Chief Process Architect: a Model for ERP/Process support in Higher Education

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Syracuse University developed a model to provide ERP/Process Support to optimize Enterprise Processes. Learn the history behind the Chief Process Architecture model, how it fits into our ERP implementation effort, setting up the CPA organization and the model itself.
1. Introduction

Modern enterprise resource planning (ERP) software has the potential to improve business and information services for all members of a university community. The key to realizing these benefits is the redesign of business processes for improved customer service and organizational efficiency. However, the traditional departmental structure of universities is not well suited to this mission, since each department has jurisdiction and feels “ownership” of only its piece of the business processes and system responsibilities.

In 1993, Syracuse University formulated a comprehensive plan to convert our mainframe administrative computing model that used internally developed, customized software to a client/server distributed computing model using ERP software. Our experience validated the generalization that each department thought and acted largely independently. Ongoing support of highly integrated ERP systems became an institutional tug-of-war among the functional business units, with the Information Systems (IS) department acting as enterprise mediator as well as custodian of the required technology.

We describe here the development of a new organizational structure at Syracuse University for the support of ERP systems. The centerpiece of this new structure is a new department called Enterprise Process Support. This department has responsibility for end-to-end enterprise processes supported by the ERP software that crosses multiple departmental boundaries.

Syracuse University (SU) is a private, nonsectarian university enrolling about 15,000 full-time students and employing about 3,500 full-time employees. Until the mid-1990s, enterprise software was primarily home-written by a team of about 35 IS staff members. The IS staff members worked with individual departments to understand their business rules and develop software to perform their transactions and generate their reports. Enterprise processes were generally set up through serial communication among the departmental systems. Departments generally had full control of business decisions that affected them and custodial control of the institutional data within their domain. In 1993, SU committed to a transition from a “mainframe-build” enterprise software model to a “client/server-buy” model. The transition was long, arduous, and expensive; it is now about 80% complete, with the end expected in 2003.

Last year Chancellor Kenneth A. Shaw retained outside consultants to review the progress we were making in the transition to client/server ERP systems. He asked them to address several important questions:

- How much is the remaining transition going to cost?
- What is the best organizational structure for the project?
- What are the ongoing support costs for this environment?
- What kinds of staff do we need and where should they be located?
- How do we resolve the governance issues of an integrated environment?
- How can we realize the most value from these systems?

Most of the findings of the consultants were reassuring. Although the project was expensive, the costs conformed to national metrics for such implementations. The success rate of implementation was high, and the functionality implemented was robust. Staff members from
many departments had willingly learned new skills and cooperated in functional teams to achieve success.

The most distressing finding of the consultants was that, although SU had implemented new enterprise software effectively, only a fraction of the potential benefits had been realized. The highly integrated enterprise model of the software was not a good match for the strong departmental (“stovepipe”) structure of the University. The Information Systems (IS) unit of our central computing organization, which should be focused on technical support of our information systems, was instead involved extensively in departmental mediation and business process issues. In general, there was a lack of cost/benefit analysis in decision-making. The project was being conducted as a mandate. The focus of decision-making was on departmental tradeoffs, rather than enterprise benefits.

The consultants made two key recommendations for a change in the support structure and governance of these enterprise systems with the goal of deriving the greatest value from the enterprise systems:

1. Create a Chief Information Officer (CIO) position reporting directly to the Chancellor and including responsibility for enterprise processes.
2. Create a new department under the CIO with the mission of enterprise process support based on cost/benefit analysis.

The Chancellor’s full response to the consultants’ report is published on the web at http://www.syr.edu/chancellor/clserv.html. The focus of this article will be the new support model for enterprise systems that features a separate department with responsibility for enterprise processes.

2. Solution definition

To best define the solution, we needed to assess the overall impact of implementing an ERP system on campus and then determine the required local and enterprise changes. The impact of implementing ERP software on the SU campus was overwhelming. It virtually touched every student, school and college, and administrative department - and not everyone was ready for the change. Students generally embraced the outcomes of the new software. They were ready to use self-service, web-enabled functionality and they adapted to the new environment easily. Our administrative organization, on the other hand, was not as ready for the culture change that occurred.

