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Who Should Read

Chief Research Officers

ERA Selection Committees

Research Administration/ IT Teams

Electronic Research Administration Systems

An Overview of the ERA Market and Vendor Evaluation Process (Updated January, 2018)

Three Ways to Use This Publication

1. Better understand the current market for grant and award management, submission, and support products.
2. Save time and money on identifying and evaluating best-fit ERA vendors.
3. Identifying functions and components to prioritize when implementing new ERA tools.

University Research Forum

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About the University Research Forum

The University Research Forum is the go-to resource for chief research officers. It offers real-time access to the latest strategic insights and implementation support on their biggest priorities, including both strategic initiatives like grand challenge efforts as well as operational initiatives, such as minimizing the administrative burden on faculty and overseeing research communications.

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Executive Summary

Definition

Electronic Research Administration: a method of conducting research administration in an online, paperless environment. Many research sponsors, including the federal government, have moved from paper application and award management processes to online systems that require secure log-ins and institutional registrations.

Key Observations

Chief Research Officers (CROs) select and develop systems on a continuum between "configuration" and "customization". Systems on the configuration end of the spectrum require less back-end tweaking and offer more support, but cannot be completely tailored to campus needs the way a more customized system can. Configuration-type systems require CROs to spend more on licensing costs, while customization-type systems require CROs to hire additional IT staff. Contacts report that most mature vendors offer the same core capabilities, and that most vendor vetting occurs on the desired level of customization rather than breadth of capability offerings.

CROs seek to integrate whichever tools best match their institution's needs, rather than buy entire suites of services. Most universities do not implement all modules from a single vendor, and instead opt to select other products for research-related functions, such as compliance and grant identification. CROs select ERA functions based on performance, and connect the functions through system-to-system crosswalks, customized crosswalks, or through back-end data warehouses.

Overall satisfaction with profiled vendors is tepid, and contacts report no single vendor provides a sufficient full life-cycle product. Since the decentralization of the federal system for accepting grant applications on Grants.gov made many previous ERA decisions less advantageous, CROs and their teams continuously monitor the ERA market for potentially better services. Some institutions have developed portals or dashboards to make current systems more user-friendly or have integrated ERA systems with updated homegrown tools.

Sources

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- Research interviews with users of:
  - InfoEd: http://infoedglobal.com/
  - Cayuse: https://cayuse.com/
  - Kuali Coeus: https://www.kuali.org/kc
  - Huron Click: https://www.huronconsultinggroup.com/expertise/technology/click-portal-solutions
  - TOPAZ Technologies: http://www.topazti.com/compliance
  - Novelution Research Management System: http://www.novelution.com/nrms.html
- Homegrown system

ERA System Taxonomy

Market Overview

The Current ERA Market

The electronic research administration (ERA) market comprises several platforms created to streamline the grant application process by moving processes previously based in paper and spreadsheets to an online format. About two decades ago, universities sought these platforms for system-to-system application on the newly created Grants.gov. Almost 43 percent of respondents in a 2009 Federal Demonstration Partnership (FDP) survey reported they had purchased an ERA system for this purpose.[1]

Changes to Grants.gov in 2009 and since have led many chief research officers (CROs) to prioritize other ERA functions, particularly workflow tracking and grant management, over direct system-to-system submissions. Most ERA vendors originally offered grant identification tools, business administration software, or research consulting services prior to their current ERA offerings. As a result of the differing backgrounds of these vendors, the current ERA functions that vendors offer vary in application. However, their basic capabilities— tracking, routing, and accounting for grant applications— remain similar across vendors. University administrators must therefore choose products based on the ways in which they function on their unique campuses, rather than on the breadth of a product's capabilities.

Vendor Categories

ERA Systems Require Either Upfront Configuration or Customization Effort

At the moment, ERA systems and their associated vendor support can be broken down into roughly two categories:

- **Customization systems:** These systems provide flexibility to tailor both front-end and back-end components of the tool. Customization vendors offer a base-level tool as a template. The services of these vendors can be created entirely from scratch or borrowed and/or customized from existing add-ons from other users.
- **Configuration systems:** These systems seek to provide as close to an "off the shelf" experience as possible. Configuration vendors offer users a host of configuration options (e.g., tailored drop-down menus, question scripting changes, user-friendly reporting interfaces) but do not require much back-end customization effort. CROs adopt configuration vendor services through modules.

