Disaster Recovery and Business Continuity Planning
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1) Executive Overview

Key Observations

Institutions maintain institution-wide disaster recovery and business continuity (DR/BC) plans, but supplement these plans with department-level DR/BC plans. Institution-wide DR/BC plans prioritize securing human life and encapsulate department-level plans. Central offices of emergency management offer workshops, trainings, and DR/BC plan templates to staff who reside within departments and create department-level DR/BC plans. In the event of an emergency, the department-level DR/BC plan is enacted first. However, emergency managers enact institution-wide DR/BC plan when emergencies escalate and impact several departments; institution-wide plans supersede department-level plans. Pandemic events are the most likely adverse events that enact the institution-wide DR/BC.

Administrators develop DR/BC plans in response to accreditation and state funding requirements. External consultants encourage finance and IT units to develop DR/BC plans due to the units’ integral role in institution operations. Contacts predict that the US Department of Education will soon require academic institutions to be National Incident Management System (NIMS) compliant in the next two years to access federal funding. To become NIMS compliant, institutions must file emergency response plans and emergency management organizational charts with local authorities.

Institutions contract with third-party software vendors to consolidate, expand, and integrate DR/BC planning across the institution. Institutions contract with either SunGard or the Kuali Foundation. The Kuali Foundation’s Kuali Ready tool accommodates higher education infrastructures and helps administrators create department-level business continuity plans. One profiled institution developed their own software due to the high cost of third-party products.

Emergency management staff participate in risk assessments and serve on standing risk management committees, which provide input during institution-wide strategic planning. Contacts indicate that institution-wide DR/BC programs do not typically account for strategic sourcing and procurement because procurement typically occurs at the department-level. Rather, department-level DR/BC plans account for strategic sourcing and procurement.

Quarterly tabletop exercises allow DR/BC programs to practice emergency preparedness, integrate DR/BC plans with local authorities, and evaluate their program management. Contacts recommend enacting one full scale operational exercise, and three theoretical simulations. Program managers include local authorities in the exercises to ensure fluid communication between both parties and require representatives from operational divisions (e.g., facilities, IT) to attend. Tabletop exercises help administrators evaluate how well the institution-wide DR/BC plan works and alter it accordingly.
2) DR/BC Program Development and Operations

**Development of DR/BC Plans**

*Administrators Created DR/BC Plans 20 Years Ago in Response to Audits and in Preparation for Natural Disasters*

Emergency management directors highlight potential damage and loss of infrastructure, technology, resources, and life to encourage senior leadership to promote and allocate funding for DR/BC planning. Contacts observe that senior leaders, such as the vice president for administration and finance or associate vice presidents of operations, often encourage DR/BC planning in response to looming external events or advice. Representatives from academic and administrative units are more likely to consult emergency management staff and develop department-level DR/BC plans if they perceive the plans are a priority to senior leaders.

**DR/BC Program Development Timeline**

<table>
<thead>
<tr>
<th>External Events</th>
<th>Institution Response</th>
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<tbody>
<tr>
<td>1980 Earthquakes (1980s-1990s)</td>
<td>University B creates disaster recovery plans (late 1980s)</td>
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<tr>
<td>1990 KPMG audit suggestions (late 1990s)</td>
<td>University B hires a business continuity program officer to support BC planning (1990s)</td>
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<tr>
<td>2000 New CIO at University C (2001)</td>
<td>University C establishes DR/BC planning for financial systems (late 1990s)</td>
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<tr>
<td></td>
<td>University C builds redundancy into IT systems to further business continuity planning (2001-today)</td>
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<tr>
<td></td>
<td>University A deploys DR/BC (2009)</td>
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</table>

**Federal Regulations May Require DR/BC Plans to Access Funding**

The Federal Emergency Management Agency (FEMA) requires state and local authorities to become National Incident Management System (NIMS) and Incident Command System (ICS) compliant to access federal funding. Institutions that seek to become NIMS and ICS compliant must establish emergency operating procedures and file them with local authorities. The emergency operating procedure must include an organizational chart that adheres to a FEMA template and identifies individuals responsible for different areas of emergency management. Contacts incorporate this requirement into their DR/BC plan to coordinate with state and local authorities and adopt a nationwide best practice as a result. Although the Department of Education does not currently require academic institutions to
fulfill these requirements to access funding, contacts at all profiled institutions suggest this will occur in the next two to three years.

