The Higher Education IT Service Catalog

A Working Model for Comparison and Collaboration

ECAR Working Group Paper | April 10, 2015

ECAR working groups are where EDUCAUSE members come together to create solutions to today's problems and provide insight into higher education IT's tomorrow. Individuals at EDUCAUSE member institutions are invited to collaborate on projects that address core technology challenges and advance emerging technologies of importance to colleges and universities. More information can be found at the ECAR working groups website.

Introduction

Although every college and university is unique, higher education technology service organizations have many goals, challenges, and opportunities in common. One of these challenges is how best to represent the services we provide, in a format that is intelligible to, and resonates with, our community while also serving as an effective structure for service operations and improvement. The IT service catalog is in many ways the front door of IT and provides the foundation for our IT service management capabilities. It is important to note the more general term "service catalog" is widely used, partly because it offers a useful framework for publishing all manner of service information, including human resources, benefits, finance, facilities, and other service areas. This paper is about the IT service catalog, and wherever this paper mentions a service catalog, it should be understood to mean an IT service catalog; where it has a wider meaning, this will be made explicit.

The implementation of a service catalog is an important step in transforming from a technology-oriented organization into a service-oriented organization and enables the organizational focus to shift from technology components to services that facilitate university outcomes. It is a vehicle used to communicate and provide clarity to constituents about the IT services available to them, to help improve customer relations by sharing information and setting expectations, and to improve service portfolio planning so IT investments and activities better align with university needs. To date, however, there has not been a standard model across higher education. The number of institutions offering a service catalog has grown, but for institutions just starting work in this area, developing a catalog can be a lengthy and difficult process.[1]

The model service catalog presented in this paper identifies IT services and associated taxonomies common across many higher education institutions and incorporates components successfully used in existing service catalogs. Use of this model by a higher education institution may help jump-start a service catalog initiative and enable its rapid adoption.

A consistent and standardized approach also serves to create a shared language and platform to facilitate service comparison and benchmarking across IT organizations within institutions of higher education. Standardized terms, categories, attributes, and approaches to organizing services will educate community members new to IT service management and introduce concepts such as the difference between a "service" and a "service request."

The goal of this paper is to leverage existing standards, frameworks, and best practices—as well as our collective experience—to articulate issues and challenges related to the service catalog process within higher education, thereby creating a guide to enable more efficient and effective navigation of service catalog maturity within the higher education community. This paper highlights the nexus of the service catalog and higher education—where the two overlap and how one might approach points of complexity.

What This Paper Does

- Introduces the concept of a service catalog as described in the ITIL framework. ITIL is a "set of best-practice publications for IT service management"[2] originating from the United Kingdom that describes a service-centric perspective on delivering IT. While the concepts here are based on the ITIL framework, this paper does not presuppose that institutions have adopted or must adopt that framework to take advantage of the model catalog.
- Provides a model IT service catalog for those beginning their service catalog journey. This body of work is a model, intended to cover the majority of any institution's requisite content. Adopters will compare and contrast this model to their unique institutional goals and service environment and adapt the model as necessary.
- Highlights and provides specific guidance regarding the necessary components of an effective service catalog, such as the taxonomy, taxonomy and terminology, attributes, and descriptions for common IT services.
- Focuses on the unique needs of the higher education community. It provides a framework that organizes the most common services in higher education IT into an initial catalog. It also includes a discussion regarding catalog views/presentations that considers various internal and external audiences.
- Provides a means for benchmarking and comparing across standardized service catalogs at peer institutions.

What This Paper Does Not Do

- Define how to implement the entire service catalog management process. This guidance is provided elsewhere, including within IT service management best practices.
- Attempt to go beyond IT services to cover all the business or external customer-facing services a higher education institution provides (e.g., housing, registration, facilities, police).

Higher Education Challenges

The ECAR IT Service Catalog Working Group was formed because of the unique set of challenges that exist in higher education and the effect they have on implementing an IT service catalog. One of the most obvious challenges is the population served by higher education IT. Service catalogs in higher education must address the needs of a broad spectrum of users—including students, faculty, staff, parents, alumni, and donors—as well as customers (e.g., governance committees, administrative departments, academic departments, legislatures, and others). The population is broad, heterogeneous, and constantly changing. Indeed, it is the nature of higher education to have a regular influx of new students (and, to a lesser extent, faculty, researchers, staff, etc.) and to see a significant portion of the population leave annually at graduation. This provides unique and continuing challenges for the promotion of IT services and for making the IT service catalog known to new students and faculty; essentially, a continual communications campaign is required, with a major relaunch annually.

Another considerable challenge is that many higher education institutions have a mix of central and distributed IT services. How do you provide a single service catalog to a wide variety of users across multiple schools, campuses, and departments, each with access to a distinct set of services delivered by a variety of service providers?

Finally, higher education is a collaborative enterprise, built on consensus. But determining how this plays out when developing a unified and authoritative IT service catalog can be a significant challenge. How do we define a service? How do we handle conflicting or competing services? What governance is in place, and who makes the final decisions? What works in a research university may not work at a regional university or for a community college. Ultimately, each institution will have to consider the needs of its own specific environment.

Because of these unique challenges, the working group recognized the importance of developing a model catalog that would acknowledge the special nature of working in higher education while being flexible enough to be adapted to a wide variety of institutions.