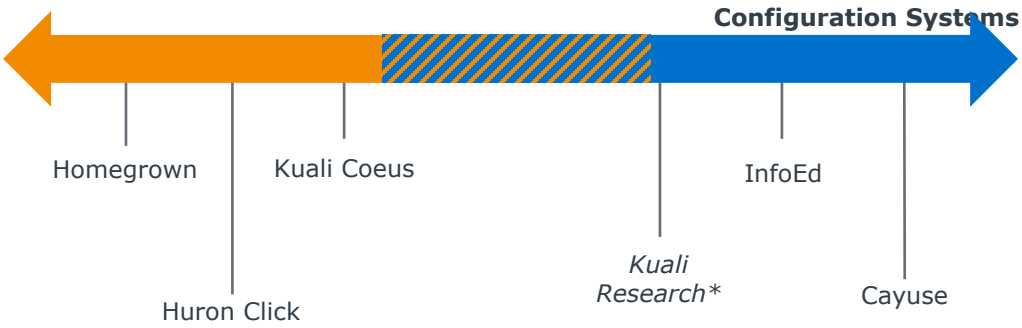
Of the 34 respondents to the FDP survey in 2009, about 30 percent used InfoEd, another 30 percent used Cayuse, 24 percent used Kuali Coeus, and about 16 percent used another vendor. At present, InfoEd and Cayuse continue to hold a large share of the market, and Kuali Coeus has gained a larger share since the survey.

1) Survey on Applicant Investment in Grants.gov, Executive Summary and Survey Results, 2009.

Category Breakdown of Profiled Vendors

A few of the larger vendors are profiled on the "customization" to "configuration" spectrum below; this spectrum is just an example, not an inclusive listing.

Customization Systems



Kuali Research

Kuali's newest ERA venture, Kuali Research, appears to build on many of the templates created by Coeus users and provide more of a "configuration" rather than "customization" product for users.

ERA Vendors Moving Toward Configuration End of Spectrum

Given market demand for easier and quicker system adoption, most vendors appear to be moving toward offering more "turnkey" services. For vendors on the configuration end of the spectrum, this requires greater standardization of functions into modules. For vendors on the configuration side, the increased competition requires both a doubling-down on core functions (i.e., tracking and submissions) and an expansion of additional services, such as compliance, grant identification, and faculty portfolios. Kuali Research and Huron Click's compliance offerings demonstrate a trend toward prescriptive, structured modules from largely customization-based vendors.

Beyond service offerings, vendors struggle to identify the optimal level of flexibility to offer to users. Kuali Research, for example, is built from open-sourced elements in Kuali Coeus, so users expect a high level of adaptability. On the other hand, many users moving away from customization tools desire a more rigid structure that does not allow for too much flexibility. A high degree of flexibility can disrupt the stability of processes on campus.

Resource Requirements

Configuration Systems Require Licensing Costs and Some Staff

Universities that adopt configuration systems report spending a majority of the allocated budget on upfront licensing costs and some on implementation staff. Licensing presents the more substantial costs, as much of the immediate implementation and configuration responsibilities fall to existing IT and research staff

and to vendor support services. Staff hours on tool implementation shrink as the tool becomes available to users. Profiled universities with configuration systems can therefore maintain smaller technical support teams than those with customization systems.

Configuration System In-House Support Team

Configuration vendors also offer technical support for implementation needs, as well as ongoing maintenance and customization requests.

Director of Research Information Systems (Research)

- Housed in central research office; reports to Associate/Assistant Vice President/Provost for Research
- Typically has a central research (e.g., pre-award, post-award) or unit-level administration (e.g., proposal preparation, research reporting) background
- Responsible for systems management and reporting
- Team sizes vary by research portfolio size; centrally, some teams are as small as 3 FTE and as large as 16 FTE
- Team functions include report creation, distribution, and business analytics

Research Administration Group (IT)

- Housed in central IT office; reports to Chief Information Office
- Responsible for systems integration, back-end configuration, and maintenance
- May also coordinate and perform specific customization requests, such as overlays to better connect ERA tools with other campus systems

Customization Systems Require Significant Support Staff

"Upfront costs directly relate to the level of service you get with ERAs. It really is a 'you get what you pay for' market."

-Director of Research Information Systems, R1 University

Customization systems require teams of developers to test, implement, and maintain ERA functions. While much of the required capabilities likely reside in the IT office already, system construction and installation typically require new hires in both the IT and research offices. As services mature, CROs reallocate staff time to maintaining system maintenance and implementing improvements but often retain hires from the implementation process. Add-ons to the existing platform may require further staff increases.

