

# Contingency Planning for Riverina Institute's Learning Management System

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# Executive Summary

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Risk management and contingency planning are an accepted norm of life. Yet when we consider the use of technology in education there appears to be an unrealistic expectation that all systems will work at all times.

Risk assessment requires a structured approach of identifying likelihood, scope and impact. Risk assessment is the first stage of prioritising responses.

- Likelihood can be categorised based on how predictable the event is. This ranges from regular planned maintenance events through to unpredictable events.
- The scope of any event is based on how many users are affected.
- Impact of the event is based on the degree of functionality during the event and ranges from minor impact with some inconvenience through the high impact with systems not functional at all.

Managing events to minimise impact requires a process to identify and categorise disruptive events. Common events can be categorised as:

- Enrolment issues
- Identity Management within and between systems
- System Outages
- Personal student computer problems
- Deleted resources and dead links
- Corrupted resources
- Compatibility issues

Riverina Institute has a number of critical systems that will be highly disruptive if they have any disruptive events.

- DEC authentication
- Adobe Connect
- Moodle/Equella

Responding to disruptive events is affected by human factors just as much as technical factors. An effective response strategy requires:

- identification of who will respond and how quickly the response must occur
- a clear plan of how the event should be managed
- that staff who respond have the skills, and resources to manage the event
- a succession plan to ensure that sufficient staff with appropriate skills are available to respond

This report concludes with a series of recommendations for further investigation and the development of detailed contingency plans to prevent or mitigate disruptive events.

# Introduction and Overview

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Risk management and contingency planning are an accepted norm of life eg.

- We wear seat belts to minimise the risk of injury in vehicle crashes
- Aircraft must carry a fuel reserve for all flights
- We wear safety glasses to protect our eyes

The list of risk management principles in everyday life is extensive. Yet when we consider the use of technology in education there appears to be an unrealistic expectation that all systems will work at all times. Failure of systems will usually result in widespread complaints. In many cases the lack of management in the recovery phase is just as disruptive as the original event. Technology system failures are often an excuse for people disengaging from the use of technology.

This report contends that risk assessment and contingency planning is an essential aspect of the use of technology in education. This report will:

- Examine the principles of risk assessment
- Identify common disruptive events and provide a means of categorising them
- Discuss mitigating techniques to:
  - prevent disruptive events
  - minimise the impact of events
  - recover quickly from disruptive events
- Identify risk factors related to human factors and succession planning
- Conclude with a series of recommendations for further investigation

## Current Situation

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Riverina Institute (RI) uses a range of VLE tools to support students.

Some systems are managed entirely by ITD at a NSW level while others are managed locally by Riverina Institute.

### DEC ITD Managed Systems

- DEC usernames and authentication
- Internet access
- Equella
- NSW trial of Mahara ePortfolio system

### Riverina Institute (RI) ITS Managed Systems

- RI Learn LMS (Moodle)
- Local trial of Mahara ePortfolio system

At this time the most common disruptive events are due to DEC ITD managed systems eg. provisioning of new DEC accounts and identity management with DEC user accounts.

Further investigation is required to gain a clearer picture of events and their impact on users.

## Risk Assessment

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Risk assessment requires a structured approach of identifying likelihood, scope and impact. Risk assessment is the first stage of prioritising responses.

### Assessing Likelihood

Likelihood can be assessed based on several categories:

- Regular planned outages for maintenance eg 3 weekly Sunday ITD outages, Server upgrades, Moodle upgrades
- Predictable events eg. high workloads at the beginning of semesters
- Regularly occurring yet unpredictable events
- Unpredictable events

### Assessing Scope of Event

Impact of any event can be categorised and ranked according to some simple guidelines:

- How many students are affected ie. one, several, a class, or many classes
- How many staff are affected ie. one, several, a teaching department, or many staff across many departments
- How many online courses are affected ie. one, several, a teaching department, or many courses across many departments

### Assessing Impact

Assessing the impact of the event can be based on:

- Students or staff can access all systems but is not fully functional ie. Minor inconvenience
- Students or staff can access most systems but the affected system is not fully functional ie. Highly disruptive if it is a critical system
- Student can't login to TAFE systems and cant access any TAFE managed resources

## Categorising Disruptive Events

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Managing events to minimise impact requires a process to identify disruptive events and categorising them.

- Enrolment issues
  - Students not paying fees to "Confirmed in SIS"
  - Centrelink – delays in confirmation of benefit
  - Re-enrolling students being placed into the wrong version of a course – MEVI wouldn't finalise

- Student hasn't finalised enrolment – Done automatically in admin eg. Being placed in wrong MEVI offering
- Identity Management
  - Creation of DEC accounts
  - Synchronisation of PT and FT staff accounts
  - Provisioning delays – DEC acct and email (DEC level)
  - TVET students – using school login – no Equella access due to Equella permissions for TAFE students – Not confirmed till about week 6
  - Duplicate student ID's from past enrolments – also affects Moodle ID
  - Some students not being notified of their DEC acct on receipt or enrolment notices
  - Password re-set required
- System Outages
  - Planned ITD system upgrades
  - Planned RI system upgrades
  - Failed system updates (eg one Monday morning Moodle failed to restart after server updates)
  - Equella outages
  - Adobe Connect outages
  - Network speed
  - Browsers
  - Campus outages – Failed connection to network
- Student computer problems
  - Browser compatibility
  - Browser versions
  - Check your Browser
  - Software add-ins eg. Adobe Connect Add-in
  - Student IT skills
- Deleted resources and dead links
  - Any system that has shared resources runs the risk of resources being deleted or changed by one staff member thereby disrupting others
- Corrupted resources
- Compatibility issues
  - Resources must be developed to work in most common browser versions
  - OS versions
  - Mobile computing
- Succession planning
  - Pre-determined succession planning in case of retirement and redundancies
  - Emergency succession planning where staff is away on short and long term basis
- Partnership arrangements
  - Identify copyright restrictions
  - Quality assuring outsourced development
  - Ensuring continuity in supply of resources
  - Managing contracts and delegations

# Critical Systems

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There are several critical systems to RI that are highly disruptive to students when they have incidents.