Related Concepts: Portfolio, Catalog, and Requests

Although the terms "service portfolio" and "service catalog" may seem similar, the service catalog is "A database or structured document with information about all live IT services, including those available for deployment. The service catalogue is part of the service portfolio."[3] The encompassing service portfolio is the "complete set of services that is managed by a service provider. The service portfolio is used to manage the entire lifecycle of all services, and includes three categories: service pipeline (proposed or in development), service catalogue (live or available for deployment), and retired services."[4] Figure 1 shows the relationship between the catalog, portfolio, and IT service management (ITSM) overall. This paper focuses on the IT service catalog.

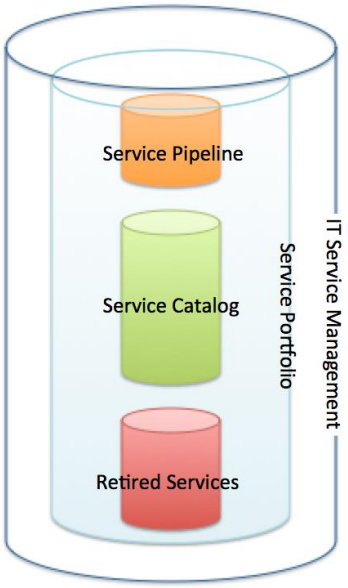

Figure 1. The relationship between the IT service catalog, service portfolio, and ITSM

IT Service Requests

A mature service catalog is actionable. That is, it includes a request portal that enables users to submit simple forms to request aspects of services. The act of a user's requesting access to a service, information, or advice is considered a "service request." Thus, services are a means of delivering value to customers, and service requests are the vehicles by which users request the value to be delivered. Service requests are basically actionable transactions by which consumers interact with and consume services.

Using the e-mail service as an example, service requests can be specifically defined, such as a new e-mail inbox, a new shared folder, or a new distribution list. When a service catalog is actionable, the user is able to search for the service (e-mail) or specific features within the service (inbox, shared folder, etc.) and is presented with a method to request some aspect of the service (see figure 2).

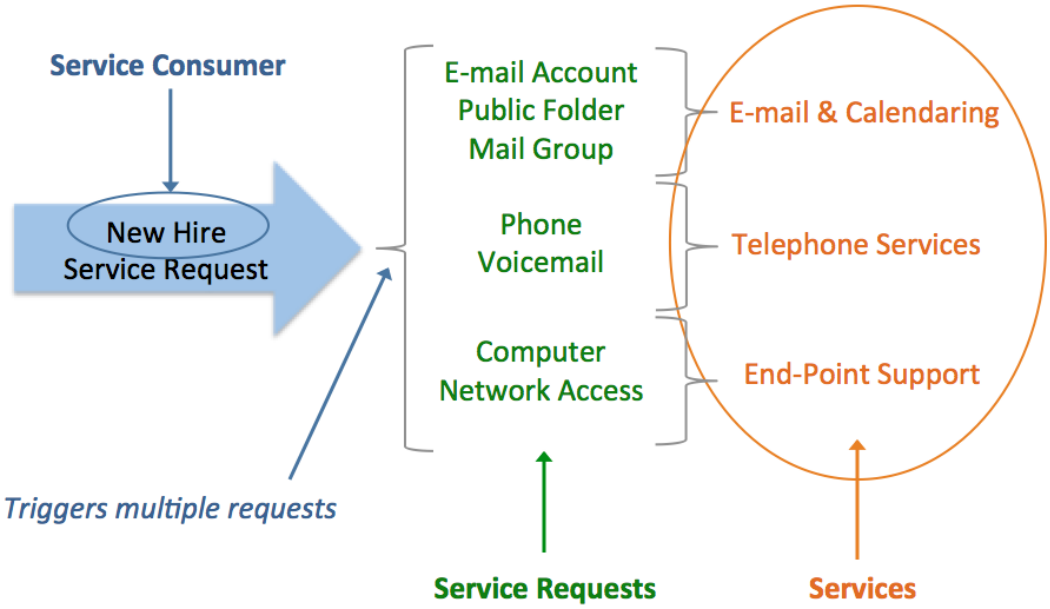

Figure 2. How service requests relate to services

Figure 2 shows three important points:

1. A service request can be a request for a single activity or task *or* it can be a request for a bundle of activities or tasks.
2. A single service may have multiple service requests associated with it.
3. A service request that is a bundle of several service requests can contain requests that span more than one service.

For example, a service consumer (a hiring manager, in this case) can place a single service request, "new hire," which triggers all of the requisite activities that a company needs to execute when a new hire comes on board. The manager need not know or remember each of the specific items in the request. This increases consistency and minimizes scope for error, resulting in better service delivery. Sometimes,

however, someone might just need one of the items in the bundle. When this is the case, that person can simply place a service request for that particular item (e.g., someone needs a new e-mail account).

It's important to understand the distinction between a service and its (possibly multiple) associated service requests. In the example above we see that the e-mail service has at least three associated service requests, for a new e-mail account, public folder, and mail group.