For all the energy that the campus put forth to move forward with ERP software, there were several organizational changes that could not happen soon enough to coincide with the early phases of our implementation. Our assessment of the ERP implementation was that we did not have the organizational infrastructure required to deal with the increased complexity of a highly integrated information system. We needed an infrastructure that would help:

- Promote enterprise thinking
- Perform cost/benefit analysis
- Improve enterprise processes
- Develop required organizational infrastructure

To help us break out of our stovepipe thinking and promote an enterprise view, we needed a focal point for cross-functional feedback. Any system change or functional decision involving one component of our information system would very likely have an impact on another system component. Departments that once ‘owned’ data and were accustomed to
making independent decisions concerning its use soon realized the same data are now ‘shared’ and they needed to consult with others before making changes. This led to the logical question of ‘with whom should we consult?’ No one person or department had an enterprise-level view of the data and processes within the organization, nor did anyone have responsibility for acquiring that knowledge.

The number of departmental system customization requests was growing, there was a shrinking window of opportunity to complete them and we had a limited number of resources to develop them. Our initial efforts to justify the need and quantify the cost of customizations were noble but ineffective. The approval process lacked objectivity, as the decision-makers were often the departmental requestors and the technical developers. Each was a significant stakeholder in the outcome. The assessment process was unstructured – the departments making the requests found it difficult to quantify the benefits of improved student service (how do you measure the satisfaction of a student who no longer needs to stand in line in the snow?). The IS department, on the other hand, was very focused on quantifying the costs associated with risk assessment and the development and maintenance of a customization throughout its life cycle. This assessment frequently resulted in an unbalanced view of costs and benefits, which fostered an ‘us versus them’ mindset between departments and IS. We faced a high probability of approving the wrong type of customizations.

System modifications can make or break an ERP system. Modifications are expensive, not just in design and development costs, but especially in ongoing support from the departments and IS. Installing a local customization, a vendor-supplied patch or a new release requires extensive regression testing and then reassessment of the system impact. Indeed, every time the system is changed, the workload on both IS and the departments is huge. We needed to perform effective cost/benefit analysis to insure the approval and implementation of only those modifications with the greatest enterprise benefit.

We wanted to add value to our enterprise processes, not just migrate them from one technology platform to another. This required that we examine our processes across the enterprise and determine how to emphasize the value to our primary customer – the student. We needed to answer a very basic question for each of our processes: “How does this add value for our students?” We had to think beyond designing bulletproof processes to facilitate staff entry of student data and start building self-service processes to enable students to apply for admission, enter personal address data and register for classes. The benefits would be increased data accuracy, reduced staff processing time and improved student satisfaction.

This transition from taking a local view of processes to an enterprise view would require a significant time commitment and increased collaboration among departments. The departments needed to be willing to consider and agree to changes for the good of the entire University that were less than beneficial to their function.

Since the early stages of ERP system planning, we have attempted to broaden our mindset to a new enterprise way of thinking while we remained in our old stovepipe organizational structures. We needed an organizational change to support the budding cultural change. This new structure needed to be composed of both local and enterprise components, and it needed support from the University’s senior administration.

The first part of the solution was the adjustment to the local organizations to deal with the impact and the assessment of these changes. Our central IS department and the administrative departments that worked closely with the new ERP system would provide two of
the three legs to support our ERP system, the University and our students (see Figure 1). These two organizations made significant organizational changes to support the new enterprise way of improving processes. They:

- Created new roles
- Enhanced existing roles through training
- Built integrated teams

The flexibility of the ERP system enabled its users to take control of more aspects of the system and rely less on the central IS department. However, the price we paid for this flexibility was the added responsibility for system support in the departments and the resultant need for their staff to acquire new technical skills. To recognize this new role, each administrative department that defined policies and processes supported by the ERP system, e.g. Admissions, Financial Aid, Human Resources, etc. created a new role of Functional Business Analyst (FBA) within their unit. The primary responsibilities of the FBA were to have a thorough understanding of the business processes s/he supported and to acquire a general knowledge about the technology that supported those processes. That knowledge would be applied toward maintaining and improving ERP processes.

Many staff members throughout the campus saw their roles and responsibilities change throughout the ERP implementation. Troubleshooting functional processes and writing queries against the data warehouse are examples of tasks that required an increased knowledge of the technology behind the new system. In addition, departmental administrators now needed to acquire new skills to effectively manage technical staff. To respond to this need, increased training opportunities were offered and more central funding for training was provided.

