Best Practices in Pragmatic Service Catalog Development for Higher Education

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This research describes for IT management professionals the best practices a number of higher education institutions have used to create their service catalogs. A service catalog is the critical and detailed component of the three-layered governance model for higher education IT organizations.

Key Findings

- It is critical to describe services in terms that the end users understand.

- Services must be complete — that is, from end to end, from user action to result, without measuring or describing component IT steps.

- Involving the users or user groups in the creation of the catalog is critical for both accuracy and acceptance.

- Communication of the catalog to the users must be easy and intuitive, as well as involve a mechanism for service ordering.

Recommendations

- Create your service catalog to inform and serve the user community, and as a basis for effective governance.

- Involve the users throughout the service catalog development, through focus groups, pilot testing, communication and acceptance.

- Search the Web for institutions' published catalogs, and choose a format acceptable to your institution. Content is key, not the format. Therefore, do not become sidetracked or delayed by formats or naming.

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Service Catalog — The Detailed Tier of the Governance Model

The service catalog is the most-detailed level of the three-layered portfolio governance model in higher education institutions (see "Concrete Governance in Higher Education: How a Simple Three-Layered Portfolio Approach Enables Sustainable Decisions"). Although this research will concentrate on the best practices being exhibited today for the creation of a service catalog in higher education, the service catalog doesn't exist in a vacuum. However, the service catalog is one of the governance layers and must be discussed as such. Though there are various recommendations — some based on commercial enterprises as opposed to higher education — that suggest differing places to begin to develop the major building blocks of the overall governance structure, beginning with the service catalog in higher education institutions makes eminent sense. The bottom line of the entire governance structure is the provision and management of IT services, not a series of documents created for their own sake.

The three governance layers are:

- **The Project Portfolio,** which is a high-level handful of major projects or initiatives that directly contribute to the achievement of a major goal or milestone in the institution's strategic plan or vision. These projects involve transformational initiatives or major infrastructure improvements and are the output of decisions made in the highest levels of an institution — for example, a project to "Improve Retention by Providing a Social Context."

- **The Service Portfolio,** which groups a number of discrete services into a suite of approximately a dozen customer-oriented and integrated service offerings — for example, "My Workplace," "High-Performance Computing on Demand" or "Major Research Support."

- **The Service Catalog,** which is the most granular of the governance structures. It includes upward of a 100 or more discreet services that are individually priced and measured, and which are selected and grouped together to make up the components of each of the service portfolio offerings. It is common that each service is included in more than one service portfolio suite — that is, a many-to-many relationship. Examples of the individual services include storage, backup, staff e-mail, wireless access and business analysis.

Components of the Service Catalog

Services in the catalog should have three basic components:

- Services should be defined in a traditional IT manner so they can be benchmarked and/or considered for alternative sourcing; some services, however, may be end-user oriented — for example, voice mail is one of the services in a telephony or communications portfolio suite, but it may also be defined in user terms and be capable of being ordered individually.

- Services should be fully costed. If the catalog is public — that is, placed on an Intranet or website — then costs do not have to be associated in that forum, but the costs need to be fully developed, again, for benchmarking and potential alternative sourcing. Without total cost of ownership (TCO) calculations, it is impractical, if not impossible, to judge the economy of the service. Note that it is costed, not priced. Most institutions do

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not charge the users for the majority of their services, though charging for additional or concierge services is common.

- Individual services should be very discrete, but, in the aggregate, all services offered by the IT organization must be included. The services need to be complete to support all the capabilities included in the service portfolio. For example, if telephone services are listed, the components should be broken down to their most practical and simple level — simple handset and line, multiline capability, voice mail, etc. — and each should be costed separately.

Some institutions appear under the impression that, because they do not operate on a chargeback model, they have no need to develop costs for the individual services. This is untrue. As noted previously, principal reasons for developing a service catalog are to eventually develop and publish costs, move the priority conversation out of the political arena and into the decision arena, and have a basis for the consideration of alternative sources.

