

# Thinking about a Leveraged Future for Research Administration Systems

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A discussion document for thought, reflection, comment, and revision

By

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## 1. Foreword

The purpose of this document is to stimulate immediate discussion regarding investment paths for systems to support research administration. Its questions and proposals are simply ideas that have emerged through various side conversations, and it is hoped that this document will provide a basis for a focused discussion among interested stakeholders.

## 2. Context

College and University Research Administration (RA) Offices are growing in their sophistication, competencies, and work processes to ensure that institutions comply with all regulatory, policy, and ethical requirements for research. They aid faculty and staff to develop proposals that are complete and can assert the full strength of institutional commitments.

Effective and efficient information systems are an essential tool for managing the extensive scope and complexity for research – particularly for sponsored research and grants. Many institutions have invested in home grown systems to meet portions of their informational need (e.g., Conflict of Interest Tracking System, Route Sheet, or Institutional Review Board), but few can boast of having a complete system that meets the very real needs of the RA, faculty/researchers, Finance Office, Technology Transfer Office, and others with a large stake in research. Other institutions have purchased various modules from commercial firms, and some have licensed the MIT Coeus system and invested in its consortium.

The 1 October 2006 deadline for NIH R01 electronic submission of grant information to the federal grants.gov system is causing institutions to focus on how their systems can comply with this requirement. Time is short to solve this current problem, and more importantly, systems decisions in 2006 will set an investment path for years to come. Thus, several timely questions merit *immediate* discussion.

## 3. Discussion Questions

1. Is there real interest for colleges and universities to consider pooling their funds to develop a shared, open source research administration system using the Community Source Model?
2. If so, is there an existing system(s) design (various modules?) or software code that could be the basis for such a shared system?
3. How would a project work if institutions decided to invest in an open source system and how would it be sustained, maintained, and enhanced over the longer term?

One approach to answering these questions is to examine how other areas of higher education have used the Community Source model to meet their systems needs. The successful \$6.8M Sakai Project and now Sakai Foundation is the outcome of shared investment by the teaching and learning communities to produce a course management and collaboration system. The \$8M Quali Financial System is the in-process project among Finance Offices to produce a complete, enterprise scale financial system. The next section provides an overview of how these projects have used the Community Source model to address these three questions for their system needs.

## 4. Sakai and Kuali Financial System as Examples

The **Sakai Project** began when Michigan, Indiana, MIT, and Stanford all realized they were needing and independently working on course management systems to support teaching and learning along with general faculty collaboration. In January 2004, the four founders pooled about \$1M of staff time from each institution over two years and obtained a \$2.4M grant from the Andrew W. Mellon Foundation. The partners all tendered their relevant systems and designs for use in the project, and the Michigan system was chosen as the baseline system for development.

Sakai chose an open licensing approach to encourage use, enhancement, and commercial support for the Sakai software, thus, the software would be available for free download and use by anyone. They founded the Sakai Education Partners Program (SEPP) in March of 2004 to begin building a community and obtained a \$300K grant from the William and Flora Hewlett Foundation to help launch it. SEPP members paid \$10K per year with a three year commitment (\$5K for small schools). SEPP dues were used for community conferences, discussion list coordination, and some technical work.

The project worked on a tight schedule with date-driven development. Sakai 1.0 was released and in production use at the U of Michigan by August of 2004. Indiana and others put version 1.5 in pilot in the spring of 2005, and IU had release 2.0 in full production use by fall 2005. By the end of the grant in December of 2005, the Sakai Project had been legally transferred to the independent Sakai Foundation with a world-wide election of Foundation Directors. There were 88 colleges and university partners from five continents and 13 Sakai Commercial Affiliates providing for-fee support (including IBM, Sun, Unicon, Sunguard/SCT, and others). The Sakai conferences grew from 168 attendees in June 2004 to 568 by December 2005. The Sakai Community works through chartered Workgroups and Discussion Groups that work on topics of interest.

Most of the development is now being done by the community. The foundation has about \$1M of annual dues, and this is primarily used for community coordination, architectural evolution, and conferences.

