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Simple Things That Could Save Your Institution

Catherine Lewis, Xavier University of Louisiana



In August 2006 EDUCAUSE brought together a group of thought leaders from higher education and the private sector to explore and share effective strategies and behaviors on the important topic of business continuity (BC) in higher education. One of these leaders is Catherine Lewis, vice president, Office of Technology Administration, at Xavier University of Louisiana. Lewis served on an expert panel chaired by Tom Richey, Microsoft's executive director of homeland security, on the topic of campus perspectives on BC.

Lewis spoke from a unique and highly informed position at this summit. She is the information technology administrator who led New Orleans-based Xavier University through the August 2005 disaster of Hurricane Katrina and helped restore academic continuity for the institution. The story Lewis told was enlightening and inspirational in many ways—perhaps most importantly because it was not “just” another story about the catastrophic impact of the storm on human life, physical property, fiscal viability, technological sustainability, academic continuity, and nearly insurmountable challenges (as if that weren't enough!). Rather, it was the story of simple things that made the greatest contribution to the institution's ability to restore academic programs and business processes under nearly unimaginable circumstances.

Figure 1. A view of Washington Avenue, New Orleans, in front of the Xavier University Administration Building



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ECAR is grateful for the opportunity to interview Lewis, who is willing to share her perspective and insights in the form of this research bulletin. Prior to assuming her role at Xavier, Lewis served as vice president for Integrated Technology Services for IBM and was an IBM-loaned executive at Spelman College in Atlanta. In her role with IBM, she was responsible for assisting customers in developing and implementing disaster recovery and BC issues. Hurricane Katrina put her research findings and professional experience to the test—empirically, intensively, and immediately.

For purposes of the summit, as well as for this bulletin, *business continuity* is defined as *the institution's ability to maintain or restore its administrative and academic services when some circumstance disrupts normal operations*. BC encompasses disaster recovery—the activities that restore the institution to an acceptable condition after suffering a disaster—and it also includes activities such as risk and impact assessment, prioritization of business processes, and restoring operations to a “new normal” after an event. The core of the concept is a collaborative and integrated approach in which every department understands and prepares for the role it will play in keeping the institution functional in a crisis and viable in the long run.

Highlights of Simple Things That Could Save Your Institution

What happened to New Orleans represents the greatest disaster this country has ever had. That we were able to come back in such a short period of time is a credit to the faith, commitment, and passion of our staff and faculty, who put aside their personal losses and problems to make this miracle happen.

—Dr. Norman C. Francis, president, Xavier University of Louisiana

ECAR: *We understand that your background in BC work began long before you arrived at Xavier University. Please tell us about the work you did in this field before coming to Xavier.*

Catherine Lewis: Prior to arriving at Xavier in March 2005, I was a vice president in IBM Global Services/Southern Region. I was responsible for assisting IBM customers in nine states (Alabama, Florida, Georgia, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia) and the District of Columbia with infrastructure solutions. This responsibility included disaster recovery and BC solutions. In this position, I had the opportunity to work with many customers who were concerned about disruptions to their businesses related to hurricanes and tornadoes. The analysis of what is the best solution for each customer starts with a risk assessment. I worked with customers who decided that a hosted solution best met their needs. Others felt that a co-location solution was best. Still others felt that secure back-up tapes would suffice until they were able to restore operations at their primary site.

Hosted solutions usually mean that in the event that the primary work location is unavailable, an institution is able to recover their critical information technology [IT] systems at a predetermined location. Co-location solutions mean that a predetermined location is always running critical applications concurrently along with the primary location. In a hosted solution, backup tapes or electronic uploads are used to start up critical applications. Hence, there is a delay in how quickly critical IT applications can be available. In a co-location solution critical applications can be made available almost immediately in the event that the primary location is unavailable. Of course, there are a number of factors that go into deciding which solution is best for a particular customer, including availability of skilled people and cost of the solution. Whatever the choice, the

final decision of which solution is best is always driven by a thorough understanding of the risk assessment.

