Integration of Third-Party Extensions to Blackboard

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Step 1: Initial Request for Integration

Rationale: Review, installation, maintenance, and monitoring of third-party extensions require resources. In order to ensure that ITS resources are being used effectively and to the benefit of the larger campus community, there needs to be some assurance that the integration being requested has been vetted at the departmental (or higher) level and has found (or is expected) to be of educational value to the target student population or have other intrinsic worth. While that determination may, in fact, rest with a single faculty member, ITS cannot move forward without at least approval from the requestor's home department.

Procedure: The appropriate Department Chair, Dean, or other recognized authority should provide a written request to the Blackboard Enterprise Team indicating that an educational review of the 3rd party extension has been performed and that the integration was found to have potential value to students within the department or college. To insure faster timelines, full contact information for both the vendor and proposed faculty users should be provided.

Estimated Completion Time: 6 Working Days
To give the Blackboard Enterprise Team time to determine if the requirements have been met, establish if the integration already exists or if it duplicates existing functionality. This also allows time to communicate back to the requestor if there are questions and to alert ITS staff that the integration has received initial approval and is ready for the next step.

Questions: In order to assure that this step doesn't just become a rubber stamp, should there be some sort of fee assessed? Perhaps LTI integrations are charged at a fixed flat rate, while custom work is charged by the hour. There could also be a clause stating that the initial integration fee would be refunded if the integration becomes more widely used. Perhaps the fee could be waived if the request comes from the college level.

Step 2a: Security Review

Rationale: Because the security and integrity of student data is paramount and mandated by federal and state law as well as University policy, it is important that any proposed integration meets security standards.

Procedure: ITS will send to the vendor a "Security Review" worksheet requesting key information from the vendor about the product and how data is handled. Once the information is provided, ITS security staff will work with the vendor to review any areas of concern. If areas of concern cannot be satisfactorily addressed, the security review may conclude that the software does not meet security standards, and that it is not recommended for integration with ISU systems. Minor or questionable deviations may be dealt with in **Step 4: Testing.** (See below).

Estimated Completion Time: 14 Working Days. (10 Days for Vendor + 4 Days for ITS)
To give the vendor time to respond and ITS staff the opportunity to review the material. This process may be iterative and require several rounds of communication to gather more detail.

Questions: The Security Review already exists and is being used. However, if these procedures are to become a formal policy, should that document be reviewed and vetted? If so, by whom?

Step 2b: Functionality Review (Concurrent)

Rationale: Since the Security Review is focused on data integrity and control, it necessarily excludes other information that would inform the integration. This portion of the procedure would gather that data. However, unlike the Security Review, failure to uphold the requirements of this review would not necessarily halt the integration. Since the information needed is likely to come from other sources than those targeted by the Security Review, this step could be performed concurrently.

Procedure: Similarly to the Security Review, this step involves sending a form to the vendor with questions that they would need to answer. Content would relate more to end-user functionality, such as student fees, ADA compliance, and support structures.

Estimated Completion Time: 14 Working Days (10 Days for Vendor + 4 Days for ITS)
To give the vendor time to respond and LMS support staff the opportunity to review the material. Again, since this is concurrent to **Step 2a**, the total time for this portion of the procedure remains at 14 days.

Questions: The most fundamental question is: Does this step need to exist at all? If it does, what content should be addressed? Who determines that? Who vets the final document?

Step 3: Contract Review

Rationale: Before an integration can be performed, we need to be certain that the vendor complies with all applicable federal and state laws, as well as University policy. Any contracts or Terms Of Service (TOS) that the vendor wishes ISU to be bound by must be reviewed and approved by both the Procurement Services, which will engage the Office of University Counsel as necessary.

Procedure: The vendor should supply the Iowa State Procurement Services Department with copies of any proposed contract, privacy and data collection policies, TOS, or End User Licensing Agreement (EULA). This material would be reviewed by Procurement Services, enlisting the help of Counsel where necessary. Should any sections be of concern the University may initiate negotiations with the vendor to reach clarity.

Estimated Completion Time: 42 Working Days

To give Procurement Services and Counsel staff time to review the material and get back to the vendor with any questions and/or counter-proposals. Completion time for this step is likely to vary considerably due to other projects and time requirements of the affected departments. The estimate does allow for some negotiation time.

Questions: Can others take on some of this responsibility if given examples and guidance? To date, no one outside of Procurement Services has been "deputized" to handle such review. However, it would be good for a few of us to know the basic issues, so we can provide a "first look" review to let the group and faculty requestors know what issues likely exist.

Step 4: Testing (Optional)

Rationale: Some questions may come up during the **Step 2** review processes that can only (or most effectively) be addressed by actually performing the integration on our Blackboard Test Server. This step will not always be required.