The software was imperfect by the end of the grant period, but it was enterprise quality and already deployed in several institutions. It lacked a few important features, and by January of 2006, the worldwide community of university and commercial developers was already contributing tools to remedy its deficiencies. New tools and code for an improved Discussion Forum, Administration, Library Integration, and others have already been contributed. The main lesson is that an *open source community can harvest tremendous development effort for the benefit of all if it can develop an effective community to do so.*

The **Kuali Project** tells a similar story for college and university financial systems, but it remains a younger work in progress. In short, Indiana University, Cornell U., Michigan State U., San Joaquin Delta College, the U. of Arizona, and the U. of Hawaii all pooled about \$4.8M of staff time over 27 months with a \$2.5M grant from the Andrew W. Mellon Foundation to create the Kuali Financial System (KFS). Kuali was officially created in August of 2004, but it really began its work when all the partners joined and the Mellon grant was awarded in March of 2005. The Indiana University Financial System was chosen as the baseline system design, and the code is being completely rewritten in Java with some enhancements as chosen by the founders.

Kuali has embraced much of the philosophy and project execution from Sakai with some notable improvements. In January of 2006, Kuali is creating an independent Kuali Foundation (like Sakai) and is preparing to launch the Kuali Financial Partners Program by April of 2006. The board recognizes that the near-term market size for KFS is considerably smaller than for a teaching and learning system like Sakai.

Thus, it has chosen a graduated membership dues schedule from \$5K annually for community colleges to \$25K for large institutions. Again, the software remains free for download and use without joining the partners program, but there is considerable community value in doing so.

## 5. A Vision for a Leveraged Research Administration System

*What if any and every college and university could use, without fee, an outstanding research administration system that embodies the “best of” techniques and processes for research administration while maintaining the flexibility to fit disparate institutional structures and needs?*

Are we dreaming? Maybe, but why not assess fully if a group of visionary leaders could achieve this for higher education while meeting their own local needs and providing an economically sustainable path for the future? Achieving this would be tremendously beneficial for professional development in RA office as staff could collaborate on many of the non-software costs of documentation, roll out communications/strategies, business process improvement, policy enforcement techniques, technical tips, and more. Funding agencies – federal and nonfederal sources – would benefit from being able to interact with many institutions via common system. There would be an active market for commercial, for-fee services to consult, host, integrate, implement, and maintain systems at institutions that need assistance.

I use the term *leveraged* as the plan would harness much of the investments in local, home grown system components that currently lack leverage for the broader community. I’ll refer to this envisioned system as Kuali Research Administration (KRA) for simplicity in discussion and potential benefit of having the Kuali administrative systems brand, but its affiliation under Kuali is fully open to discussion.

There are many questions:

- How would we begin?
- Who would be investors?
- How would functionality and feature decisions be made?
- What is the technology architecture?
- How would long-term governance work?
- Who would pay for maintenance and enhancement of “free” software?

These are all questions that Kuali knows how to answer and execute through its own experience and deep knowledge of the Sakai experience.

Ideally, KRA would begin with complete access and ability to reuse a broad inventory of existing RA software and intellectual property (IP). This could include existing complete systems, modules, technical architectures, and designs from KRA founders and others. Use of the IP could be included in the project through an explicit agreement among the founders, or even better, the copyright holders would grant a nonexclusive “Software Copyright License” to the Kuali Foundation to fully use, modify, redistribute the IP. This is the process used by the Apache Foundation and was adopted by Sakai and Kuali. This copyright grant would not change the original copyright holder’s full rights to use, sell, redistribute, or do anything else with their code. It is a non-exclusive grant.

The Kuali Foundation and the KRA Project would distribute all software and improvements under the Educational community License (ECL).<sup>2</sup> Thus, the initial investors and all of higher ed is assured of access to the resulting KRA system. It seems prudent that major contributors of existing RA systems

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<sup>2</sup> See full license text for the Educational Community License at [www.opensource.org/licenses/ecl1.php](http://www.opensource.org/licenses/ecl1.php).

might seek a “smooth migration path” to KRA for some point in the future when/if they chose to use KRA.

KRA would also be open for the creation of derivative works, improvements, or even bundled sales, e.g., “the Acme Inc. Research System.” Of course, however, the Kuali Foundation will continue to be the price leader with no cost access to the KRA system. This open approach has worked well for uPortal where the open source code has been adopted by hundreds of colleges and universities and others have purchased uPortal as a product called Luminus from Sunguard/SCT. SCT remains an excellent contributor to the large uPortal community.

