human Resources, Sabre Holdings; Executive Vice President, General Counsel & Corporate Secretary, Sabre Holdings; President, Sabre Airline Solutions; President, Sabre Travel Network; President, Travelocity; Controller, Sabre Holdings; and Vice President Corporate Communication, Sabre Holdings.
• The role of the Executive Steering Committee is to assess risks and opportunities on an ongoing basis at both enterprise and business unit levels, and approve strategies and policies proposed by the company’s Director
of Global Sustainability, Director of Global Corporate Responsibility, and the Corporate Responsibility Council.

- The role of the Corporate Responsibility Council is to develop strategies specific to the company's operating context as well as scenarios for the future, assign accountability for initiatives within the relevant corporate functions (procurement, corporate real estate, legal, etc.), establish measurable goals, ensure overarching alignment with the business objectives of all business units of the company, and ultimately manage successful execution of the Corporate Responsibility commitments.

### Appendix D: List of Waste Management System Components and Subcomponents

<table>
<thead>
<tr>
<th>System Components</th>
<th>Subcomponents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical elements</td>
<td>• Physical spaces&lt;br&gt;• Cashier machines&lt;br&gt;• Disposal bins&lt;br&gt;• Food&lt;br&gt;• Packaging&lt;br&gt;• Food&lt;br&gt;• Washable food containers&lt;br&gt;• Compostable food containers</td>
</tr>
<tr>
<td>Human elements</td>
<td>• Sabre employees&lt;br&gt;• Senior management&lt;br&gt;• Eco team members&lt;br&gt;• Corporate real-estate members&lt;br&gt;• Jones Lang LaSalle team members&lt;br&gt;• Guggenheim team members&lt;br&gt;• ABM team members&lt;br&gt;• Human behavior/attitude</td>
</tr>
<tr>
<td>Interconnections</td>
<td>• Communication&lt;br&gt;• Signage&lt;br&gt;• Partnerships</td>
</tr>
<tr>
<td>Stocks</td>
<td>• Campus compost&lt;br&gt;  o Break room compost&lt;br&gt;  o Cafeteria compost</td>
</tr>
</tbody>
</table>
Figure 5: Sabre Headquarters Waste System Components
Endnotes


6 Sabre Holdings, “2012 Sabre Holdings Campus Tour.”