Structure of DR/BC Plans

**Institution-wide DR/BC Plans Supersede Departmental Plans**

DR/BC programs consist of a single and centrally-located plan and several department-level plans maintained by individual campus units. Staff in offices of emergency management establish institution-wide DR/BC plans and help department-level staff create their own DR/BC plan. Individual campus units require their own DR/BC plans to capture the nuance of their operations. For example, the DR/BC plan for a HR office must ensure payroll continuity in the face of disaster, whereas IT DR/BC plans must guarantee the functionality and access to data systems. Offices of emergency management may incorporate parts of department-level plans into institution-wide DR/BC plans and ensure institution-wide plans focus on the (1) protection of human life, (2) maintenance of institution infrastructure, and (3) the continuity of teaching and research. If emergency management staff deploy the institution-wide DR/BC plan in cases of escalated emergencies, the institution-wide plan always supersedes the individual unit plans.

Staffing and Advisory Support

**Three Staff in the Office of Emergency Management Support the Central DR/BC Program**

The office of emergency management at University D reports to the associate vice-chancellor of campus operations who emails campus units to encourage the development of unit-specific DR/BC plans. In addition, the campus operations division of the University oversees police, housing, and dining services. These areas have a direct correlation to DR/BC planning and the proximity of these units under a single reporting line facilitates coordination and preparedness of these vital units.

University A and University D maintain one central office of emergency management that creates the institution-wide DR/BC plan. Emergency management staff also train and meet with units across campus to develop their own DR/BC plan.

The office of emergency management at University B employs three staff who oversee DR/BC planning and coordinate with a central emergency operations center that executes the plan. The director’s time is split between DR/BC planning and environmental and health services; one staff member focuses exclusively on business continuity planning; and a second staff member works on special projects. The staff possess education backgrounds in the natural sciences and emergency management response, hold emergency management certifications from FEMA and state agencies, and typically possess more than five years of experiences in emergency management positions.

The emergency operations center at University B consists of a working group of 24 functional areas (i.e., administrative and academic units) that primarily plan and execute DR/BC plans in the case of adverse events. The emergency management director chairs the emergency operations center and office staff assist the 24 smaller management areas (e.g., finance, the school of business, athletics, etc.) in developing their own DR/BC plans.
Invest in National Best Practice Training Sessions to Update DR/BC Planning and Learn National Strategies for Emergency Management

The Federal Emergency Management Agency (FEMA) offers an online training module for DR/BC planning that targets institutions of higher education. The director of emergency management at University B encourages all members of the campus community to complete the module, but suggests that DR/BC program managers be required to attend.

FEMA Course L. 363 Offers Institutions of Higher Education Training for Emergency Planning

Institutions annually register a bid with FEMA to host the three day L. 363 emergency planning course onsite for 50 attendees. FEMA accepts 30 bids per year, and expects attendees to have completed IS100HE.

Intended Audience for L. 363
- Emergency management directors
- Administrators
- Faculty
- Institution staff
- Local authorities

Learning Outcomes of L. 363
- Identify hazards
- Conduct risk assessments
- Assemble team plans
- Develop partnerships with local authorities

Standing Committees Guide DR/BC Programs and Encourage Campus Unit Participation in DR/BC Development

The chief risk officer at University A chairs a 59-member committee with representatives from every functional area of the University to address crisis management. The committee met quarterly, but in the late 2000s the chief risk officer decided to meet monthly to facilitate greater levels of information sharing and communication across institution units. The committee discusses potential updates to DR/BC planning and communicates updates from department-level DR/BC plans to the central office of emergency management.

The director of emergency management at University D chairs quarterly meetings with members of the campus community, local authorities, and emergency managers from nearby institutions. The group exchanges strategies and conduct mock exercises.

**Technology**

**Contract with Third-Party Technology Vendors to Develop DR/BC Plans**

Emergency management coordinators at University B, Tufts University, and the University of Toronto contract with the Kuali Foundation to access Kuali Ready, a DR/BC planning tool that assists with plan creation. The tool adapts the methodology of business continuity planning for corporate environments to the needs of higher education. Emergency management staff distribute login details to representatives to access Kuali Ready and create DR/BC plans for their units. The tool prompts staff to construct plans for different potential disasters. Institutions also contract with SunGard to create DR/BC plans and Rave, E2Campus, and EverBridge to send emergency notifications to campus constituents.