Kuali would create a Research Functional Council (RFC) for KRA just like was done for the Kuali Financial System. It would be comprised of RA functional leaders from each founding institution. The RFC would work under a “statement of philosophical principles” to prioritize feature changes, gaps, priorities that will become the work of the development team. The RFC would create subcommittees of Subject Matter Experts to work on the detailed needs for each module, e.g., Routesheet, Conflict of Interest, Clinical Trials, Grants.gov, etc. Similarly, a Technical Council and Chief Architect from the KRA founders could define the technical architecture for KRA. It would likely be forward-looking towards then next generation of service-oriented architectures and web services.

In addition to software, both Sakai and Kuali Financial have demonstrated the considerable expertise that each institution can bring to a collaborative endeavor. A KRA project would also likely benefit from the web of relationships, process insights, skills, and competencies among participants that can interact to the benefit of all involved.

Finally, the most pressing questions focus on long-term sustainability, maintenance, and enhancement for KRA. The answers for these are based on the type of community that Research Administration offices develop for KRA. The next section proposes some ideas for establishing the KRA community.

## 6. KRA Community

Why form an open community where there is a chance and likelihood of free riders? Why not form a gated community with a pay-to-play approach? The core argument is that all adopters and users of the software benefit when more institutions use it and enhance it. By making it open, it encourages adoption and commercial support. The community is held together by mutual, economic self interest rather than contract and restrictions. John Mark Walker makes clear that the open source model is about economics and not idealism, and the philosophy of collaborative open source community aligns well with university values:

*Some software vendors believe that open source is an ideological movement. This paradigm ignores the impact of software prices shattered by zero-cost distribution and global collaboration capabilities, both of which the internet fuels. It also ignores one of the primary factors driving customer adoption: rebellion against vendor lock-in. By combining lower cost of production with the additional freedom and flexibility endemic to open source deployments, one sees two dynamics driving both adoption and production. The push of software commoditization and the pull of customer demands have created a perfect storm for open source software.<sup>3</sup>*

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<sup>3</sup>In his recent treatise, “[There is No Open Source Community](#),” [John Mark Walker](#) uses economics and history to argue that the growth of open source software is a natural evolution based on the capabilities of the Internet for collaboration and sharing. The title means there is no *single*, monolithic open source community based on an

There is tremendous value in a community that can harness and share the best work of many of its members. This work can involve all kinds of contributions from serious software developers to those who contribute documentation, process ideas, community facilitation, training materials, and many other things needed for complete systems. The model works from a basis of coordinating from a field of plenty rather than needing to ration a scarce, fixed resource under single control (as in a vendor relationship).

Coordinating these communities and learning to work effectively in them is a non-trivial transition. It involves giving up some control and absolute confidence in the strength of a home institution's ideas. I believe that every institution that participates in Sakai and Kuali can attest that this is not easy, but it is exceedingly worth it.

Thus, is there sufficient interest to form a sustainable KRA Community if we embark on the vision of developing an outstanding open source research administration system? Would some type of community fee structure be achievable with an open licensed KRA system? Can various models be blended? Experience shows that institutions recognize that community membership fees are well worth the value of being in the community. Multi-faceted open source communities (development, support, training, etc.) quickly demonstrate the great value of extensive peer relationships over the isolated challenges of home grown system maintenance or vended system contracts. Institutions' involvement with Sakai and plans for (or tracking of) KFS may also make community fees a more familiar and attractive type of institutional investment.

## 7. Next Steps

This document was written to spur conversation, questions, and hopefully a decision path for *if* the concept for a shared research administration system is feasible. My initial review of the current situation suggests that now is the time to act on establishing a KRA project.

We must also recognize that even if the KRA vision proposed here is advanced through shared investment, institutions like Indiana, Cornell, and many others will need to work out near-term plans to meet the short timelines for grants.gov. By establishing a clear strategy, design, and technical base for KRA now, even short-term investments can be made as part of a purposeful systems plan.

There are many possibilities and many questions. I believe that an action now can signal a shared "of, by, and for higher education" path for many institutions that are feeling a need to make a research administration system decision very soon. I welcome any and all questions, concerns, ideas, or proposals for how we might move forward with a shared vision. Please send your comments to [bwheeler@indiana.edu](mailto:bwheeler@indiana.edu).

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idealistic leader...rather, there are many based on thousands and thousands rationally leveraging the Internet to meet their needs. 1 January 2006. Referenced 14 January 2006. [Note – this is truly worth a read].