Institutions Investigated

We discussed the creation of these documents and guides with a number of institutions — U.S. and European, larger and smaller, and both public and private — to see what were the common practices. Document formats and names varied, many had a useful approach, and few had the full suite of governance documents. We discovered that most of the IT organizations related their major projects — that is, their project portfolio — to the strategic plan, vision and/or goals of the institution. We also found that institutional size or IT department size had little influence on whether the projects were related to institutional priorities. We found this relationship in extremely large universities and in some community colleges with IT staffs of a dozen. We did find that the probability of this formal relationship increased with the size of the institution.

The service portfolio was the most-missing layer in our research. The service catalog, by that name or another, was the second most-prevalent layer of the three-layered model. Some of the institutions noted that they were aggregating their services into a catalog, but that it was the last layer they were completing. Most of the institutions that had or were creating catalogs developed them as a special project and were managed by or with the director level of the customer service arm of the IT organization.

Examples of Excellence

A number of institutions discussed their service catalogs with Gartner. The best practices show how institutions of different sizes and demographics have created their service catalogs (see Note 1).

Brown University

Brown University, in Providence, Rhode Island, is the institution closest to the Gartner model that we investigated. Brown has developed an IT plan that is derived from the university's strategic vision and supports that vision. Brown has a large project portfolio in which it tracks all of its significant efforts, but it has approximately half a dozen, defined by significant resources to be consumed over a significant length of time, that would be considered major projects in the portfolio. These are the projects that are decided on and tracked at the executive levels of the university. For a project to be accepted into Brown's project portfolio, in addition to the typical project components, the proposed project must indicate whether it supports a goal of the university or the IT strategic plan.

Brown has recently completed its service portfolio in its initial version, which includes approximately 14 high-level service groupings or portfolio entries — for example, e-mail and

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calendar, administration and finance, video, and media and TV. There are approximately 120 individual services in the service catalog, which are grouped as necessary to compose the portfolio entries.

The service catalog was created at Brown after users repeatedly mentioned that there was no single place to go to identify services they were interested in obtaining. Kara Kelley, senior project manager in Brown University's computing and information services and leader of the project to develop the portfolio and catalog, noted that the CIO's organization convened a number of focus groups to discover how and where clients went to obtain services. The output of these groups informed the development of the service catalog. The expectation, developed after the focus groups, is that the service catalog will be primarily referenced by the help desk and experienced internal and department users initially, and then it will be used more broadly as it matures. It is the intention of the university's IT department to conduct search term and usability testing before publishing. The service entries in the catalog are based on a common template and include user-based naming and definitions, service owner, how to get the service, and so forth. Geoffrey Greene, director of IT support services at Brown, will ultimately have the responsibility for the continued ownership and maintenance of the catalog and associated documents. One of the few deviations at Brown is that the catalog in its current form does not generally cost the services except for a few cost-reimbursable entries.

Princeton University

Sal Rosario, the manager of Princeton University's technology consulting services, described Princeton's IT governance structure as very strong. Key to the entire process is the "Aspire: A Plan for Princeton" campaign and related university initiatives, which set forth the vision and goals for the institution, as well as provide the overall guidance for the institution's priorities. IT project requests flow through a mature governance process that evaluates and ranks these requests for inclusion in the project portfolio, based on their potential contribution to university goals, potential positive impact on students and faculty, and potential positive benefits compared to costs and risks. Projects that are proposed by a project manager's team are vetted by an enterprise system planning group, and those that need special funding are then vetted by the senior advisory group for IT, an executive-level committee that incorporates these projects into the university's budget planning process.

Princeton does not have a formal IT service portfolio management process, but it does have a robust IT service catalog available to the Princeton community, which describes all active customer-focused IT services. Users can filter the services in the catalog by audience such as students, faculty and staff, or by category, such as academic support, administrative computing, training and help. The service catalog provides links to forms that users can use to request specific services. Most services do not have formal service-level agreements (SLAs), but many services in the catalog include information regarding performance standards, availability, maintenance windows, costs and so forth.