The IS analysts, the functional business analysts (FBAs) and departmental managers needed a variety of forums to exchange ideas, assess impact of proposed changes, and learn more about the integration of ERP processes. Three new integrated teams provided the required forums:

- The HRSA (Human Resources/Student Administration) Core Team was composed of the technical leads and the FBAs. Their objective was to share information on their major processes, to resolve issues and to propose new ideas.
- The HRSA Integration Team had a similar membership but its focus was to review and to approve or disapprove requests to modify the ERP system.
- The HRSA Council was composed of the directors of the administrative departments including representation from the academic schools/colleges. The Council’s goals were to provide strategic planning, to quantify opportunities, to serve as a common forum for discussion on best practices, to act as an escalation path, and to assess customer satisfaction with the ERP system.

Combined, these teams provided the venue for an enterprise view of our ERP system and for assessment of how changes in one area affected others. This integrated team structure provided both local and enterprise support.


Following the Chancellor’s directive, the CIO created the Enterprise Process Support (EPS) group to refine enterprise processes based on objective cost-benefit analysis. The EPS group functions as an internal consulting organization. Their specific mission is to:

“Optimize enterprise processes across Syracuse University in order to support the University’s mission.”
In other words, the department is to help maximize the functional benefits of all of Syracuse University’s processes by making them better. Or, to be more precise, some people would say “to make them better, faster and cheaper”.

**EPS model description**

The organizational model pictured in Figure 2 represents a functional view of the Enterprise Process Support department. EPS was created to provide support - to be a resource for the University. In that sense, we see the Syracuse University enterprise as our customer, our client base. The focus of EPS’s work is the enterprise processes and the systems (ERP and others) supporting these processes as they provide services for the University community.

There are two roles in the EPS department – Chief Process Architect and Process Analyst. The Process Analysts work to optimize Enterprise Processes and the systems that support them. These efforts involve functional/organizational staff within the various departments that use the Enterprise Processes, as well as the IS staff who provide technical support. This allows us to get better value for our ERP investment.

The Chief Process Architect (CPA) leads the EPS department and the Process Analysts. The Chief Process Architect, in turn, receives guidance through three lines of reporting (one formal or straight line of reporting and two informal or dotted lines of reporting):

- Formally, to the Chief Information Officer (CIO)
- Informally, to the Academic Coordinating Committee (ACC) that provides guidance related to any academic process
- Informally, to the HRSA (Human Resources/Student Administration) Council that provides guidance related to administrative processes

To fulfill the EPS departmental mission, and to foster enterprise thinking in our decision-making, Process Analysts’ responsibilities involve working across departmental boundaries - potentially working with anyone at the University. Their main responsibilities and related tasks fall into these areas:

- **Enterprise Process optimization**: involves working with the appropriate people to identify and prioritize processes, conduct the necessary analysis, and implement the agreed upon changes.

- **Enterprise Process support expertise**: involves achieving comprehensive knowledge of enterprise systems capabilities and understanding the enterprise benefits and ramifications of any proposed system change.

- **Project/Process Teams**: involves working with process and/or project teams to identify the financial and/or organizational benefits of proposed changes to a process and/or system, assessing risks and planning contingencies, developing plans and priorities to ensure enterprise focus.

- **Training**: involves ensuring all stakeholders receive the appropriate level of training following implementation, and then participating in training to understand user issues and concerns.

**EPS – client interaction**

As a small, process-focused department, we needed to decide how we would be engaged by or how we would engage our clients. We developed the Engagement Process as our consultative approach to partnering with various parts of the University. The seven phases of Engagement provide a guiding framework used to define and work with the Enterprise:
1. Getting the work
2. Prioritization
3. Creating the Statement of Work
4. Consultation
5. Solution & Commitment
6. Implementation
7. Evaluation

First, we have to identify work for the EPS department. This identification can occur either by a potential client approaching EPS or by EPS approaching them. The activities of this phase are to identify potential work and then to gather basic information about this work so we have an accurate assessment of what and who may be involved. Then we identify and approach a potential sponsor for the effort. Finally, through interaction with both the sponsor and the client, we clarify the high-level details of the proposed work.

Following proposal clarification, we evaluate the potential work against a set of criteria that measure the opportunity’s value to the University. This evaluation allows us to prioritize various opportunities against each other. If this evaluation and prioritization reveal we should pursue the project, the work is assigned to an EPS staff member.

One of the most critical phases in Engagement is gaining an in-depth understanding of the client’s business need. During this phase, we deepen our understanding of the information gathered during previous phases. The goal is to develop an agreed upon statement of work for the project. This statement of work specifies, in writing, what EPS will be doing, how EPS and our client will work together, and the results the project is to produce (how success will be measured).