Components of the Service Catalog

The IT service catalog is published information about all the IT services available at a given point in time. Think of the catalog as a menu at a restaurant, and the portfolio as the restaurant's overall collection of recipes, which could include recipes under consideration or being developed (*pipeline*), those presently on the menu (*catalog*), and those that have been removed from the menu (*retired*). In addition, the catalog typically has many *views* based on the audience (for more, see "Service Catalog: Views and Audiences" below); for instance, the dine-in menu may vary from the take-out menu. More importantly, a customer may be an end-consumer (i.e., a diner) or another service-provider (e.g., the family cook who simply wants to buy a jar of the restaurant's famous marinara sauce to incorporate into a dish at home). The former is IT-to-consumer (or provider-to-consumer), the services around which are typically called *business-* or *customer-facing services*. The latter is IT-to-IT (or provider-to-provider), the services around which are typically called *technical or supporting services*. Again, views can determine which types of services particular customers (or customers playing particular roles) should see.[5]

Defining IT Services

When defining services, an IT organization needs to understand the business process the service will enable. The service is about the outcomes the IT service enables the user to achieve, not the activities performed by the IT service provider. A service is "a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks."[6]

But what does that actually mean? Imagine the outcome you want is an elegant meal. You could do the work yourself, which means you would take on the specific costs (food, table linens, flowers, candles) and the risks (potentially burning the meal). An attractive alternative is to go to a restaurant. The outcome is the same—you enjoy an elegant dinner. However, by choosing the restaurant, you are free to focus on what is important to you (relaxing and enjoying the meal, with no prep or clean up), while the restaurant assumes the direct costs and risks and delivers something to your specifications. In ITIL terms, the restaurant is offering a dining *service*.

As you define services in the IT environment, it is important to keep the customer and user perspectives in mind. Services need to be recognizable by those who might use them. One of the *activities* the restaurant performs is to create the menu, and it is important the items listed resonate with the menu's audience. As a customer, you would not recognize "season poultry" as a service, because the outcome you want to achieve is a completely prepared meal. Translated to the IT environment, "patching server operating system" is probably not recognized by most IT customers as an IT service. Instead, users probably expect this *activity* to be part of an IT service such as "managed server." The managed server service includes activities such as provisioning, installing, configuring, and maintaining servers in a data center, just as meal preparation includes washing vegetables, seasoning poultry, and cooking ingredients.

This means that services, including what they are called, should be defined based on outcomes desired by the service consumer. Doing so will ensure that an IT service provider will manage all the aspects of service management with these outcomes in mind, thereby providing value to the consumer. A service might be defined, then, as a discrete element that provides functionality and/or value to customers and includes at least two participants:

- A service provider who offers to perform one or more tasks or activities to a certain specification
- A customer who is willing either to accept the offered specification of the work or to request and specify the work

What qualifies as a service and what does not is sometimes subjective, and each organization will need to come to its own agreement regarding a definition. Depending on the maturity level of the service and the organization's service management approach, additional criteria may be applied to each service. For instance, it might be required that a service:

- Deliver something of value to the customer (i.e., not be a portion of a larger supply chain)
- Is orderable
- Has measurable metrics (e.g., capacity, performance, relevancy, satisfaction, and cost)

Of equal importance is defining what a service is not. Typically, applications and computer systems provide functionality required by an IT service and are not considered services unto themselves.

A Higher Education IT Service Catalog Model

Start building your service catalog by reviewing and using the model categories and taxonomy provided here. The structure we present is expected to "fit" approximately 80% of any given institution's service catalog needs. We recommend you start with this template and, working with the stakeholders at your institution, tailor it to remove any categories or services that don't apply and add others where needed. For example, an institution focused on art might have an entire set of services not mentioned here, whereas an institution focused on teaching and learning may need to remove the services focused on research.

In building your service catalog, it is essential that you involve and work with your constituents to discover what services they want, the language they would use to denote those services, and what requirements they have regarding delivery of those services. This collaboration will help align expectations with service provisioning, improve communication, and result in a collection of services that bring value to those you support. It will aid in defining service level agreements that address requirements concerning availability, reliability, and recoverability in a business continuity model. Using this constituent-led operational model, you can more objectively evaluate your level of success in providing services. Monitoring and reporting agreed-upon service metrics provides a basis for discussion between service provider and customer and enhances mutual satisfaction in the delivered services. Continuing to involve the customer in the ongoing development and maintenance of the service catalog helps ensure its success.

The model provided here is a three-tiered approach, with a fourth section defining key attributes for services and service offerings (see figure 3). The intent is to foster understanding of the catalog contents by presenting it in a way that makes sense in the higher education environment, starting most broadly and moving to more detailed information as one traverses the structure.

- **Service Category**: A logical grouping of services that benefit from being managed together. These high-level groupings should be meaningful to the IT service provider (i.e., to facilitate budgeting and governance of services). Some institutions may choose to make these groupings visible to end users, whereas some may not and may even choose to have different groupings (see the discussion of "views" later in this document). These categories should reflect the strategic goals of the institution and align with the overall governance model. Governance of IT services, including deciding on major projects, developing strategy, and managing funding, would be conducted by groups aligned with the service categories. Ideally, the service catalog includes a small number of service categories, on the order of 6–10. A smaller number will be easier for end users to navigate and more effective for IT to manage. Examples of service categories might include communication and collaboration, infrastructure, and teaching and learning.
- **Service**: An end-to-end IT service that delivers value to customers; typically not named after specific products or applications. The service combines people, processes, and technology to provide outputs or results that enable business capabilities or an end user's work activities and desired outcomes. Multiple related services are grouped in a service category. Examples of services appearing in a communication and collaboration service category might include collaboration, conferencing, and e-mail and calendaring.
- **Service Offering**: The specific technology-focused activity or product used to deliver a service. These can be software bundles, custom application solutions, or other technology that enables a service offering. Multiple service offerings may exist for a single service. Examples of service offerings for an e-mail and calendaring service might include Microsoft Exchange, Gmail, e-mail distribution lists, and university event calendars.
- **Service Attributes**: Key information about individual services or service offerings; different views of a catalog may contain different attributes focused on the catalog's audience. Some examples include service name, service description, audience, benefits, service charges, and requirements.