University C’s information technology DR/BC division considered purchasing one of these tools but thought it too expensive. Rather, they internally developed a tool for IT DR/BC. Contacts at University B rely on Kuali Ready but caution that a public institution developed the tool; therefore, some of the tool’s terminology and categorizations differ from the needs of a private institution (e.g., institutional financial terms). University B requires staff in the office of emergency management to occasionally perform ad hoc changes to the tool as a result.

| **Cost per year** | **Kuali Ready costs $11,000 per year for a non-Kuali Foundation member university.** |

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3) **DR/BC Program Integration**

**Integration with the Institution**

**IT DR/BC Requires Redundancy of Applications**

Each software application (e.g., student information system, financial management system, etc.) at University C exists in two distinct physical spaces with two modes of communication into and out of it. At any given moment, staff can access an application through four different channels and can maintain operations for all applications without disruption in the event of an emergency. The University houses its main servers 13 miles away from campus to further ensure business continuity during emergencies. Contacts at University A also cite redundancy as one of the hallmarks of their IT DR/BC plan and highlight its cost effectiveness. The purchase of expensive software or external servers to ensure application function costs more than duplication of current operating procedures.

**Integration with External Partners**

**Invite Local Authorities and Neighboring Institutions to DR/BC Tabletop Exercises**

The office of emergency management at University D invites local authorities to their quarterly meetings and tabletop exercises. The presence of local authorities ensures that DR/BC plans are consistent with the capabilities of local authorities. Contacts recommend inviting local institutions to quarterly DR/BC planning meetings because neighboring institutions may be able to share resources in case of emergencies. For example, if a disaster caused part of the campus to be inhabitable, a neighboring institution may agree to house some students or share access to other facilities.
3) Program Execution and Outcomes

Exercises

_Institutions Perform at Least Four Theoretical or Operational Exercises Per Year_

Contacts convene a two-day conference, usually to coincide with the quarterly DR/BC planning committee meetings, to execute a mock disaster. Mock disasters take the form of either a “tabletop” (i.e., theoretical) or a “boots-on-the-ground” (i.e., operational) exercise. Contacts recommend exercising three tabletop exercises and one boots-on-the-ground exercise each year. Staff in the office of emergency management convene the exercise and invite institution leadership and staff outlined on the FEMA organizational chart to the two-day meeting. The group responds to a mock disaster on the first day and evaluates their response on the second day. Contacts divide the disaster into two phases: an emergency management phase and a disaster recovery phase.

Goals in Each Phase of DR/BC Exercises

<table>
<thead>
<tr>
<th>Phase</th>
<th>Goals</th>
<th>Example</th>
</tr>
</thead>
</table>
| Phase I Emergency Management | • Identify danger and threat presented to human life  
                             | • Identify danger presented to campus infrastructure  
                             | • Limit threat to ensure it does not spread  
                             | • Danger to human life presented by a fire during a DR/BC exercise at University A  
                             | • Harm to campus community from smoke inhalation  
                             | • Damage to campus infrastructure as a result of fire  
                             | • Potential of fire to spread to other buildings  
                             | • Maintain telecom operations in the absence of particular cables  
                             | • Continue use of institution IT applications in absence of particular servers  
                             | • Ensure classroom instruction continues  
                             | • Ensure network infrastructure outages are minimal  
                             | • Ensure power and network infrastructure and running as soon as possible  
                             | • Maintain normal operations of campus function in alternative space  
                             | • Locate alternate office and housing locations for those affected  
| Phase II Disaster Recovery   | • Ensure network infrastructure outages are minimal  
                             | • Ensure power and network infrastructure and running as soon as possible  
                             | • Maintain normal operations of campus function in alternative space  
                             | • Maintain telecom operations in the absence of particular cables  
                             | • Continue use of institution IT applications in absence of particular servers  
                             | • Ensure classroom instruction continues  
                             | • Locate alternate office and housing locations for those affected  

Execution

_DR/BC Plan Executions Occur Infrequently and Often in response to Pandemic Events_

Although disasters rarely occur, the crisis response team at University A launched the DR/BC plans during the N1H1 pandemic. The chief risk officer of the University reported directly to the provost for six months to organize the University’s response. Other institutions prepare for these situations, but have only exercised part of their pandemic planning. For example, the director of emergency management at University D used part of their...
pandemic planning module to inform the campus community of HR policies in the face of pandemic disease. The plan requires hospital personnel report to work, outlines overtime pay scales, and provides meals and housing during a pandemic. Execution of IT and finance DR/BC plans occurs less frequently, but has been a particular focus for all institutions due to the integral nature of their work.