At this point, the tasks defined by the statement of work actually begin. The effort in this phase comprises the deepest level of our investigation. Tasks involve background research, formal needs analysis, interviewing, brainstorming, quantitative analysis, qualitative and/or quantitative trend review – all in an effort to identify the critical issues of the client’s business.

With the critical issues identified, required tools applied and an in-depth understanding of the need, the next phase is the identification of potential solutions. Although helpful in all phases, involvement from people in all University areas impacted by a solution is critical in this phase – it leads to the most creative, efficient and effective solutions.

The potential solutions developed are then evaluated for feasibility of their implementation. A major part of this feasibility consideration involves the development of commitment and support for a particular solution with the client, the sponsor and other key individuals. If this commitment and support is not available, the implementation of the solution is at risk.

Following solution selection and the generation of commitment and support, implementation begins. During this phase, it is critical to make sure the client owns the solution and is prepared to lead its implementation. Although the extent of EPS involvement is up to the client, to be successful we must ensure the client, and the sponsor if need be, play a strong leadership role here.
Last, and critically important in the effort to continually improve, is evaluation of the project and the process used to carry it out. This phase involves assessing the effort and ensuring the client is satisfied. It also involves determining what EPS learned from the effort, where there are opportunities for improvement and how these opportunities will be addressed.

**EPS model implementation**

The effort taken to implement the Enterprise Process Support model is an organizational transformation; it is described below using John Kotter’s eight steps to transforming your organization:

1. Establishing a sense of urgency
2. Creating the guiding coalition
3. Developing a vision and strategy
4. Communicating the change vision
5. Empowering broad-based action
6. Generating short-term wins
7. Consolidating gains and producing more change
8. Anchoring new approaches in the culture

Chancellor Shaw set the stage for the initial work and then established an even greater sense of urgency by asking outside consultants to review the progress of transitioning to a client/server ERP system. The finding that only a fraction of the potential benefits had been realized increased this urgency to the point of the appointment of a Chief Information Officer (CIO) and the creation of the Enterprise Process Support department.

The earliest efforts of the Chief Process Architect were to gather expectations about the EPS department and to do an evaluation of the major issues of which the ERP customers were aware. Also during this investigation, the level of urgency was assessed and communication was geared to further increase the momentum.

We created a number of guiding coalitions to help develop the right vision, communicate this vision to everyone involved, eliminate all the key obstacles to its achievement, generate short-term wins, lead and manage many change projects. These coalitions (the CIO, the Academic Coordinating Committee and the HRSA Council) are pictured in Figure 2 and described below.

Guiding coalitions require a group with enough power to lead the charge. Therefore, the Chief Information Officer (CIO) position was created with reporting lines to both the Vice Chancellor/Provost and the Chancellor. The EPS department was created, reporting directly to the CIO. This gives the EPS department high visibility, as well as a short chain of escalation to the Chancellor.

The Academic Coordinating Committee (ACC) at Syracuse University plans, coordinates and implements a wide array of activities in support of the University’s academic programs. Members of the ACC are Associate Deans of each of the Schools and Colleges and thus have the awareness, credibility, responsibility and authority for academic matters throughout the enterprise.

The HRSA Council provides direction, reviews cost/benefit information, serves as a common forum for discussion, acts as an escalation path and assesses customer satisfaction related to our ERP system. Members of the Council are directors (and above) with the awareness, credibility, responsibility and authority for administrative processes throughout the
University. Together these three coalitions support and guide the EPS department. The responsibility and authority represented combine to provide the power to succeed in our charge.

Much of the start-up work for the EPS organization involved the development of a department charter (including vision, mission, values, roles & responsibilities, goals, etc). Interviewing the primary stakeholders throughout the University to determine both their goals and their expectations for EPS started this work. These same stakeholders then reviewed the draft charter resulting from these interviews. Many of these stakeholders were appointed to the search committee for the process analysts. With the leadership of the Chief Process Architect, they adopted a rigorous hiring methodology that insured the Process Analysts would have the essential skills for their work and would understand through the interview process the roles they would be expected to fill. The Process Analyst team’s first assignment after starting work was to collaborate under the leadership of the Chief Process Architect in further refinement of their charter so there was shared understanding and agreement of their mission and operating methodology. This chartering process, combined with two weeks of detailed start-up activities began the creation of a high performing team. The EPS team also developed goals, objectives and tactics to engage the University community.