User Communities Support Customization System Functions

Given high staffing and skill requirements, most customization vendors maintain active user communities that triage and troubleshoot problems together, as well as offer templates for many functions and aid in long-term service development. These communities serve a different purpose than the vendor-offered technical support of configuration vendors, but contacts appreciate the depth of user community engagement and assistance across customization vendors. Users benefit from communities of support with similar needs and innovative solutions to both frontend and backend issues. Contacts report valuable interactions with their colleagues at other institutions through these communities.

Profiled Schools Beginning to Prioritize "Best in Breed" as Opposed to "One Size Fits All"

Although most vendors offer "cradle to grave" services, universities do not often implement the full suite of modules from a single vendor. Institutions tend to prioritize the following functions when purchasing ERA system modules in the following order of importance:

- **Workflow and routing:** This remains the primary function of ERA tools. Many universities engage workflow tracking elements more than routing functions due to agency-specific application systems.
- **System-to-system accounting connection:** The ability to connect to the university's accounting system remains a pivotal function of ERA systems for many institutions. Most vendors, at least, market their system-to-system integration abilities, and many institutions report success in integrating ERAs with on-campus accounting systems (e.g., InfoEd with PeopleSoft, Kuali Coeus with Kuali Financials). Some institutions use back-end data warehousing to connect otherwise unintegrated systems. Other institutions have implemented customized crosswalks to bridge systems that cannot easily integrate.
- **Compliance:** Since the first draft of this whitepaper in 2016, the number of available modules and products to provide electronic compliance support has increased. Many of the large ERA vendors (InfoEd, Kuali, Cayuse, Click) are increasing their compliance offerings that integrate with their workflow and routing products; there are also an increasing number of products from research administration-related non-ERA vendors (such as TOPAZ technologies) competing in this space.

Most Institutions in a "Continuous Shopping" Mindset Regarding ERAs

Very few contacts report satisfaction with their current ERA systems. Instead, CROs and their teams closely monitor the ERA market to determine if a better system might improve research administration functions on their campuses. CROs regularly review other vendor's functions to determine their fit with processes across campus and their abilities to meet campus needs. CROs continually weigh the costs of switching vendors with the opportunity to streamline research administration through the adoption of a new system. Contacts lament the need for continuous updates to both their ERA systems and the homebuilt applications that surround them, but these difficulties appear consistent across vendors.

Whether at a conference or on campus, vendors typically present a generalized sales pitch. The pitch may include the various modules available and how the vendor tries to distinguish themselves from competitors. CROs can streamline the vendor evaluation process by determining what functions matter most for their user groups on campus. CROs can then direct conversations with vendors based on their abilities to meet campus needs and align with existing or proposed campus processes.

A New Evaluation Framework for ERAs

The Five Questions to Answer Before Vetting a Vendor

Software Philosophy:

Are you a "best-in-breed" or a "one-size-fits-all" institution?

Must-Have Features:

What's the biggest service gap on campus?

Resources and Time:

What's the budget and how long until we *need* it?

Implementation Plan:

What modules first, and where to begin?

Currently Active Vendors:

Do we *have* to buy from our CRM/financial system vendor?

How the Five Questions Ease Vendor Evaluation

✓ Reduces the number of vendors to consider
✓ Reduces time spent on vendor evaluations
✓ Speeds up time to implementation

Prioritize Functional Performance in Vendor Evaluations

At the outset of the vendor evaluation process, CROs should task their vendor review committees to curate lists of what functions their user groups would prioritize from a new ERA system. By presenting potential vendors with these lists, CROs and ERA evaluation committees can center the conversation on their university's unique needs and assess each vendor based on the capacity of the vendor to meet those needs. Instead of the typical pitch, the committee can ask the vendor to perform the prescribed list of functions, and determine which process and time allotment best matches the campus's needs. Contacts also request similar comparisons from colleagues at other institutions who currently work with the ERA vendors under evaluation.

Functional Priority Evaluation Process

1. **Develop an evaluation committee to collect feedback on what functions a new ERA system should perform**
   Contacts note that, while PI use typically comprises only five to ten percent of total campus ERA system use, faculty consultation during the evaluation process is critical to promoting faculty buy-in, adoption, and usage.

2. **Determine most critical functions from initial feedback**
   While all proposed functions should remain part of evaluation discussions, the CRO and the evaluation committee should prioritize primary functions crucial to maintaining and advancing the research enterprise. Prioritizing the most critical functions helps to direct later decisions about which systems to purchase (see "The New Evaluation Framework" on page 10).