Princeton has enhanced its IT service management capabilities with the creation of an IT service management cross-functional team within the office of information technology, and by offering ITIL certification training to technical staff across the university.

The University of Massachusetts Boston

The University of Massachusetts Boston (UMass Boston) is in the process of growing from a very large commuter university to a university with traditional residence halls and campus-based student life. Additionally, UMass Boston is raising its profile as a research university. Both of these priorities require extensive enhancements to the university's aging infrastructure. The University of Massachusetts' statewide public university system has goals and priorities

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established at a high level by the system's board of trustees. However, the individual campuses have a very large degree of latitude in how they strive to meet those goals and priorities. As a result of this large physical expansion, many of the Boston campus' major projects at this time are related to infrastructure — buildings will be coming down, buildings will be going up, and the provisioning of these new facilities and moving functions from old buildings to new ones will consume a large part of the IT staff's attention in the next five or six years. To manage this growth while maintaining a high level of services during the expansion, the IT executives at the Boston campus, led by Vice Provost and CIO Anne Agee, are designing and implementing a new strategic planning process that will map the primary initiatives back to both the Boston campus' strategic goals and the campus' master plan, which maps back to the statewide goals of the system. The output of this effort will be an IT strategic plan, which is, in effect, the project portfolio, composed of the major IT initiatives required to meet this UMass Boston master plan. The current plan is on the public Web and is available to all.

The University of Massachusetts Boston has a detailed service catalog that lists and defines services in terms of what the services mean to the end users; it is not defined by equipment parameters or network uptime, unless those items are specific services to a specific constituency. The services are also grouped into a number of higher-level "core services" based on large constituency groups or major and ubiquitous functional service groups. UMass Boston is planning and preparing to place the service catalog on the campus website, and staff members have tagged the services for quick searching. The Boston campus does not utilize a chargeback model in most cases, so the services are not presented using a cost basis but are described in performance terms.

In addition to the strategic plan being on the Web and the service catalog following shortly, UMass Boston has also published on the Web an annual report of the IT organization's overall performance, which tracks goals, accomplishments, and continuing actions for ongoing and multiyear efforts. In addition, the IT service desk publishes on the Web a major and detailed assessment of the key portfolios of services offered to the campus and its members and constituents.

The George Washington University

The efforts of The George Washington University (GW) in Washington, D.C., share many of the approaches and procedures of the institutions mentioned in this research, but the managers at GW pointed out some very important and specific details. GW is revamping a catalog that it has had for a number of years, and it is fine-tuning its approach for this new effort. Carolyn Chase, managing director of technology services, described some of the critical changes from her perspective:

- The catalog must be online and searchable; each service entry must have an online way of ordering the service, and the method must automatically open a service ticket.

- Services that exceed certain dollar or duration limits, and, therefore, pass into the mode of small projects, must be referred to the project management office (PMO); before the PMO begins its work, the architectural group must approve the approach.

Chase likened GW's service portfolio to a very large SLA with a significant user group on campus — it states all the services that group can expect and the metrics by which the services will be managed.

Charles Spann, the managing director of business process management (BPM), noted that having a portfolio of services was instrumental in reducing the number of times that individual departments and schools decided to "go it alone." He also mentioned that having a portfolio helps to document and justify the full-time equivalents (FTEs) needed for ongoing operations.

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Additionally, the process helped move IT from a provider to a partner with the user groups. He noted that to both provide and document a service meant that the organization had to understand, in detail, how all the interrelated components fit together. The prior catalog was too focused on details that the users didn't need to see, a result of the process of documenting all the components. The current effort is to make the catalog a customer-facing document, defining the services as the outcome of a process and not the process itself or its component pieces. Finally, GW found that a chargeback model introduced tension between the providers and the users. The move to fewer chargeback services and helping users find and justify resources when necessary smoothed the relationship.