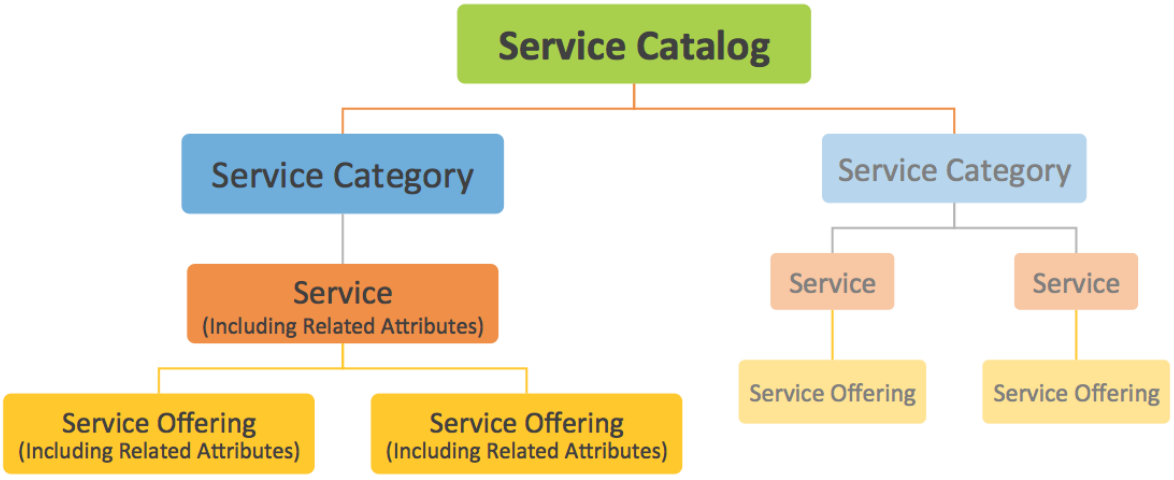

Figure 3. The IT service catalog model

Services live in a single category; however, some services may be cross-referenced in other categories via the related services attribute.

Service Categories

Listed below are suggested service categories that we believe cover the strategic areas for most institutions. With appropriate local modification, these categories should assist in facilitating activities such as budgeting and governance. Most institutions will have 6–10 service categories.

Service Category	Category Description
Administrative and Business	Enterprise and local services that support the administrative and business functions of an institution. Includes analytics, business intelligence, reporting, finance, human resources, student information systems, advancement, research administration, and conference and event management.
Communication and Collaboration	IT services that facilitate institutional communication and collaboration needs. Includes e-mail, calendaring, telephony/VoIP, video/web conferencing, unified communications, web content management system, web application development and hosting, and media development.
End-Point Computing	Services that enable community members to do their day-to-day work, including providing access to enterprise services. Includes network access, user file storage, end-point computing backup solutions, desktop virtualization, computer labs, and printing.
Infrastructure	Enterprise-level hardware, software, systems, and network infrastructure that provide underlying support for institutional activities. Includes data centers, network backbone, wireless, central storage and system backup solutions, server virtualization, and systems management and operations.
IT Professional Services	Services that are consultative in nature, in contrast to the other categories, which tend to be technology based; these may be a combination of customer-facing and non-customer-facing services. Includes IT training, consulting/advisory services, business continuity/disaster recovery, enterprise architecture, portfolio/project management, and ITSM.
Research	Services supporting the institution's research activities, including specialized storage and computation, high-performance computing (HPC), visualization, and lab-management systems.
Security	Infrastructure and services that provide security, data integrity, and compliance for institutional activities. Includes security services such as virus protection, encryption, privacy impact assessments, information risk management, emergency preparedness, data security, identity management solutions, access controls (i.e., passwords, accounts, and authentication), audit and monitoring systems and services, and data access and stewardship.
Teaching and Learning	Instructional technology, tools, and resources directly supporting teaching and learning. Includes learning management systems, in-class and online course development, learning analytics, course evaluation, lecture capture, webinars, and other academic tools for faculty and students.

Services

Under each service category, we have listed common IT *services* (end-to-end IT services delivering outcomes to customers) offered in higher education. This list should be broadly representative but may not be comprehensive for all institutions. Your institution may not offer all of these or may have additional services. For each of these services, there may be a number of individual *service offerings* representing specific technology-focused activities or products that are used to deliver the service. Most institutions define 30–50 services at this level.