Once refined by the team, the EPS department’s vision, mission and values were communicated throughout the University by meeting with individuals, small and large groups, developing newspaper articles and other presentations and becoming members of various organizations. During these meetings, EPS staff took the opportunity to communicate the vision for change and to increase urgency for this change.

The empowerment of others began with the effort to staff the EPS organization with Process Analysts. Individuals from each of the primary stakeholder organizations, where EPS would begin helping, were invited to participate on the search committee. A comprehensive set of criteria for the Process Analyst hiring process came from the requirements and goals of these organizations.

EPS wanted to continue to use the knowledge, experience and motivational power already in the University community. We developed our Engagement Process to both involve our clients in our work and to teach them how to do the work to empower them for future efforts. Because Engagement is a consultative approach, and involves the client’s determination of both the actual work and the criteria for success, we develop a shared vision for each project. This approach fosters client involvement and satisfaction in any change.

Changing a highly diverse culture and “stovepipe” structure of a university requires the generation of short-term wins. These short-term wins actually started “spontaneously”, before the University community engaged EPS; they began with the search committee and are continuing today.

- Members of the Process Analyst search committee were so pleased with the set of criteria and overall hiring methodology that some of them used the same approach and, indeed, some of the set of questions as a way to consistently evaluate candidates within their own departments.
- EPS staff noticed that entering demographic information into our EPR system was an error prone task. The quantification of the expense incurred in trying to correct the errors made when entering information for EPS department staff confirmed the need for change. The Human Resources organization redesigned its training to emphasize
accuracy as a performance standard and redistribute work assignments. These changes resulted in fewer errors in data entry and fewer complaints from customers.

- Individuals from other areas of the University were so impressed with the development of the EPS charter that they asked EPS to facilitate charter development for their departments and committees.

- Some departmental managers used EPS’s method for the mapping of responsibilities into required skills, knowledge and tools to perform staff assessment and to plan developmental activities for their own staff.

Following these spontaneous wins, EPS staff began to engage the enterprise. EPS used the Engagement Process to define projects within the following areas of the University: Student Records, Human Resources, Payroll, Admissions and Institutional Advancement. A statement of work was created with and for each client to define what EPS would do, how EPS and the client would work together and the results that would be produced by the effort. Care was taken to define intermediate results, short-term wins, as part of the overall picture. These efforts, still in progress, have produced some intermediate results and our clients are pleased. However, the strongest indication of success is that clients have been approaching us; EPS is in demand.

EPS, clients and their sponsors communicate these intermediate results throughout the organization. Engagement project work and results will be evaluated for success (as defined by each statement of work) and then communicated to the University community. Satisfied clients will be encouraged to act as endorsers, to refer us to their peers and generally to help build credibility. If work results in a dissatisfied client, EPS will determine the details and extent of the dissatisfaction and work to correct the situation.

EPS plans to continue communicating the sense of urgency, even as project victories are declared, to continue our momentum through our transformation. Enterprise-level involvement provides the opportunity to transfer knowledge throughout the University. We see ideas or methods in one department that can be applied in another – and we bring these to the awareness of the second department. The Engagement Process provides us the opportunity to teach others enterprise thinking, cost/benefit analysis and process improvement methods.

The reaction of the campus community to the formation of the EPS group has been encouragingly positive. Demand for EPS services well exceeds our current capacity. One of the challenges has been to retain our focus on enterprise processes. Many of our campus clients want us to assist with problems and challenges they face that are not central to our mission. Our response has been to provide limited consulting services on whatever problem they ask us to address, but to reserve our full engagement process for only those enterprise process issues that are the focus of our responsibility.

Only when everyone understands how truly interdependent they are and learns to make decisions based on benefit to the enterprise can the benefit of a highly integrated enterprise model be completely recognized. This understanding and decision-making methodology must be integrated into the culture of the enterprise by becoming the norm of behavior and a shared value among the University community. Although the University has yet to reach this cultural anchoring stage in our journey to redesign our business processes for improved customer service and organizational efficiency, the early signs indicate we are moving in the desired direction. Enterprise thinking and customer-focus continue to grow, cost/benefit analysis is being applied to decision-making and the focus of the University community’s efforts is becoming the benefit to the enterprise, rather than individual departments.
Figure 1 - Syracuse University’s student, faculty and staff support model
Figure 2 - Enterprise Process Support as a functional organizational model
Endnotes

i An Enterprise Process is a process that is critical to the enterprise (i.e. those processes that have great impact on the success of the organization) AND that crosses multiple departmental boundaries.

ii An Enterprise is the entire organization including extensions to other organizations