ECAR: *Tell us about your role at Xavier. What is included in your portfolio, and what attracted you to this opportunity?*

Lewis: When I arrived at Xavier, little did I expect that my IBM expertise in disaster recovery and BC would be put to use so early. In fact, I often joke with colleagues that if Dr. Francis had said that “if you take this job at Xavier, in August you will have the adventure of your life,” I am sure I would have said “no thanks.” And yet, looking back, I believe that I was exactly where I should have been in August 2005. In March, I laid out some very aggressive goals for what I wanted to accomplish at the university. High on my list of priorities was upgrading the data center hardware and software, improving network security, implementing an electronic imaging system, and implementing a pervasive wireless solution across the campus. After a long career in corporate America, I was looking forward to working in a historically Black university. It was an opportunity to give back to a community that is near and dear to my heart. And when Xavier, which has a rich history of being the only Black and Catholic university in the United States, offered me the opportunity to become its chief technology officer, I was delighted to do so.

ECAR: *When did you begin work at Xavier University, and what were some of your early realizations and major accomplishments in your first few months there?*

Lewis: I started work at Xavier on March 1, 2005. Within a short period of time, I quickly realized that we needed to document our data center procedures. Like most higher education institutions that I am familiar with, IT staffs tend to be small. Hence, it is critical to have good documentation. So, one of our first tasks was to document data center procedures. We also tested the procedures several times between March and August. This may seem like a small and insignificant task. It is not. The fact that we had documented our procedures and tested them several times pre-Katrina was quite beneficial when, post-Katrina, we had to bring our IT systems up in an off-site location with much less than a full staff. When I arrived in New Orleans, my colleagues took great delight in telling me that New Orleans is below sea-level and would “fill up like a bowl” in the event of a major disaster. My prior training had taught me that in the event of a disaster, having reliable means of communications could be a major advantage. So by June 1, the start of hurricane season, we had put in place an emergency Web site hosted on the West Coast, as well as a toll-free phone number. As a result of this, Xavier was never out of communications during and in the immediate aftermath of Hurricane Katrina. We had also conducted a campaign on campus to alert faculty, staff, and students about the emergency site and toll-free number. The emergency Web site and the toll-free number experienced significant usage. Within days of Katrina hitting the Gulf, we needed to know where faculty, staff, and students were. We knew that they were no longer in New Orleans. Using our emergency site, we were able to create online registries for faculty, staff, and students.

ECAR: *Briefly describe what happened in New Orleans on Monday, August 29, 2005, and what the impact was on Xavier University.*

Lewis: On Saturday, August 27, at 2:00 p.m., President Francis held the final meeting of the University Hurricane Emergency Preparedness Team. My team shut down the data center. We activated the emergency Web site and updated the message on the toll-free number. Upon leaving the campus, my server manager took a current copy of the backup tapes “just in case they would be needed.” However, none of us seriously thought we’d need the tapes. On Sunday morning, August 28, at approximately 7:00 a.m., I drove to Atlanta, Georgia. It was a beautiful day and the traffic headed east out of New Orleans was nearly nonexistent. However, the weather report was predicting that New Orleans would be hit hard early Monday morning. I was up early on Monday morning, turned on the news as most of us did, and breathed a sigh of relief when I heard the mayor of New Orleans and the governor of Louisiana declare that “New Orleans dodged a bullet.” By mid-day, there were reports that water was beginning to rise in the city, and by evening we knew that the worst was yet to come. Xavier is unique in that it is famous for the green roofs on campus buildings. As the news stations showed aerial shots of the city, I was looking for the green roofs. And as the news continued to report on the rising water, I knew that the campus had to be affected and that the campus would not be opening on Wednesday.

Figure 2. University police lost all four squad cars to the floodwaters of Hurricane Katrina. This photo shows the abundance of gasoline in the water.



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ECAR: *What are the best things a college or university can do to position themselves for long-term sustainability in the face of a disruption?*

Lewis: First and foremost for me, in order to prepare for long-term sustainability, colleges and universities must have a well-thought-out communications plan. In the midst of an emergency, you cannot depend on the local news media to get your story out. During an emergency, people are eager for information. They will get information in whatever way they can—from television, radio, newspaper, or by word of mouth. Having valid ways to get your institution’s message out can really serve an institution well, especially at a time when miscommunications can easily happen. I must admit that Xavier, like the rest of New Orleans and the rest of the nation, did not expect the

magnitude of Katrina. And at the time that Katrina struck the Gulf Coast, Xavier's communications plan was not as developed as we would have liked. Yet, the foresight of a Web site and toll-free number served the university well.