Procedure: The vendor will supply ITS with all applicable files, documentation, support material required to install and test the system. They may also be asked to supply a signed waiver giving ITS permission to access their services as needed without being bound by the normal contract/TOS. The vendor may also be asked to provide appropriate "burner" accounts for testing purposes, waiving any fees, if necessary. ITS will install and test the integration (perhaps with the help of the faculty/department requestor) to determine if the integration meets security and/or functional requirements. They will report these findings to the Blackboard Enterprise Team, the Procurement Services Department, and any other interested principals.

Estimated Completion Time: 6 Working Days

To give support staff time to perform and test the integration. If questions still persist, additional time may be required.

Questions: Will vendors find this step to be too onerous? It requires them to suspend some of their business practices and may violate some of their own policies. What kind of negotiations could we undertake to move this step forward if they don't agree with our terms? Are, in fact, things such as the suspension of TOS even necessary?

Step 5: Integration

Rationale: This is the desired outcome. All previous steps are designed to bring us to this point. It should be noted that failures at either **Step 2** or **Step 3** may mean the need for additional time to resolve any issues.

Procedure: Using documentation provided by the vendor, ITS will install the integration into the Blackboard Production Server. Initial testing will be performed and staff will notify the Blackboard Enterprise Team that the integration is now online.

Estimated Completion Time: 4 Working Days

To give ITS staff time to perform the integration and do initial testing.

Questions: Should there be a fee for this service? What kinds of testing need to be performed regardless of the function of the integration? Who is responsible? Even if no fee is involved, should staff record their time to aid in future decision making and reporting? What do we do if the integration can't be performed for some reason?

Total Estimated Time: 66 Working Days (72 Working Days if Testing is Required)

Note that these figures are arrived at with simple addition. A more accurate estimate, using standard deviation calculations for linked tasks comes up with a range of 34-110 working days with a 95.44% confidence level. Once the actual estimates are in place, the more accurate method should be used, but at this point it's probably unnecessary. It would also seem desirable to express the final result in less granular terms for public consumption. For example, using the current figures we might say: "The process takes from six weeks to six months." That still represents our calculations fairly well, while not getting bogged down in exact days.

Step 6: Usage Monitoring (Post-Integration)

Rationale: Even though we have reached a point where the integration has been performed and the system is in use, we need to address the issue of end-of-life. It is certainly possible that the integration will not receive enough usage to justify keeping it as a permanent part of the system. During this step, which will be ongoing, we will make those determinations.

Procedure: ITS will maintain an online list of all currently installed integrations. Once per year, at least four weeks prior to the start of the Fall Semester, ITS will send a communication to appropriate faculty and/or staff asking them to review the list and indicate which ones they are currently using. In addition, ITS will (where possible) review usage logs for the integration. If any integration is found to have no users, notice will be sent out indicating an intent to disable the integration. If there is no objection, the integration will be removed from the system. If there is an expressed desire to maintain the integration, further steps will be taken to clarify the status of the integration.

Estimated Completion Time: N/A

This is an ongoing internal process and is not related to the time required to perform the initial integration.

Questions: Is there a better way to handle this that doesn't rely on feedback? Or is it advantageous to get the integration list in front of users so they know what is available and what services we are providing? What would be the exact timing and content of any communications regarding intended deactivation? Who has the final say? If a fee was charged for doing the initial integration it would seem that this step could identify an expanded user base and trigger a refund.

Notes on Time Estimates

Completion times for each of the above steps were derived using the **P**roject **E**valuation and **R**eview **T**echnique (PERT) developed by the United States Navy for estimating time requirement for their projects.

The procedure relies on making three estimates of time for each step:

- Optimistic Time (O) – The step has at least a 1% chance of being completed in this time.
- Most Likely Time (M) – This is the time the step is probably going to take.
- Pessimistic Time (P) – There is a 99% chance that the step will be completed in this time.

Those estimates are then plugged into the following formula:

$$\frac{O+4(M)+P}{6}$$

The result of the calculation is the time the step will take on the average, accounting for situations where everything moves along easily and situations where everything seems to go wrong. It is most accurate when used in large projects with many steps (so that the good and bad steps average out) but has some value in smaller projects as well.

The initial estimates that were plugged into this formula for each of the steps in this procedure are given below:

Step 1: Departmental Buy-in

- Optimistic – 1 Day
- Most Likely – 5 Days
- Pessimistic – 15 Days

Step 2: Security/Functionality Review - Vendor (Parts a and b used the same estimates)

- Optimistic – 5 Day
- Most Likely – 8 Days
- Pessimistic – 20 Days

Step 2: Security/Functionality Review - ITS (Parts a and b used the same estimates)

- Optimistic – 1 Day
- Most Likely – 3 Days
- Pessimistic – 8 Days

Step 3: Contract Review

- Optimistic – 10 Day
- Most Likely – 30 Days
- Pessimistic – 120 Days

Step 4: Testing

- Optimistic – 2 Day
- Most Likely – 5 Days
- Pessimistic – 15 Days

Step 5: Integration

- Optimistic – 1 Day
- Most Likely – 3 Days
- Pessimistic – 10 Days

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LMS Integration Process