## DEC authentication

- Access to DEC authentication is not working, students and staff are unable to login to any TAFE systems to access resources
- Internet filtering blocks access to required teaching resources
- Internet filtering changes mid-course
- Identity management issues where students get a new identity and lose access to data from their old account

## Internet Access

- Website filtering
- Authenticated browsing
- Student portal access

## Adobe Connect

- Access to system is not working, error message occur (Adobe Connect is not working)
- Difficulty in uploading information to Adobe Connect (system is full in Sydney – need more space)
- Students unable to hear, audio trouble even after running audio wizard setup ( bandwidth issues)
- Audio during AC session is varying in quality, lagging in time causing sync problems
- Visuals such as sharing screen does not appear for every student (student have not installed add-in and/or have too slow bandwidth)
- Students get booted out from Adobe session on regular basis

## Moodle/Equella

- Links to resources in Equella are not working
- Resource in Equella is corrupt, so therefore taken off-line
- Equella Permissions block staff or student access to resources
- Resource in Equella is changed or moved
- Some resources (from Equella) only display properly in Chrome or Firefox, not in explorer
- Moodle upgrades – change to features or loss of functionality

# Human factors affecting response strategies

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Responding to disruptive events is affected by human factors just as much as technical factors.

An effective response strategy requires:

- Identification of who will respond
- Defining how quickly the response must occur
- A clear plan of how the event should be managed
- That staff who respond have the skills, and resources to manage the event
- A succession plan to ensure that sufficient staff with appropriate skills are available to respond

## Students

Students who embark on online study should ensure they have sufficient equipment and internet access to be able to study online. This should be a pre-requisite and clearly stated prior to the student enrolling in the course. They should also ensure they supply the facilitator with alternative contact details, such as alternative email and/or telephone number where they can be contacted. Students need to take own responsibility for contingency planning as well. Not just rely on teachers to supply all the information at a moment's notice. This could be things like

- Downloading information to local drive rather than always working online
- Identifying a 'buddy' as a backup to receive information
- Ensure that facilitator have current email and phone details
- Students have highly variable technical ability – this need to be assessed early in the process to ensure that appropriate support if provided eg. Pre-course self-assessment of skills
- Student unsure how to navigate the VLE system – online tour of site to be provided as part of induction process
- Students do not have powerful enough equipment to cope with online learning (should be pre-requisite for doing an online course, clearly stated up-front)
- Losing contact with students
- Systems are down, so unable to access email to notify students

## Teachers

- Teachers unsure how to solve basic technical issues
- Teacher lack skills in changing links or resources (refresher training available via self-pace course)
- Teachers unsure of who to report technical issues to or where to access help when a system is not working properly
- Email system put a block on hotmail accounts last year, it affected the way we communicate with a number of students.
- Teacher is away due to emergency (long term), who will take over? (team teaching a possible solution or clear succession planning)

## Support Staff

- Enrolments including approvals with Centrelink
- Duplicate student identities, what are the implications

## Potential Responses

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Responses to disruptive events may involve multiple techniques depending on the circumstances.

Eg.

- Additional scrutiny at enrolment time
- Ensuring that predictable maintenance and downtime is advertised so users are not surprised and have time to adopt a contingency plan
- Identifying high value key resources that can be stored in another VLE system that is unlikely to be disrupted

## Planning Responses to disruptive events

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An effective response contingency plan requires a multi stage response.

- Review process based on logged helpdesk calls
- Risk assessment of all predicted events
- Development of both preventative and recovery strategies

## Backup Systems

Restoration of data from backups is a critical strategy in any contingency plan. Restoration is often a final response following other steps that have not resolved the problem. Contingency plans need to address these aspects of the RI VLE Backup plan.

- Backups plans and restoration procedures are clearly documented. Including access to log files that confirm backups or restorations are complete.
- Testing strategy for backup restorations reports any errors for analysis
- Hyperlinks to external resources work when courses are restored from backups eg. Equella resources, repository Moodle sites, external sites
- Restores from backups maintain the accuracy of log files that show student participation

Contingency planning requires further research and development.

Event	Risk Assessment	Prevention	Recovery

# Overview Conclusion

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Risk management and contingency planning are critical in the development of an integrated learning environment.

The development of contingency plans will maximise the quality of the learning experience and help to sustain user confidence in systems.

This report has introduced the major principles of contingency planning as the basis of consultation. Effective plans will:

- categorising common disruptive events
- develop mitigating techniques to prevent, minimise impact and recover from events
- identify risk factors related to human factors ie. Student, staff skills and succession planning

The following recommendations are offered to promote consultation and the development of plans

## Recommendations

### *Risk Assessment Strategy*

- Log all helpdesk calls through Remedy-Help desk for help desk management and analysis
- Develop a risk assessment scale that incorporates likelihood, scope and impact as the basis of prioritising the development of contingency plans
- Adopt a reflective process to examine disruptive events and identify mitigating strategies
- Continue to develop a register of disruptive events and categories to structure them
- Continue to assess disruptive events and identify both preventative and recovery strategies

### *Backup Plans*

- Develop a randomised test strategy to ensure that backups are fully functional and capable of being restored(including hyperlinks to other resources)

### *Staff capability development*

- Promote the development of contingency plans to instructional designers as a critical part of the design process
- Train staff to understand the risk assessment process and the need to follow contingency plans to maintain high quality design and delivery

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