The second thing that colleges and university should do is identify and document key processes. There is a tendency to focus only on IT processes. Critical processes must include, among other things, getting students to safety, especially those who cannot leave campus on their own in the event of a campus closure.

The third thing that must happen is that there must be a plan to recover the academic business in the event of a disruption. There are basically five steps in developing an effective business recovery plan: *identify* critical business processes, *develop* a plan to address how critical processes will be restored in the event of a disruption, *implement* the plan, *test* the plan on a frequent basis, and *update* the plan as the institution's processes change.

ECAR: *Who serves on the Xavier University emergency response team, and what is the charge of that team?*

Lewis: The Xavier Hurricane Emergency Preparedness Team (HEPT) is made up of:

- senior vice president of administration (chair)
- vice president of academic affairs
- vice president of facilities management and planning
- vice president of student services
- vice president of technology administration
- chief of university police
- associate vice president of student services
- associate vice president of university and media relations
- director of resident life

HEPT is responsible for developing an Emergency Preparedness Plan and implementing it during all five stages of the plan: Pre-season Preparations, Threat Assessment, Class Cancellation, University Closure, and Aftermath Stages. This team was in place prior to Katrina. In fact, the team met whenever there was a disturbance in the Gulf. In July 2005, another hurricane caused a two-day campus closure. In the aftermath of Katrina, we recognized the importance and necessity of documenting the campus plan and making that plan available not only to faculty, staff, and students but also to parents. The campus plan was posted on the university's Web site in May 2006. In the future, the plan will be reviewed and updated each spring prior to the start of hurricane season.

ECAR: *For purposes of planning, it's probably fair to say that if institutions prepare for academic resilience and BC in the face of a long-term closure of an entire campus, that planning will also cover lesser catastrophes. What kinds of things would trigger a campus closure? What should be done to prepare for a campus closure?*

Lewis: New Orleans is impacted each year by hurricane season. No matter what part of the country you're located in, there is always the possibility of a campus closure due to a disaster. For example, it could be a fire, a flood, a massive snowstorm, a tornado, a hazardous chemical spill, an earthquake, a 9/11-type attack, or a pandemic such as bird flu outbreak.

ECAR: *What kinds of activities are critical to institutional sustainability while the campus is closed?*

Lewis: When the campus is closed, the institution must have good communications with all constituents of the institution. If you want faculty, staff, and students to return, you must keep them abreast of what is happening to bring the campus back to "normal." In the first week after Katrina, the emergency Web site was updated up to three times a day. The institution must quickly get critical applications back online. Such applications include e-mail, payroll, HR benefits, course management system, and donor applications. There must be clarity about campus reopening plans. Remember, students are trying to stay on track for graduation. Without knowing when the campus will open, students may make the decision to attend other institutions. Faculty and staff are trying to make decisions that involve the physical and financial security of their families.

ECAR: *What should happen when the campus reopens?*

Lewis: When the campus reopens, it must be determined whether or not the campus is stable enough to support the return of key applications and key processes to campus. For example, when Xavier reopened in January 2006, it was decided that we would continue to run our enterprise resource planning (ERP) software application at the hosted location. We made this decision because the city of New Orleans was one big construction site and the power situation was iffy at best. Having our ERP down at a time when we were facing a very aggressive academic schedule would have been quite disruptive. We also continued to run our distance learning tool off campus. All other applications were brought back to campus in January. The ERP and the distance learning applications were brought back to campus in April, at the end of the spring semester. I would also strongly recommend to my colleagues at other colleges and universities that they think through their network security strategy. Remember, there will be faculty, staff, and students returning to campus with computers that may contain viruses. It would have been another disaster on our campus if a virus had brought our system down. So we did two things. First, we made sure that antivirus software would be pushed down to every desktop as the computer came back online. For laptops, we asked that all laptops be brought to the Information Technology Center to be checked for viruses before logging in to the network.