At GW, Bill Koffenberger is the associate director for BPM and the person responsible for IT's relationship with its customers. Koffenberger said that the users were "turned off by an officious document" and that they were working hard to state the service descriptions in the users' terms. His office is purposefully not a part of operations, but is meant to be as independent and neutral as possible so it can function as the users' voice to IT. He mentioned that, at this time, there were approximately a dozen portfolio descriptions and 60 catalog components in the redesigned catalog. The new catalog is meant to be the repository of the official details of services, as well as a source of metrics, and it will be used as a catalyst in customer meetings.

Edinburgh Napier University

Edinburgh Napier University in Scotland is taking a different approach to presenting its projects and services. Paul Dean, director of computing and information technology services, prepared a five-year information strategy status and implementation plan (2010 through 2015), which is composed of a short summary document and a large and detailed matrix that presents the following:

- **Principles,** at a summary level, by which the IT organization supports the university's overarching goals for processing and storing information

- **Aims,** which break the five major principles into a number of defined goals for projects and operations

- **Actions,** which set forth the specific operational changes or smaller projects necessary to meet the aims

- **Status/Responsibility,** which notes ongoing actions and the personal and organization responsibilities for implementation of the services and improvements noted in the actions

From this framework, the IT staff can compile a project portfolio, a service portfolio and a service catalog that cover all necessary activities and initiatives in support of the overall university. An example of what is included follows (quoted from one actual line item in the matrix):

"Principle: (b) Staff will have access to the workstation facilities needed to make effective use of the available information. Aim: End-user equipment and software required for managing information effectively will be provided for all staff. Action: Required equipment to continue being provided for all staff. Equipment to be updated at intervals as recommend by the ISCC. (The current recommended interval is five years, against departmental budgets.) Continue to improve access to equipment for non-desk-based staff. Status/Responsibility: Established practice in most areas/all staffing budget holders."

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Observations

A number of the institutions investigated do not follow a standard naming convention for their plans, services, portfolios or documents. However, the following are best-practice commonalities among them:

- Each institution specifically referenced here has an institutionwide or systemwide strategic plan or set of visionary and goal statements for the institution.

- Each of the IT organizations has crafted, or is in the process of crafting, its IT strategic plan or project portfolio to link the IT efforts directly back to the institutions' strategic plan, vision or statement of goals. Each of these institutions has a limited number of very large projects that are approved by — and progress is reported to — a very senior IT executive committee of one name or another.

- Each of the organizations has created a service catalog, which lists end-user services by their delivery to and impact on the end users, and not by IT measures of uptime, response times, and so forth, or by pieces of the delivery chain. Each IT organization understands that the end users do not care, nor should they need to, what pieces are integral to the delivery of their services, just that the service works end to end. They all understand that a service isn't a service if nine out of 10 IT functions in the chain work, but one doesn't. In addition, the users do not care if a problem was security, a database trigger, a malformed network packet, or a misconfigured printer — if it doesn't work, it doesn't work, period. Note that we have stated that services in the catalog should be defined in end-user terms and that services should be in IT components that can be costed and benchmarked. These are *not* opposite goals. For example, an end-user service might be "desktop document management," which may include a license, software installation, and so forth. However, to the IT staff, it may also include backup, security, and so forth. The end user does not need to understand all the components necessary for the IT organization to deliver "desktop document management," but the IT staff understands, and can cost, the individual components — for example, purchasing or allocating a license, visiting a desktop for software installation, updating security tables for access, setting up backups and allocating space for the user. Though these services may all be in the catalog, the reader references the end-user services for ordering. The necessity, therefore, of having a searchable catalog with definitions and tags the users can understand is critical. Some institutions stated that they only make public the end-user services but use the other services when dealing with the very experienced users or ancillary IT groups on campus — for example, a department of computer sciences IT support group.

Best practices in the creation of the service catalog call for involving the end-user community — by using focus groups, designated representatives, or circulating drafts for comment. All the institutions that did this mentioned it was very helpful, in both the creation of the catalog and the acceptance of the end product.