Service Category: Administrative and Business	
Service	**Service Description**
Alumni and Advancement	Alumni portals and services that support university advancement and development.
Athletics	Athletics administration, recruiting, procurement, and ticketing systems.
Auxiliary Systems	Services outside the core administrative systems that support auxiliary or ancillary campus systems, activities, and operations.
Document Imaging and Management	Electronic document-management services.
Faculty Information Systems	Services that support faculty administration, review, promotion, and tenure.
Finance, Human Resources, and Procurement Systems	Administration and maintenance of enterprise systems (integrated or stand-alone) that support financial management, human capital management, and procurement.
Library Systems	Services for library systems that provide access to local and remote information in support of teaching, learning, and research. Includes acquisitions, catalog, circulation, serials, a public user interface, interlibrary loan, discovery tools, etc.
Medical and Health Systems	Services that support clinical processes, including health-record management, pharmaceutical data, medical appointment scheduling, residency placements, and more.
Reporting and Analytics	Business intelligence platforms, data warehouse, dashboards, analytic tools, transactional reporting, and operational data stores.
Research Administration Systems	Services in support of systems used to secure funding, manage funding, conduct research, and facilitate compliance.
Student Information Systems	Services to support admissions, enrollment, registration, orientation, financial aid, student accounts and collections, advising, and career services.

Service Category: Communication and Collaboration	
Service	**Service Description**
Collaboration	Technology-enhanced communication, coordination, and collaboration services that facilitate the creation, sharing, and exchange of information and ideas within communities of interest. Includes social media.
Conferencing	Online conferencing services other than teleconferencing.
E-Mail and Calendaring	Services associated with e-mail, calendaring, contacts, broadcast mail, enterprise-wide mailing list management, and messaging.
Emergency Notification	Services in support of campus alert systems.
Telephony	All services associated with telephony, including voice services, teleconferencing, etc.
Television	Broadcast services.
Websites	Services related to websites, including content management systems.

Service Category: End-Point Computing	
Service	**Service Description**
Network Access	Provisioning of access to networks, ensuring security and appropriate authentication.
End-Point Support (Desktops, Mobile Devices, etc.)	Support for all types of end-point devices and associated operating and application software.
Printing	Copy, scan, fax, and printing services, including applications for managing these services, such as print quota systems.
Software Distribution	Distribution of software and licenses via media, online methods, and license servers.

Service Category: Infrastructure	
Service	**Service Description**
Data Center	Maintenance of physical data centers, including co-location services, planning, and strategy for data center management.
Database	Includes hosting and administration of databases.
Middleware	Services in support of the layer between the operating system and the end-user application. This may also include the layer that connects applications.
Monitoring	Monitoring services for IT services and underpinning technology.
Network	Includes maintenance of infrastructure items required to offer network connectivity; does not include support for end users to access the network.
Server Infrastructure	Provisioning, hosting, and administration of servers, physical and virtual.
Storage	Back-end technology and services required to maintain core storage capabilities, including server storage, database backups, etc.; does not include customer-facing storage options.

Service Category: IT Professional Services	
Service	**Service Description**
Application Development	Tools, services, and products that support the ERP, the mainframe, mobile application development, and custom application development, including tools built into ERP and mainframe systems, as well as integration with third-party systems.
Consulting and Advising	Guidance services on how to leverage technologies and select technology solutions, including those in the cloud.
Business Continuity and Disaster Recovery	Business continuity consulting and planning and disaster recovery planning, including disaster recovery exercises.
Enterprise Licensing	Negotiation, acquisition, and management of licenses for technology broadly used throughout the institution.
IT Service Management	People, processes, and tools that enable service management. This is a supporting service.
Portfolio and Project Management	Project portfolio management and project management services. These may be a supporting service.
Training	Training services for end users on IT applications and systems.

Service Category: Research	
Service	**Service Description**
Advanced Applications	Services for applications that could include plotting, scientific visualization, modeling, rendering, animation, graphics programming, and image manipulation.
Lab-Management Systems	Services to record and track lab experiments, equipment, and specimens.
Research Computing	Computing and storage resources and services to support research that has specialized or highly intensive computation, storage, bandwidth, or graphics requirements.
Visualization	Graphics, visualization, and virtual-reality facilities and services in support of research application areas such as biomedical engineering, chemistry, space weather modeling, computational fluid dynamics, archaeology, and fine arts.

Service Category: Security	
Service	**Service Description**
Identity and Access Management	Services relating to authentication, access, role-based provisioning, etc.
Secure Computing	Services that provide a secure computing environment for end users. Includes network security, system security, application security, etc.
Security Consulting	Consultative services, training, education, and awareness raising.
Security Incident Response and Investigation	Services that respond to, remediate, and seek to prevent security incidents.
Security Policy and Compliance	Services relating to institutional policy or compliance guidelines and requirements. Includes support for audit processes.

Service Category: Teaching and Learning	
Service	**Service Description**
Assessment Systems	Services in support of assessing learning outcomes.
Classroom Technology and Support	Services to ensure classrooms are suitably equipped and functional to meet the needs of the education experience.
Educational Technology Consulting and Training	Services to ensure that faculty and other course creators have the knowledge and assistance they need to optimize their effectiveness in using teaching and learning technologies.
E-Portfolio Sites	Services for e-portfolios, which provide a way for students and faculty to showcase their work and academic accomplishments.
Learning Management Systems	LMS services in support of managing and sharing course materials (e.g., videos, documents, spreadsheets, etc.) and facilitating learning through collaboration.
Lecture Capture	Services for recording, storing, editing, and publishing course lectures.
Technology-Enhanced Spaces	Provision and maintenance of technology in specialized learning environments.

Service Attributes

Service attributes help define and describe both services and service offerings. They provide information related to managing, providing, and accessing each service or service offering. One can think of attributes as a set of characteristics of each service or service offering.