ECAR: *What are the key issues specifically for information technology organizations? What are your recommendations for carrying out these responsibilities?*

Lewis: Key issues that IT organizations must address are as follows:

- Maintain multiple means of communications: emergency Web site, toll-free telephone number, mobile devices (cell phones, PDAs, BlackBerrys), e-mail.
- Articulate procedures for getting computers into the hands of displaced administrators who will be needed to implement plans for reopening the campus.
- Develop and test a plan to restore key applications in the event of a campus closure.

What It Means to Higher Education

ECAR: *What would you consider to be the major lessons for higher education with respect to the role IT plays in long-term institutional viability?*

Lewis: One of the major lessons learned is that *expectations must be managed*. In the midst of a disaster, everyone wants everything to return to “normal” immediately. This is not possible. In the absence of official and frequent communications from the institution, incorrect information can take on a life of its own. Also, the senior administrators may assume that IT systems can be recovered more quickly than is reasonable. Appropriately managing expectations assumes good *communications*. In both my previous experiences with IBM, where I dealt with institutions of higher learning as customers, and in my time at Xavier, it is clear that *planning* for a major business disruption is not always a top priority for colleges and universities. In many cases, if there is any thought at all to academic disruption it is usually assumed that the IT department will be responsible for recovery. It is true that IT is a significant part of recovery in the event of disruption. However, it is far from the whole story. It is so easy to feel that “it won’t happen here.” Katrina was a wake-up call for our campus in that it can and indeed did happen here. We also know that BC must be an ongoing process. Creating a plan is the first step. Failure to *test the plan* before a disaster hits can lead to a second disaster. Having a plan that has not been tested can lead to a false sense of security, and if a disaster hits, the result could be the same as not having a plan at all. One of the reasons that BC planning does not always get much attention is that there is a general feeling that BC is costly. It is correct that BC planning can add expense to an already tight budget. When you weigh the risk of having to close the campus, however, it may be worthwhile addressing academic disruption issues long before they occur.

One area that has no cost associated with it but can pay big dividends in a disaster is cultivating a *positive business relationship with key vendors and other higher education institutions*. In Xavier’s case, when Katrina hit, faculty and staff were in many parts of the nation. Xavier University of Ohio provided our institution with server and network capability to get our Web site and e-mail operational in record time. Our Fiscal Department was able to set up shop at Grambling State University, where Grambling provided office space, computers, printers, faxes, and in some cases housing. Several of our hardware vendors provided us with computers that we were able to ship around the country to administrative staff, as we worked to get the campus ready for opening in

January 2006. Another area that does not cost money and can have a positive payoff is *documenting and testing IT procedures* such as shut-down and start-up procedures for the data center. Treat this documentation just as you would back-up tapes. In the event of a disaster, many of your personnel may not be available. It's amazing what can be accomplished with a current copy of back-up tapes, complete documentation, and good relationships with vendors who can quickly assist with finding equipment to host critical applications. After a disaster there is a lot of discussion about IT systems: how quickly can the system get back up; when is e-mail going to be available, and so forth. Realistically, though, the first and most important consideration in planning for a disaster and implementing a disaster plan is the *people element*. Disaster planning must consider how the institution will reconnect with its community, including faculty, staff, and students. In the immediate aftermath of Katrina we did not have access to our HR systems. Even if we had this access, it would not have been very helpful because the entire city of New Orleans had been evacuated. We were able to use our emergency Web site and create online registries for faculty and staff, and later for students. For faculty and staff we mostly needed to know where they were located and how to reach them on a land phone line. For our students, we needed to know if they were at another institution, what classes they were taking, whether they would be returning to Xavier in January, whether they would need housing, and similar pragmatic issues.

ECAR: *How can planning for infrastructure, systems, and services that include BC early in the process change the way we approach and fund these? What business process design principles would build BC principles into institutional operations?*

Lewis: Katrina taught our university—and I am sure many institutions—that BC must be an ongoing part of the campus planning process. There is a deeper appreciation of the importance of identifying key processes and documenting such processes. Key processes touch all aspects of the campus. For example, how do you get timely information to highly scattered faculty and staff about health care coverage when they cannot get to their family doctor? How do you get money to employees who had electronic deposit and their banks are closed or destroyed? How do you continue to recruit students when your campus is closed at the height of the recruiting season?