- In addition to the previously mentioned observations, most of the organizations use a group, variously named account executives, service providers, the ombudsman staff, and so forth, who monitor the provision of services, often maintain the metrics, and generally act as the users' representatives to the IT technical staff.

Establish Best Practices in Your Institution

- **Link major IT projects and portfolios to the institution's strategic plan, published goals or vision.** See the Recommended Reading section.

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- **Work to establish a high-level oversight committee that approves the large projects and to which you report progress on those large projects.** All institutions understood the value of a few very large projects in their project portfolio and the necessity for institutionwide buy-in and approval.

- **Communicate with the user communities in their terms.** All institutions realized that trying to communicate with the user community via technology components — for example, servers, network services and storage methods — was a failed approach. All institutions spoke about communicating with their constituent communities via services and not the components of services — that is, not network up, servers up, etc., but is the end user able to complete the actions, end to end — that's the definition of a service, not a list of technology components. Note that there are some services that are not strictly "end user" services, wherein the IT organization manages servers or applications, often on a reimbursable basis, for an ancillary IT organization or group. These services are often measured and managed via traditional internal IT metrics such as uptime, response time, volume or speed. Measuring these infrastructure services, which the typical end user — for example, students, faculty members and departmental administrators — does not see, is fine.

- **Do not be overly concerned about format or document names.** There are many good examples of successful service catalogs that are publically available on the websites of higher education institutions. Search among them, adopt a proven format with local variations, and begin. Most institutions adopt a format, pilot the results, fine-tune the format and collection procedures, and then prepare the public version.

- **Inventory all IT-provided services, and make them service catalog entries.** Include the totality of services; define the end-user services in end-user terms.

- **Publish the catalog for the user community to use for ordering, provide an accurate search capability, and link URLs or provide formats and methods for ordering.**

- **Prepare TCO calculations for each service, even if it is not a service for which the end user would pay.** You will need this information for benchmarking and for sourcing selection.

Summary

Finally, remember why you're doing this in the first place — to document, cost and improve end-user service, as well as to provide for an effective governance structure to decide on priorities and options in the institution. What is governance? A simple definition of "IT governance" is assuring that the resources are appropriately applied to support the institutional strategic goals and initiatives, and that the necessary end-user services are provided in the proper proportion. The "project portfolio," which tracks directly to the institution's strategic plans and initiatives, is the output of decisions at the highest levels in the institution and usually involves major transformational initiatives and major infrastructure improvements. The service portfolio wraps together a number of discrete services under the umbrella of one of a dozen or so major institutional groups or offerings. The "service catalog" is the most finite of the governance structures and includes 100 or more discreet individual services. These services are combined together to build the service portfolio, and the services in the catalog are most often contributing to more than one portfolio entry. The detailed services are the bricks in the wall of governance, the service portfolio is the design, and the project portfolio is the capstone.

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RECOMMENDED READING

"Concrete Governance in Higher Education: How a Simple Three-Layered Portfolio Approach Enables Sustainable Decisions"

"Service Portfolios and Service Catalogs"

"The Fundamental Starter Elements for IT Service Portfolio and IT Service Catalog"

"Document the IT Service Portfolio Before Creating the IT Service Catalog"

Acronym Key and Glossary Terms

Project portfolio	The major IT projects of the institution that support the institution's strategic goals
Service portfolio	High-level and logical groupings of individual services into a suite of end-user services
Service catalog	An exhaustive and detailed list of end-user services provided by the institution to the end users in nontechnical terminology as well as the discrete IT services needed to deliver end to end

Evidence

Information for this research was obtained from discussions with a number of higher education CIOs, formal interviews of a number of institutions' representatives in North America and Europe, and a review of numerous service catalogs, both publically available and institution-restricted.

Note 1
Links to Institutions' Customer-Facing Information

www.itap.purdue.edu/service/catalog/index.cfm

its.ucsc.edu/service_catalog/

www.cit.cornell.edu/services/

services.pepperdine.edu/it/help/

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