Which attributes are presented to the person reading the service catalog may change depending on that person's role within the institution. For example, the "service cost" attribute, in contrast to the "service charges" attribute, might be hidden from faculty, staff, and students but visible to IT staff and governance members.

Depending on the maturity of the institution's service catalog and service management program, some attributes may be required, while others are just suggested. For instance, the service owner role might be mandatory in institutions where the role has been formally established for all services, or it could be optional in institutions where the role has not been fully established.

Attribute	Description
Service Category	The category to which the service belongs.
Service Name	The name by which the catalog users know the service. See also *Aliases*.
Aliases	Aliases may exist for the service name so that it can be found by other names (e.g., the institution's branded name, product name, or other commonly used names).
Service Description	A full description of the service, including its purpose, benefits, features, and options. The description should be written for the end user to understand.
Audience	The constituents to which the service is available (e.g., students, faculty, staff, etc.).
Service Levels	Basic information about service availability, maintenance windows, levels of support available, what users can expect from this service, etc.
Requirements	Any prerequisites for using the service (e.g., approvals, training, compliance requirements, other services, etc.).
Service Charges	The cost to the end user or department to use the service. This can be expressed on a per user basis, by department, volume of consumption, or however charges are assessed.
Requesting the Service	Instructions for requesting the service (e.g., a link to a request form or contact information).
Support Contact	Instructions for requesting support (e.g., help with using the service or reporting a service issue).
Feedback Mechanism	Instructions or mechanism for reporting feedback on a service.
Documentation	Pointers to service documentation, service policies, FAQs, training materials, etc.
Status/Phase	Current status or phase of the service (e.g., planning, production or retired). *Note*: When a service is retired, it exits the catalog but remains in the portfolio.
Service Cost	The actual costs to deliver a service—including, hardware, software, licensing, maintenance, and staff resources—which is necessary for an organization to understand financial management on a service level.
Service Owner	The person who is accountable for the delivery of the end-to-end service. This accountability slices across functional areas.
Related Services	Links to other services in the service catalog that the reader might be interested in, based on interest in this service.

Service Catalog: Views and Audiences

A necessary part of maintaining a single IT service catalog is defining specific audiences that will see certain service catalog information based on their unique roles and interests. It is unlikely that all the services in your catalog will be available to everyone at your institution, so people will appreciate being able to view a list of just the services that are available to them.

Views are one way of managing communication about what services are available to a specific group or constituency. This can be implemented in a low-tech manner, such as allowing visitors to your website to sort services based on their constituency. Or a more robust solution could leverage your institution's single sign-on technology to automatically filter and display relevant services based on the person's role (see figure 4).

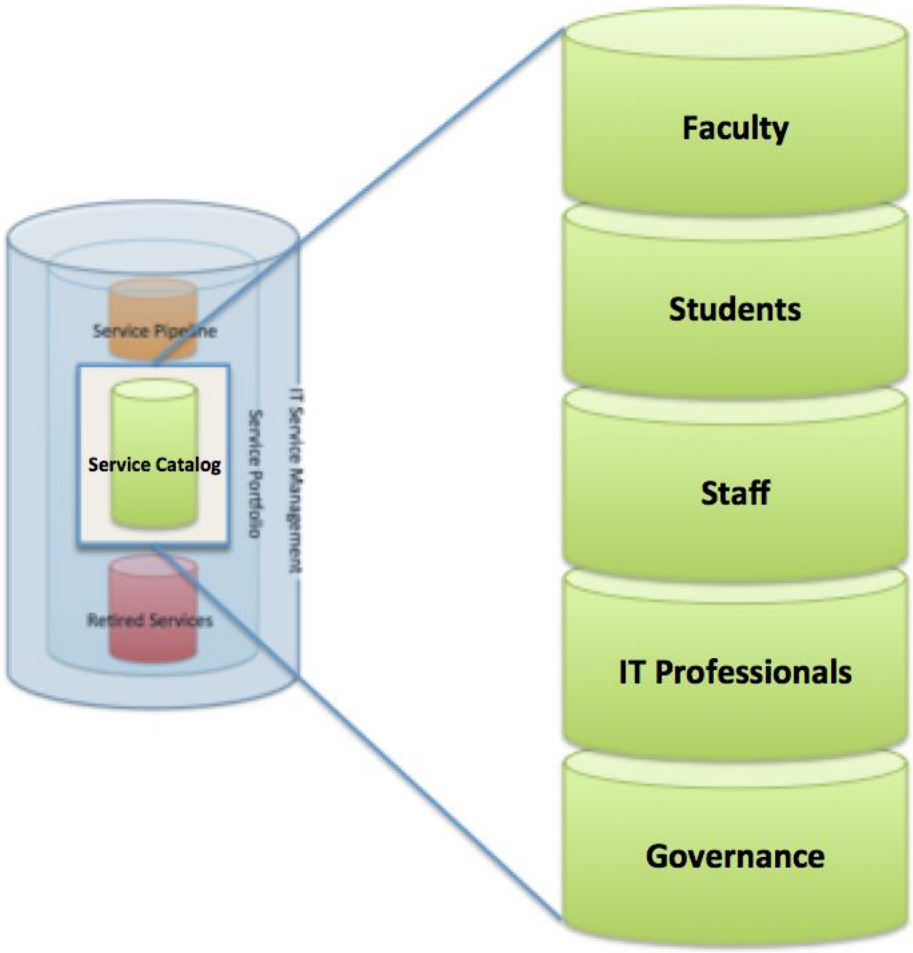

Figure 4. Service views

Even within individual services, you may not want to display all the attributes of a service; for instance, the cost of providing the service may be displayed only to IT service providers and governance committee members. The following audiences are often useful to define:

- Faculty (depending on your needs, you might include or break out the following separately: researchers, instructors, and visiting faculty)
- Students (depending on your needs, you might include or break out undergraduates, graduate and professional students, online students, prospective students, and applicants)
- Staff
- Alumni
- Parents
- Visitors and guests
- IT service management/operations/support (may need to see internal attributes and additional information not available to the wider community)
- Governance committee members (may need to see information on costs and other factors related to service delivery)

You may find that a single platform cannot easily accommodate storing and displaying all the information you want to keep in your service catalog. For example, you might want to store the structure of your service catalog within the configuration management database (CMDB) of your IT service management tool so that you can easily see how particular resource outages could affect certain services. On the other hand, you might find that the ability to view the catalog is better facilitated through a document sharing system. In that case, your authoritative catalog might span more than one platform. Alternatively, you might not be ready to develop a full-fledged service portal in the ITSM tool and may find it easier to implement a public display of your catalog in a more traditional website. Try to minimize the number of platforms you use for your service catalog and the amount of information overlap between those platforms. Establish and document a process for managing changes in the service catalog so that information is kept in sync.

Now That We've Built It, How Do We Maintain It?

Given the constantly changing environment of IT in higher education, development of a service catalog is not a one-time project, as it will soon require updating. Service catalog management is a process, one that should be designed to work well at your institution. You will want to consider:

- Who owns the service catalog and is accountable for its process and maintenance?
- How is the content governed? Who can make or request changes to the service taxonomy or published attributes of a particular service? Who approves those changes? How are changes tracked?
- How will you ensure that service information remains aligned with what you are providing? Consider building service content update requirements into your project or change-management processes.

Natural next steps for many institutions after they have a service catalog in place are to (1) establish the service owner role and assign an owner to each service and (2) develop a formal service portfolio governance process that facilitates decision making about which services are offered, which should be changed, and which should be retired.

Conclusion

The model IT service catalog described in this paper provides a language to enhance understanding between service providers and their constituencies and to facilitate collaboration between higher

education institutions. In addition, it establishes a framework for exploration and identification of shared service opportunities. The model is intended to help not only institutions that are just beginning to implement an IT service catalog but also those desiring to make improvements to their existing catalogs. The model will also help institutions use a common language, which allows for greater collaboration and cooperation and enables benchmarking and comparisons across institutions.

An important tool in making IT services visible and useful for our community, the IT service catalog may bring with it organizational change as our institutions become more customer- and user-focused. Developing a complete and useful catalog is an iterative process that requires continuous process improvement, but implementing this model will be a start to improving your institution's awareness and use of IT services.

Authors

The ECAR IT Service Catalog (ECAR-SC) Working Group that authored this report includes the following members:

Tamara Adižes
ITS Portfolio Communications Officer
University of Toronto

Ricardo Chavira (ECAR-SC Co-Chair)
Associate Director, Service Management
Yale University

Luciano Dalla Venezia
IT Service Transition Manager
Emory University

Mark Katsouros
Director, Network Planning and Integration
The Pennsylvania State University

Mark Kawasaki
IT Service Manager
Emory University

Rosalinda Kloberdanz
Assistant CIO, Academic, Research and Learning Technologies
North Dakota University System Office

Reginald Lo
Director, Service Management
VMware

Anita Nichols
Client Services Manager
University of California, Davis

Simon Pride
Service Relationship Analyst
New York University

Hillary Rosenfeld (ECAR-SC Co-Chair)
Service Management Architect
Boston University

Richard Sharp
Knowledge Manager, Service Catalog Manager
Boston University

Karen Van Dusen
ITSM Program Manager
Carnegie Mellon University

Stephen A. Vieira
Special Projects
Community College of Rhode Island

Karalee Woody
Executive Director Customer Service and Support, UW Information Technology
University of Washington

Reviewers

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John Bax
Director of Information Technology
Missouri University of Science and Technology

Troy Boroughs
Assistant Vice President for Systems and Networks
University of Richmond

Kathy Campbell
Planning and Operations Manager
Anne Arundel Community College

Gerard Krawczyk
Director, Information Technology Services
The Pennsylvania State University

Pamela Lessley
Project Manager, Strategic Project Management Office
University of Missouri System

David McGuire
Associate Director, IT Project and Service Management
University of New Mexico

Mitchell Pautz
IT Service Management Analyst/Project Manager
California State University, Fullerton

Kathryn Rose
Senior Director, User Services
University of Notre Dame

Tracy Schroeder
Vice President, Information Services & Technology
Boston University

Notes

1. In 2014, 41% of EDUCAUSE Core Data Service survey respondents indicated that they have a service catalog and/or service portfolio (up from 30% in 2012). In terms of institution type, in 2014 the presence of a service catalog/portfolio was greatest at doctoral and research-extensive institutions (38%) and master's universities and colleges (25%), followed by associate's and bachelor's institutions (21%). Respondents that had a service catalog/portfolio were also asked to provide the URL. In 2012, this resulted in 144 public URLs to service catalogs; in 2014 this has grown to 226. For more information and to access the data, visit the CDS Publications web page. In addition, HEIT Management maintains a list of Higher Education Service Catalogs.
2. *ITIL Glossary and Abbreviations*, AXELOS Limited, 2011: 33. For more information about ITIL, visit the AXELOS website.
3. Ibid., 52.
4. Ibid., 56.
5. For additional information on the service catalog, see Tamara Adizes, Mark Katsouros, Reginald Lo, Simon Pride, and Karalee Woody, "The Unified IT Service Catalog: Your One-Stop Shop," *EDUCAUSE Review Online*, August 11, 2014.
6. *ITIL Glossary and Abbreviations*, 51.

