RMS Replacement Project

Project Decision Gate

August 24, 2018
Goals

• Review project status
  – Background
  – Approach
  – Preliminary discovery

• Discuss potential scenarios

• Recommendations/path forward
PROJECT BACKGROUND
Project Background

• 1998 – RMS developed
  – Not originally designed to be a full research management system
  – Limited investment after first 5-10 years of development

• 2008 – RMS Replacement initially evaluated
  – Suspended to broaden scope to include faculty input

• 2013 – Requirements for RMS replacement gathered
  – Focus on pre-award; requirements were not gathered for compliance
  – Draft RFP was developed, but not issued
  – Postponed due to changes in VPR leadership; evaluation of Workday

• 2016 – Project restarted
  – ASMP re-engagement with VPR on issue of application end-of-life
  – VPR project team formed
  – Suspended after initial discussions due to personnel changes, reprioritization of other initiatives

• 2018 – Project Director identified and funding authorized
Business Case

- In-house developed RMS system is outdated and does not meet functional or usability needs
- Mainframe application reaching end-of-life
- Not designed to harvest data and meet research administration and executive leadership reporting needs
- Limited search capabilities
- Cannot provide real-time tracking and status views (e.g. dashboards)
- Lack of integration with other systems, including compliance
- Electronic files (no more paper files)
- Inefficiencies leading to extended time for reviews/approvals
Project Objectives

Enhance UT Austin’s ability to more effectively complete work in certain key research administration systems by implementing a product which reflects more current technology.

Improve our ability to collect, store, analyze, and share data, enabling us to report information about our research enterprise to improve collaboration, proposal preparation and strategic decision making.

Reduce the compliance and administrative burden of our faculty, department, school and central institutional staff.
Potential RMS Replacement Project Scope

**Pre-Award**
- Proposal Review
- Electronic Proposal Submission (S2S)
- Negotiation tracking
- Award Notification

**Post-Award**
- Effort Certification
- Award Management
- Financial Reporting
- Audit Support

**Research Compliance**
- Financial Conflict of Interest (FCOI)
- Institutional Biosafety Committee (IBC)
- Human Subjects and IRB
- Institutional Animal Care and Use Committee (IACUC)
- Animal Operations
- Compliance Training

**Contracts and Incoming Agreements**
- Contracts Database
- Sub-Award Administration
- Data/Material Transfer Agreements
- Partnerships (Unfunded)
- Technology Licensing/Patents
- Other Research Agreements (donor/gifts)

Integration Points

Project Focus Areas

- Grants.gov
- Other Federal Sponsors
- Non-Federal Sponsors (foundations, etc.)
- Industry Sponsors
- HRMS/Workday
- Financial Information (*DEFINE/Workday
- Data Warehouse
- Pivot/InfoReady
- VIP
Research Support Applications

- Program Development
  - Pivot
  - InfoReady
- Award Management
- Award Negotiation
- Proposal Development
- EPS
- DEFINE
- HRMS
- FRMS
- MTA Database
- RMS
- Cayuse 424
- EHS Assistant
- IRB Access
- rDNA Database
- biosafety Database
- eProtocol
- FID Lookup
- TRACKS
- RR Memo

*VPR Managed Applications
APPROACH
Considerations

- On premise hosting vs Software as a Service (SaaS)
- Support for System to System (S2S) submissions
- Continuous delivery of updates/federal compliance
- Leveraging shared services and contracts
- Built in reporting tools vs. data warehouse (e.g. Tableau)
- User adoption/barriers to entry
- Customization vs configuration
- “Best in Breed” as Opposed to “One Size Fits All”
- Acquisition approach (Make vs. Buy, RFP, Exclusive Acquisition Justification, implementation costs)
| Licensed vs. Subscription | • A **licensed model** is advantageous because the institution is purchasing a perpetual license to the products that can be amortized over time; the annual maintenance and support fees are lower than the annual fees for the subscription model.  
• The **subscription model** is attractive because the cost to entry is lower.  
• For surveyed vendors, the total cost of ownership for licensed vs. subscription is ~equal after about 5 years. |
| --- | --- |
| Customization vs. Configuration | • **Customization systems**: Provide flexibility to tailor both front-end and back-end components of the tool.  
• **Configuration systems**: Provide as close to an “off the shelf” experience as possible. Customization systems typically require significant support staff compared to configuration systems.  
• Most vendors are moving toward offering more turnkey, i.e. configuration-based, services. |
| On Premise Hosting vs. Software as a Service (SaaS) | • An **on premise installation** is where the institution maintains their own environments/servers, and can include working with a vendor to upgrade, patch, and support the environments.  
• On premise hosting **can** offer lower costs by leveraging institutional resources and staff, but may also require the institution to manage upgrades and maintenance.  
• **SaaS implementations** typically offer continuous delivery of updates for enhancement and federal compliance.  
• SaaS can also simplify data management and security planning by leveraging commercial cloud hosting solutions. |
| “Best in Breed” vs. a Single Vendor Solution | • A **single vendor solution** typically provides a more unified user experience, though some vendors have different implementations across the various areas of research that do not leverage a common UI/UX.  
• A single vendor solution can offer a reduced cost based on scale of purchase or subscription.  
• A single vendor solution can lower “switching costs” for training, upgrades and integration.  
• May give up functionality based on the **best in breed or optimum solution** for institution’s requirements. |
| Built-in Reporting Tools vs. Data Warehouse | • There is a trend to support a range of built-in reporting tools, including custom and ad hoc reports.  
• Some vendors offer integration with 3rd party reporting tools (e.g. SSRS, Juice Analytics) to provide more robust capabilities.  
• While all vendors support some type of data export (monthly, daily, or even real time), there is typically an added fee. |
PRELIMINARY DISCOVERY
Survey Results