3. **Seek input from vendors and colleagues about how various vendors can serve your unique campus needs**
   Contact research administrators at other campuses in addition to scheduling meetings with potential vendors to best survey the market. While vendors provide testimonies from clients, the best way to learn about how a vendor serves its clients and what potential stumbling blocks to consider, is to speak with fellow CROs and learn from their experiences. In addition, connecting with other research administrators helps to establish or gauge existing client networks, which contacts report positively impact client experience and vendor support.

4. **Develop a short list for the evaluation committee to review**
   After a market review, determine which vendors offer products and services that fit your campus needs. Consider how each module under evaluation will work with or replace existing tools and processes and what resources would be necessary to complete future updates to the system. Many campuses operate with modules from multiple systems that cover various necessary functions.

5. **Determine which system (or systems) will help your campus now and in the near future**
   Contacts emphasize that, in the ever-changing landscape of ERA systems, CROs should consider the flexibility of a system to meet potential future needs in the evaluation process. Contacts note that determining future needs can be difficult (i.e., unfulfilled grants.gov system-to-system requirements). An ideal system would balance the right amount of flexibility to adapt to future needs agilely with enough structure to meet current needs without unnecessary complications; unfortunately, contacts report difficulties finding that balance, and instead CROs must determine which attribute to favor in ERA system decisions. In addition, CROs should consider the potential costs of future system redesigns when determining the cost of a new ERA system.

Grant Identification Tools on the Rise

CRO offices increasingly serve faculty through grant identification tools. Grant identification tools, such as Pivot and GrantForward, help grant officers to find potential funding opportunities faculty may have missed. Faculty often grow accustomed to applying for the same NIH or NSF grants or are unaware of funding opportunities in other agencies and the nonprofit and industry sectors. Grant identification tools can not only locate, but regularly update faculty and administrators about new funding opportunities.

In addition to grant identification, many of these tools provide faculty research profiles that help potential funders to find faculty experts; there are also a number of faculty profile vendors that exist outside of the grant identification tool market. However, as with ERA vendors, no contacts expressed total satisfaction with their current faculty profile vendor, and faculty adoption remains inconsistent at best.

Benefits of Grant Identification Tools

Surfaces Trends and Potential Funding Opportunities
Allows administrators and grant officers to review all available grants, from government, corporate, and philanthropic funders. A high-level view provides insight not only into current opportunities, but also into funding trends.

Trains Faculty to Seek Diverse Extramural Funding Opportunities
Alerts about grant opportunities for which faculty might not otherwise search encourages faculty to consider new opportunities for funding, such as philanthropic and multi-PI grants. In addition, grant identification tools help early career PIs to locate funding prior to their first major agency-supported grants.

Alerts Faculty to Related Grant Opportunities
Sends faculty personalized lists of grant opportunities on a recurring basis. The tools curate opportunities based on their relation to faculty's areas of expertise. Faculty can also track grant deadlines through grant identification tools.

Offers Internal and External Partners a View of Faculty Expertise
Faculty profiles allow corporate and other extramural partners to search and view faculty publications and activities to determine fit for potential partnerships. Faculty can also view colleague's profiles to develop partnerships. In addition, CROs use faculty profiles to determine potential multi-PI initiatives and areas of excellence.

"I think it's only a matter of time before these [ERA vendors] combine their functions with better faculty profiles, grant identification tools, compliance modules, and so on."

-Director of Research Information Systems,

R1 University

Despite Abundance of Modules, Compliance Modules Remain Inconsistently Applied

As mentioned above, compliance modules represent the next big need for many research universities. With an ERA system in place, institutions seek compliance modules that streamline the reporting process between the central research office, compliance committees, and investigators. Most institutions prioritize IACUC, COI, and IRB modules first.

Unfortunately, like with ERA vendors, institutions report mixed experiences with compliance module vendors. Although some vendors may excel in one particular discipline of compliance, the subsequent modules lack. Similarly, some of the large ERA vendors offer a full suite of compliance modules that sync with the workflow process module, but lack customization and sophistication required for complex research enterprises. Although compliance vendors are less mature than ERA vendors, the lighter lift required will likely spur a faster market correction, with a strong crop of fewer vendors likely to emerge within a year or so.

Finding the Right Processes, Not Just the Right Tools

Contacts note that improved ERA functioning requires a combination of different tools and different business processes, rather than just a new product. For example, contacts at most profiled institutions reported that faculty seek a more streamlined pre-award process. A more efficient process requires both more customizable pre-award tools (or an additional user portal) to prompt faculty for less information upfront, as well as an updated pre-award process that involves grant officers sooner to recognize errors as they occur.