Appendix: IT Service Catalog Glossary

This glossary defines common service catalog terms that are mentioned in this document and is in no way meant to be a comprehensive list of related terminology. For some terms, this appendix uses definitions directly from the 2011 ITIL Glossary.[1] Those terms are marked with an asterisk (*).

- **actionable service catalog:** Ability to create service requests, report an incident, or find additional information about services (knowledge management) directly through the service catalog.
- **application:*** Software that provides functions which are required by an IT service. Each application may be part of more than one IT service. An application runs on one or more servers or clients.
- **business service:*** A service that is delivered to business customers by business units. For example, delivery of financial services to customers of a bank or goods to the customers of a retail store. Successful delivery of business services often depends on one or more IT services. A business service may consist almost entirely of an IT service—for example, an online banking service or an external website where product orders can be placed by business customers. See also *customer-facing service.*
- **catalog:** See *service catalog.*
- **catalog view:** Custom views for different groups of users—such as IT service providers, internal customers, external customers, students, faculty, staff, etc.—that facilitate clear understanding of which services are available to them. Some catalog views could require authentication and should be defined as makes sense to the given institution.
- **customer:** The ITIL glossary defines the customer as "Someone who buys goods or services. The customer of an IT service provider is the person or group who defines and agrees the service level targets. The term is also sometimes used informally to mean user—for example, 'This is a customer-focused organization.'" In the higher education setting, that role might typically be filled by deans, provosts, vice presidents, and office managers.
- **customer-facing service:*** An IT service that is visible to the customer. These are normally services that support the customer's business processes and facilitate one or more outcomes desired by the customer. All live customer-facing services, including those available for deployment, are recorded in the service catalogue along with customer-visible information about deliverables, prices, contact points, ordering, and request processes. Other information, such as relationships to supporting services and other CIs [configuration items], will also be recorded for internal use by the IT service provider.
- **ITIL:*** A set of best-practice publications for IT service management. […] ITIL gives guidance on the provision of quality IT services and the processes, functions, and other capabilities needed to support them. The ITIL framework is based on a service life cycle and consists of five life-cycle stages (service strategy, service design, service transition, service operation, and continual service improvement), each of which has its own supporting publication. There is also a set of complementary ITIL publications providing guidance specific to industry sectors, organization types, operating models, and technology architectures.
- **portfolio:** See *service portfolio.*
- **service:** ITIL defines a service as a "means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks. The term 'service' is sometimes used as a synonym for core service, IT service, or service package." As one of the three tiers of the model service catalog defined in this paper, it is where end-to-end IT services that deliver value to customers are defined; these are typically not named after specific products or applications. The service combines people, processes, and technology to provide outputs or results that enable business capabilities or an end user's work activities and desired outcomes. Multiple related services are grouped in a service category. See also *service category* and *service.*

- **service attribute:** Key information about an individual service or service offerings; different views of a catalog may contain different attributes focused on the catalog's audience.
- **service catalog:*** A database or structured document with information about all live IT services, including those available for deployment. The service catalogue is part of the service portfolio and contains information about two types of IT service: customer-facing services that are visible to the business; and supporting services required by the service provider to deliver customer-facing services. See also *service portfolio.*
- **service category:** One of the three tiers of the model service catalog defined in this paper, a service category is a logical grouping of services that benefit from being managed together. These high-level groupings should be meaningful to the IT service provider (i.e., to facilitate budgeting and governance of services). See also *service* and *service offering.*
- **service offering:** One of the three tiers of the model service catalog defined in this paper, a service offering is the specific technology-focused activity or product used to deliver a service. These can be software bundles, custom application solutions, or other technology that enables a service offering. Multiple service offerings may exist for a single service. See also *service category* and *service.*
- **service owner:*** A role responsible for managing one or more services throughout their entire life cycle. Service owners are instrumental in the development of service strategy and are responsible for the content of the service portfolio.
- **service portfolio:*** The complete set of services that is managed by a service provider. The service portfolio is used to manage the entire lifecycle of all services, and includes three categories: service pipeline (proposed or in development), service catalogue (live or available for deployment), and retired services. See also *service catalog.*
- **supporting service:*** An IT service that is not directly used by the business, but is required by the IT service provider to deliver customer-facing services (for example, a directory service or a backup service). Supporting services may also include IT services only used by the IT service provider. All live supporting services, including those available for deployment, are recorded in the service catalogue along with information about their relationships to customer-facing services and other CIs.
- **user:*** A person who uses the IT service on a day-to-day basis. Users are distinct from customers, as some customers do not use the IT service directly.

1. *ITIL Glossary and Abbreviations*, AXELOS Limited, 2011: 33. For more information about ITIL, visit the AXELOS website.