- Surveyed 100 higher education institutions (HEIs) based on peer institution designation and top 100 rankings by total R&D expenditures as identified by 2016 Higher Education R&D (HERD) survey:
  - 14 peer institutions
  - 81 non-peer
  - 5 UT System
- Used institutional websites and firsthand knowledge/outreach to identify the pre- and post-award administrative systems and other major systems used by each
- Held follow-up interviews with 27 HEIs based on identification as a peer institution or relevant eRA use case:
  - 14 peer institutions
  - 10 non-peer
  - 3 UT System
## ERA Distribution – Peer Institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Home-Grown</th>
<th>Kuali/Coeus</th>
<th>Cayuse</th>
<th>Huron/Click</th>
<th>InfoEd</th>
<th>eProtocol</th>
<th>Grants</th>
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</table>
Kuali Research

- Open source development model originally based on Coeus software developed at MIT in 1998
  - Coeus, and later Kuali Coeus, widely adopted by a number of institutions
- Kuali Foundation members devote resources to shared development and management
  - Foundation also manages Kuali Financials and Kuali Student Enterprise Resource Planning (ERP) services
- In 2014 Kuali Foundation announced transition to Kuali, Inc.
  - Acquired portions of rSmart, a former Kuali Commercial Affiliate
  - Still open source, but Kuali, Inc. is the foundation’s commercial arm for development and implementation
  - Offers Software as a Service (SaaS) using a subscription model, or source can be freely downloaded and managed on-site
  - Releases monthly patches to Kuali Research baseline (v6.x)
- Modules
  - Proposal Development, Institutional Proposal, Award, COI, Protocols (IRB/IACUC)
- In use by
  - Coeus – Purdue University
  - Kuali Coeus (v5.2.1) – Indiana University, Michigan State, UC Berkeley, etc. (many, many others)
  - Kuali Research (v6.x) – UC San Diego, UC Irvine, Colorado State University, University of Maryland
  - Many universities that use Kuali Coeus have not transitioned to Kuali Research as the migration effort is significant; others have expressed concerns about the switch to a commercial model.

Highlights: Open Source, Form Builder, User Dashboard (late 2018), Active User Community, Real-time Data Export/Access
Huron Research Suite

- **Formerly Click Grants**
  - In 2010 Huron Consulting acquired Click Commerce, Inc. and began making Click one integrated suite to offer as a competitive ERA solution
  - Previously Huron was primarily a consulting company only, and would implement solutions based on customer preference
- **Offer on-site hosting or SaaS implementations**
  - In the past, Huron has primarily used a license + maintenance model that is consultation/customization-driven
  - In last two years started transitioning to a more solutions-based product (configured vs. customized)
  - Now offer both Product and SaaS based implementations, depending on institutional needs
    - Only a few clients using SaaS model currently
- **Modules**
  - Agreements, Animal Operations, Clinical Trials, Conflict of Interest, Effort Tracking, Grants, IACUC, IRB, Safety (all product modules run on a common framework called Portal)
- **In use by**
  - University of Washington and UCLA (compliance only), University of Michigan, UT MD Anderson, UT Southwestern, Virginia Commonwealth University, many others

**Highlights:** Dashboard, Workflow Visualization, Reviewer Support, CTMS module, Business Process Development, Active User Community, Implementation Management
Cayuse