IT departments must think about building in redundancy in server capacity, as well as in the network. Redundancy can be expensive. However, if this is considered at the time that other IT changes/upgrades are being made, it may be quite cost-effective. When identifying key processes, think about the sustainability of your institution as a whole, not just restoring IT systems. Consider security aspects of your key assets in the event that you are dislodged from your primary location.

ECAR: *How do we test readiness for BC? What are the cost/benefits of doing risk assessment? How can the conclusions of risk/impact assessments be incorporated into other day-to-day operations of the institution? How should this impact the business planning cycle? Audit requirements? Performance reviews? Organizational reporting structure? How do we know we're spending enough on BC?*

Lewis: Testing BC plans can be problematic. For universities it is always difficult to do anything that could be disruptive in the midst of a semester. Trying to test the entire BC

plan during the summer may not be adequate in that most campuses have a much smaller population during the summer. It may be that the best approach is to test the plan in stages. By making BC planning part of the annual audit process, it will bring attention to this area and will ensure that it will not fall off the priority list for your institution. Risk management, which is a normal part of the audit process, should be mandatory for all departments, academic and administrative. Risk assessment should be a yearly occurrence. There should be strong accountability in addressing risk assessment items.

ECAR: *How did the following perform relative to each other: plan, institutional leadership, unit leadership, and staff? What were the most important lessons learned from this incident?*

Lewis: The senior team did not begin meeting daily until Friday, August 26. Prior to that, Katrina's behavior was erratic. The storm had been downgraded in intensity, and there were forecasts that it would not hit New Orleans. On Friday all of that changed when the forecast began to indicate a direct hit to New Orleans. President Francis called an emergency meeting of the senior staff on Friday. He made the decision to close the campus for two days. The senior team met again on Friday afternoon primarily to be sure that the students and staff who were to remain on campus would have ample food supply. An e-mail broadcast was sent to all faculty, staff, and students that the campus would be closed for two days and that individuals should monitor the emergency Web site and the toll-free number for campus updates. On Saturday afternoon the senior team met for the final time. We went through a checklist of readiness, mainly focused on safety issues for students and staff. We updated and distributed alternate e-mail and cell phone contact information. My team took the data center offline, and we all headed to higher and safer ground.

The fact that we did not have a documented plan pre-Katrina has been rectified. Our leadership performed well because we had been performing as an Emergency Preparedness Team pre-Katrina, albeit without a documented plan. The most important lessons we learned are that a disaster can happen; we must be ready with a well-thought-out, well-documented, well-tested plan; we have to allow for flexibility because no plan can anticipate of all the possibilities; and the emergency response team must be empowered to make decisions as necessary.

Key Questions to Ask

- What protocols does our institution have in place for declaring an emergency and for declaring the end of an emergency?
- In an emergency, how will first responders and institutional leaders communicate with each other? What back-up plans and which systems will be used if primary systems or meeting locations are unavailable?
- What are the information technology practices that are most critical for ensuring that we can communicate with our students and their families, our faculty, our

staff members, and local, state, and federal agencies? How frequently are these practices tested and updated?

- What would happen if the systems that control security and alarms in residence halls, classroom buildings, and administrative facilities were compromised?
- What are the consequences if environmental circumstances make access to campus facilities impossible?
- What would result from the complete or partial destruction of key buildings and the records they contain?
- How will the institution operate in the face of long-term inaccessibility to communication systems?

Where to Learn More

- Lewis, C. (2005). *Office of Technology Administration hurricane preparedness process handbook*. Xavier University of Louisiana. Retrieved January 11, 2007, from <http://www.xula.edu/temp/emergency/Web%20OTA%20Emergency%20Plan.pdf>
- McMillan, M. A., & Sitko, T. D. (2003). Managing university business continuity. In P. A. McClure (Ed.), *Organizing and managing information resources on your campus* (pp. 113–127). San Francisco: Jossey-Bass. Available from <http://www.educause.edu/LibraryDetailPage/666?ID=PUB7007>
- Search on the term “disaster recovery” to retrieve resources from the EDUCAUSE Resource Center, <<http://www.educause.edu/search/>>.
- *Disaster Recovery Journal*, <<http://www.drj.com/>>.

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