Offices of emergency management oversee adverse events and communicates the events to the campus community. The office of emergency management at University B also allows the local police department to communicate via email and text message to the campus community in the event of an adverse situation.

**Ensure DR/BC Maintains Student Access to Academic Instruction Through Online Tools**

When the DR/BC was executed at University A, the chief risk officer focused on maintaining classroom instruction despite the many course absences. Each school and campus at University A maintains their own online course library, through which sick students can access coursework.

### Strategies to Maintain Academic Instruction During Pandemics

- Move coursework to 100 percent online formats
- Condense coursework to occur after the pandemic passes
- Use online student services (e.g. Blackboard) to continue coursework in a hybrid format and post lectures online

**Evaluation**

**Host Post-exercise Evaluations to Strengthen DR/BC Planning**

Contacts at University A meet for one day to evaluate the success of tabletop exercises. They evaluate the success of (1) emergency management, (2) disaster recovery and business continuity, and (3) transition from emergency management to DR/BC.

Recent evaluations indicate a need for better communication of crises with the campus community; as a result, administrators at University A are considering contracting with Rave, E2Campus, or EverBridge, all third-party emergency communication tools.

Post-exercise evaluations indicate that individuals responsible for DR/BC execution often continue to think and function under the auspices of their established institution position. For example, the response of a facilities manager functioning as a director of emergency management should differ from the typical facilities manager response. As a result, emergency management directors encourage those responsible for executing the DR/BC plan to complete the FEMA trainings to further develop the instincts and responses needed during crises.
4) Research Methodology

Project Challenge

Leadership at a member institution approached the Forum with the following questions:

- How do staff integrate the DR/BC program with third-party service providers?
- How is the organization’s DR/BC program integrated with public authorities?
- When was the DR/BC plan created at your organization?
- What level and area of experience do DR/BC staff possess? What training do they undergo?
- What is the relationship between DR/BC and crisis or emergency management programs?
- How often do administrators exercise the DR/BC plan? Who decides when to enact the DR/BC plan?
- What lessons learned activities do staff conduct after DR/BC plan exercises? What is the process and timeframe to update the DR/BC plan?
- Do contacts maintain an off-site disaster recovery data center? How far from the main organization site is the off-site center? What percentage of applications can be recovered?
- What technology or software do staff integrate into DR/BC programs? What is the purpose of the software? Why do contacts use that particular program?
- What lessons learned activities do staff conduct after adverse events? What is the process and timeframe to update the DR/BC plan as a result?
- What metrics do staff look at to assess the impact of the DR/BC program once used?

Project Sources

The Forum consulted the following sources for this report:

- Advisory Board’s internal and online research libraries (http://eab.com)
- National Center for Education Statistics (NCES) (http://nces.ed.gov/)
- The Federal Emergency Management Agency (http://fema.gov)
- The Kuali Foundation (http://kuali.org)
The Forum interviewed emergency management officers and information technology disaster recovery specialists at large private institutions.

### A Guide to Institutions Profiled in this Brief

<table>
<thead>
<tr>
<th>Institution</th>
<th>Type</th>
<th>Location</th>
<th>Approximate Institutional Enrollment (Undergraduate/Total)</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>University A</td>
<td>Private</td>
<td>Mid-Atlantic</td>
<td>18,400/28,800</td>
<td>Research Universities (very high research activity)</td>
</tr>
<tr>
<td>University B</td>
<td>Private</td>
<td>Pacific West</td>
<td>6,900/19,800</td>
<td>Research Universities (very high research activity)</td>
</tr>
<tr>
<td>University C</td>
<td>Private</td>
<td>Mid-Atlantic</td>
<td>5,800/21,000</td>
<td>Research Universities (very high research activity)</td>
</tr>
<tr>
<td>University D</td>
<td>Private</td>
<td>Midwest</td>
<td>7,200/13,900</td>
<td>Research Universities (very high research activity)</td>
</tr>
</tbody>
</table>