• Cayuse Suite includes Cayuse 424 and Cayuse SP products
  – Cayuse SP based on RAMSeS software originally developed at University of North Carolina at Chapel Hill and licensed to Cayuse in 2009
  – License included non-compete/exclusivity clause, which expired in 2015
• Cayuse, Inc. acquired by Evisions in 2012
• Sold in 2017 to private equity firm Quad Partners
• Implementation
  – Previously supported on-site hosting implementations using a license + maintenance model, now solely supports SaaS via a subscription
  – Current product does not offer complete integration between modules
  – Offered to bring us on as a development partner for next generation grant solution
• Modules
  – Cayuse 424, Cayuse SP, IRB, IACUC, COI, Financials
• In use by
  – Cayuse 424: Used by a number of large research universities for federal grant submissions, including UT Austin
  – Cayuse SP: UC Davis (very limited implementation by large research institutions)

Highlights: Report Visualization, Standard for S2S, Form Builder, Development Partner Opportunity
InfoEd

- InfoEd owned by InfoEd Global
  - Also developers of SPIN, search engine for finding funding opportunities
- Among the earliest ERA solutions (development going back to 1998)
  - Historically, if a university looked outside for ERA solutions, the options were limited to InfoEd and Coeus/Kuali Coeus, which led to wide-spread adoption in the early 2000s
- Modules
  - Pre-Award, Financials, Compliance (IRB, IACUC, Safety, COI), Lab Management, Effort
- In use by
  - UCLA, Princeton, Washington University in St. Louis (recent RFP), Brown University, Columbia, Northwestern, University of Nevada-Reno, McGill University, others
  - Several universities surveyed stated they are moving away from InfoEd to other solutions (some concerns about older baseline)

Highlights: Customizable eForms, Financials Visualization, Enterprise-wide ERA Solutions
# Solution Comparison

<table>
<thead>
<tr>
<th></th>
<th>Hosting</th>
<th>Data Export</th>
<th>Codebase</th>
<th>Funding Opportunities</th>
<th>Grants &amp; Agreements</th>
<th>S2S</th>
<th>COI</th>
<th>IRB</th>
<th>IACUC</th>
<th>IBC</th>
<th>Animal Operations</th>
<th>Financials</th>
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<td>Huron</td>
<td>On Premise, SaaS</td>
<td>Daily</td>
<td>Proprietary w/SDK</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>N/A</td>
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<td>Kuali</td>
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<td>Real-time</td>
<td>Open Source</td>
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<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Cayuse</td>
<td>SaaS</td>
<td>Daily</td>
<td>Proprietary</td>
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<td>InfoEd</td>
<td>On Premise, Vendor, 3rd Party</td>
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<td>Proprietary w/SDK</td>
<td>SPIN</td>
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</table>

Office of the Vice President for Research
**Discovery Results / Potential Procurement Paths**

**Considerations**
- Commercial vs Homegrown
- Custom vs Product
- On Premise vs Subscription
- Integrated Suite vs Point Solution
- Open Source vs Proprietary

**Integrated Suites**
- Huron / InfoEd / Kuali
- Huron / InfoEd

**Point Solutions**
- IRBManager / eProtocol / etc.

**Hybrid/Partnership**
- Cayuse

**Development Partnership**
- Custom Commercial
- On Premise
- Hosted

**Subscription/SaaS**
- ‘Best of Breed’

**RFQ/RFP**
- Sole Source/EAJ
Integrated Modules

- Direct submissions from proposal instead of having separate records
- Ability to directly relate (link) proposals to protocols
- Common user experience across modules
Integrated Modules (Cont.)

Ability to directly relate (link) protocols to proposals

Visualization of FID conflicts or status at time of PRF, submission, award, and with protocols
User Dashboards

- Summarized actions by activity type
- Role/user-based Filtering
- Direct links to projects and records
- Integrated Deadline/Meeting Calendars
Workflow Visualization

Evaluation of the efficacy of different treatments for Glioblastomas

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Highlighted visualization of status

Workflow diagram to increase process transparency/self-service
Reviewer Notes/Change Tracking

In-line reviewer notes to capture communications within system

Visual change-tracking at field level and within documents
# Form Builder/Designer

## Layout
- Section
- Horizontal Rule
- Questionnaire Section

## Elements
- Filtered Drop Down
- Text Area
- Check List
- Drop Down
- Number Input
- Language Drop Down
- Personnel Researcher Roles
- Researcher Roles Dropdown
- Config Based Dropdown
- Yes/No Radio Buttons
- Rich Text
- Radio Buttons
- Date Picker
- Country Drop Down
- State/Province Drop Down
- Personnel Contact Roles
- Contact Roles Checkboxes
- File Attachment

## Features
- **Pick list of form elements to create custom forms for specific institutional needs**
- **‘Drag and drop’ view to build out and redesign forms**
- **Support for optional and smart-form elements**
Reviewer Checklists

Ability to create reviewer checklists within the application

Apply/enable by role
Built-in Reports

Support for standard and ad hoc reports

Ability to create and schedule reports to run at specific times

Built-in visualization tools
FID Review/Management

Built in management plan tools, including review and approval workflows

Support for FCOI committee reviews and scheduling
Built-in Help/Training

Help center with guides, procedures and regulatory information

Tool-tips/in-line help for form elements
Compliance Training Integration

Integration with CITI, AALAS, and institutional training

Integrated training status within modules
## Feature List by Solution

<table>
<thead>
<tr>
<th>Feature</th>
<th>Huron</th>
<th>Kuali</th>
<th>Cayuse</th>
<th>InfoEd</th>
<th>UT Austin Current</th>
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<tr>
<td>Integrated suite across research enterprise</td>
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<td>Workflow visualization</td>
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<td>User dashboard</td>
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<td>Send/receive communications within the system (e.g. email)</td>
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<tr>
<td>Form builder/designer</td>
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<tr>
<td>Custom/Ad hoc reporting</td>
<td>X</td>
<td>X</td>
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<td>Support for checklists</td>
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<td>Support for management plans</td>
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<td>Support for integrated compliance training</td>
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<td>Meeting Scheduling and Management</td>
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<td>SPIN</td>
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SCENARIOS
Scenarios

Scenario A: Pre-award + eProtocol Enhancements
- Includes proposal development and award management
- Assumes additional investment in eProtocol to meet institutional needs and achieve “parity” with vendor solutions

Scenario B: Pre-award + Minimum Compliance (IRB, IACUC, COI)
- “Pre-award” includes vendor solutions for proposal development, submission and award negotiation/grant management.
- Assumes we continue to use eProtocol for IBC and Animal Operations

Scenario C: Pre-award + Compliance (IRB, IACUC, IBC, COI) + Animal Operations
- Assumes we replace current RMS, IRBAccess, and eProtocol applications with vendor-offered solutions

These scenarios represent a mixture of vendor versus existing solutions, but many additional options can be considered:
- Pre-award only
- Pre-award + IRB only
- Financials modules
- Compliance-only vendor (e.g. IRBManager)
- Etc.
### Scenario Considerations

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<th>Considerations</th>
<th>Parameters</th>
<th>Assumptions</th>
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<tr>
<td><strong>Scope</strong></td>
<td><strong>Scenario A</strong></td>
<td>• Assumes additional investment is needed in eProtocol to meet institutional needs and achieve “parity” with vendor solutions.</td>
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<td></td>
<td>• Scenario includes staffing for a 3-year upgrade project to eProtocol that includes IRB, COI, and IACUC.</td>
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<td><strong>Scenario B</strong></td>
<td>• Includes solutions offered by all four major vendors, and assumes a phased implementation over 3 years.</td>
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<td>• Assumes continue use of eProtocol for IBC and Animal Operations.</td>
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<td><strong>Scenario C</strong></td>
<td>• Assumes replacement of current RMS, IRBAccess, and eProtocol applications</td>
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<td></td>
<td>• IBC and Animal Operations are currently only offered by two vendors (Huron and InfoEd)</td>
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<tr>
<td><strong>Implementation</strong></td>
<td><strong>License</strong></td>
<td>• A benefit of a perpetual license is access to the vendor’s SDK, which is needed if the product will be customized.</td>
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<td></td>
<td>• Staffing models for licensed scenarios assume some amount of product customization is included vs. SaaS.</td>
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<td><strong>Subscription</strong></td>
<td>• Includes vendor escalation, if specified.</td>
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<td></td>
<td>• Activation date varies by vendor. For example, InfoEd starts after contract is signed.</td>
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<td><strong>On premise hosting</strong></td>
<td>• Assumes VPR can leverage institutional resources to have reduced hosting costs.</td>
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<td><strong>Vendor hosted</strong></td>
<td>• Varies by vendor. InfoEd includes planned upgrades as part of hosting management even for licensed models.</td>
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<td><strong>Staffing</strong></td>
<td><strong>Integration support</strong></td>
<td>• Support for integration with campus authentication, HR, and finance systems</td>
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<td></td>
<td>• Varies by vendor. Huron and InfoEd include integration support as part of implementation costs.</td>
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<td><strong>Implementation and Sustainment support</strong></td>
<td>• Based on vendor presentations, user workshops and community feedback.</td>
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<td>• Salary based on functional role and assumes 30% fringe and 2% escalation.</td>
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# Scenario Evaluation

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<th>Strengths</th>
<th>Weaknesses</th>
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</table>
| A | • Lowest short-term total project cost  
    • Minimizes implementation risk and switching costs to a new system | • Lack of unified UI/UX  
    • Limited integration between vendor pre-award solutions and eProtocol  
    • eProtocol upgrade project may require more time to implement than assumed (3 years)  
    • eProtocol may not be able to achieve feature parity with comparable vendor solutions  
    • Continuing compliance risk for staying with existing system until it reaches parity |
| B | • Total cost is comparable to Scenario A, especially over long term  
    • Option provided by the most vendors  
    • Integration across highest-accessed modules  
    • Lower new user training costs | • Lack of unified UI/UX across remaining support modules (IBC and Animal Operations)  
    • Limited integration between vendor pre-award solution and remaining eProtocol modules |
| C | • Unified UI/UX  
    • Integration across all modules  
    • Lowest new user training costs | • Higher total project cost  
    • Higher switching cost (re-training)  
    • IBC and Animal Operations are currently only offered by two vendors (Huron and InfoEd), limiting procurement options |
## Highlighted Risks

<table>
<thead>
<tr>
<th>Risk</th>
<th>Impact</th>
<th>Potential Mitigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected vendor leaves research space/market</td>
<td>High</td>
<td>• Assume a replacement/refresh rate of 10 years when evaluating total budget&lt;br&gt;• Evaluate likelihood for each vendor based on deployment base, history and community feedback and include in evaluation&lt;br&gt;• Select vendor with open source codebase</td>
</tr>
<tr>
<td>Implementation costs exceed estimates</td>
<td>Medium</td>
<td>• Evaluate FFP contracts where feasible&lt;br&gt;• Build contingency into total budget</td>
</tr>
<tr>
<td>Vendor software does not meet security standards</td>
<td>Medium</td>
<td>• List security requirements in RFP&lt;br&gt;• Engage UT ISO early</td>
</tr>
<tr>
<td>Unable to hire staff to support implementation</td>
<td>High</td>
<td>• Begin identifying staffing requisitions concurrent with RFP</td>
</tr>
<tr>
<td>Transition to new software will impact UT research</td>
<td>High</td>
<td>• Base implementation schedule around significant milestones&lt;br&gt;• Implementation approach should factor in required training and transition support</td>
</tr>
<tr>
<td>Procurement will require UT Regents review</td>
<td>Low</td>
<td>• Identify potential procurement paths that limit scope of a single contract (e.g. subscription instead of license, breaking out software and implementation contracts)</td>
</tr>
<tr>
<td>Software will require unplanned customization after award</td>
<td>Med</td>
<td>• Plan for on-boarding discussions with vendor prior to final award, potentially as part of RFP finalists evaluation&lt;br&gt;• Build in contingency into total budget</td>
</tr>
<tr>
<td>Data managed by vendor is misused/leaked</td>
<td>Med</td>
<td>• Evaluate vendor data management plan as part of RFP&lt;br&gt;• Review contracts/terms and conditions with vendors&lt;br&gt;• Consult with UT legal for approach during procurement or contract negotiations</td>
</tr>
<tr>
<td>Software availability/uptime</td>
<td>High</td>
<td>• Evaluate performance for each vendor based on history and community feedback, and include in evaluation</td>
</tr>
</tbody>
</table>
RECOMMENDATIONS/DISCUSSION
The University of Texas at Austin 2018

Recommendations

Leverage Subscription Model

- Total cost delta between license and subscription grows more significant after 5 years, but relies on less institutional support staff to maintain software
- Lower entry cost (up to 15-20% for some vendors)

Integrated Suite Over Separate Solutions

- Functional benefits of an integrated suite (common UI/UX, leveraging data between modules, reduced new user training costs) outweigh continuing our current limited integration approach
- Total costs between Scenario A and B are very similar, and Scenario B offers a lower risk

Incremental Implementation

- Phased implementation, while extending the total project time, allows us to manage the risk of introducing new modules
- Incremental implementation will allow for maturation of vendor modules that can be evaluated for future growth, especially where we have stronger internal solutions (e.g. IBC, Animal Operations)

Select Vendors With Mature Solutions and Experience/Utilization at Peer Institutions

- Vendors with large deployments and user bases reduce risks, e.g. ability to leverage peers for collaboration or as staffing resources, less implementation risk, experience with ERP solutions such as Workday
- The value of being a development partner is high risk with only marginal cost benefits

Open Source is Preferable to Proprietary; at a Minimum Need Ability to Access Data

- Software codebase and data exportability should be strongly weighed during evaluation