

# Survey Data - ITANA 2012 SOA Survey



This document was produced by the ITANA SOA Working Group.  
See: <https://spaces.internet2.edu/display/itana/SOA+Survey+2012>

All ITANA activities are governed by the Internet2 Intellectual Property Framework.  
See: <http://www.internet2.edu/membership/ip.html>

## Table of Contents

[Summary](#)

[Survey Data](#)

[What are the drivers for SOA related changes?](#)

[What is the level of SOA maturity in Higher Education?](#)

[In what areas have institutions made the greatest strides?](#)

[In what SOA related areas are institutions most mature?](#)

[What SOA related solutions are being implemented?](#)

[What is the uptake of ERP web services?](#)

[What is the uptake of ESBs?](#)

[What is the uptake of SOA suites?](#)

[What is the uptake of service registries?](#)

[What SOA related standards are in use?](#)

[What is the uptake of vertical standards?](#)

[What is the uptake of technical standards?](#)

[Current SOA projects](#)

[Methodology](#)

[Participants](#)

## Summary

From March to October 2012, ITANA evaluated surveys about the state of SOA in higher education, completed by respondents from 27 institutions. For more about the survey process and the participants, see the Methodology and Participants sections below.

The following points summarize the survey results, with more detailed data provided in subsequent sections.

- 85% of respondents have implemented or are implementing a SOA related solution, most commonly ERP web services (59%), ESBs (56%), and SOA suites (41%).

- SOA related changes are driven by the need to integrate back-end administrative systems (cited by 74% of respondents) and by executive decisions (56%) and the need for business agility (48%).
- No more than 17% of respondents reported “major strides” in any specific SOA related area in the past 5 years, but 94% reported some improvement in the areas of business, people, and enabling technologies. Only 44% reported improvements in SOA related governance, operations, and architecture.
- No more than 50% of respondents agreed or “strongly agreed” with any specific statements about SOA related maturity. Respondents expressed the most confidence about enabling technologies such as identity management (50%), and less confidence about planning and governance. Only 6% agreed that SOA is supported by strong IT governance.
- Only 24% of respondents agreed that work on SOA has increased the ability to respond to changing business needs or has resulted in real cost savings.
- Relatively few respondents indicated use of SOA related vertical standards. The most commonly used are from IMS (22% of respondents).
- The most commonly indicated SOA related technical standards (other than SOAP and REST) were SAML (74% of respondents), JAXB/JAX-WS (52%), and WS-Security (41%).

## Survey Data

### What are the drivers for SOA related changes?

Respondents indicated that their most important drivers for SOA related changes are:

- Need for enterprise integration of back-end administrative systems and ERPs (74% cited as important or very important)
- Executive leadership decisions (CIO, CTO, COO, etc.) (56% cited as important or very important)
- Need for greater agility in responding to changing business requirements (48% cited as important or very important)

### What is the level of SOA maturity in Higher Education?

#### In what areas have institutions made the greatest strides?

Respondents indicated the most change over the past 5 years in the following areas:

- Business
- People
- Enabling Technologies

Respondents described improvements related to business:

- “General understanding of SOA concepts among IT and business leaders” (94% indicated some improvement and 11% indicated major strides)
- “Collaboration between IT and business units to define goals” (72% indicated some improvement and 17% indicated major strides)

Respondents also described improvements related to people and enabling technologies:

- “Increased investment in SOA related skills” (94% indicated some improvement and 6% indicated major strides)
- “Increased use of web services provided in vendor products” (94% indicated some improvement and 6% indicated major strides)
- “Projects that have significantly increased the portfolio of available services” (76% indicated some improvement and 6% indicated major strides)
- “Increased integration of cloud services with local services” (72% indicated some improvement, but none indicated major strides)

The least improvement was indicated in areas related to governance, operations, and architecture:

- “Governance of services as they are proposed, developed, and changed” (44% indicated no improvement and none indicated major strides)
- “Improved operational management of services (SLAs, change management)” (44% indicated no improvement and none indicated major strides)
- “Sharing of information about available services and service contracts” (44% indicated no improvement and none indicated major strides)
- “Agreement to an overall service architecture” (44% indicated no improvement)

### **In what SOA related areas are institutions most mature?**

Respondents indicated the most confidence about their maturity in the following areas:

- People
- Enabling Technologies
- Architecture

Respondents most strongly agreed with statements related to enabling technologies:

- “New services are incorporated in an agreed upon trust architecture for authentication and authorization across services” (50% agreed but none strongly agreed)
- “New services are incorporated in an agreed upon identity management architecture” (41% agreed or strongly agreed)
- “Our SOA is supported by a strong identity management roadmap” (39% agreed or strongly agreed)

Respondents were less confident about planning and governance:

- “SOA principles and concepts come up often in our planning” (44% agreed or strongly

- agreed)
- “SOA principles are consistently applied in architectural or design reviews” (28% agreed but none strongly agreed)
- “SOA is part of our software development life cycle” (22% agreed or strongly agreed)
- “Our SOA is supported by a strong IT governance and change management framework” (6% agreed but none strongly agreed)

Respondents were also less confident about connecting their SOA work to business goals:

- “The services in our architecture are tied to known business requirements that support agreed upon strategic goals” (33% agreed or strongly agreed)
- “Our work on SOA has significantly improved our ability to respond to changing business needs, more quickly or at reduced cost” (24% agreed or strongly agreed)
- “We can demonstrate real cost savings from our SOA strategy” (24% agreed or strongly agreed)

## **What SOA related solutions are being implemented?**

85% of respondents indicated that they have implemented, or are implementing, SOA related solutions in one or more of the following areas:

- ERP web services (59% have implemented or are implementing)
- An ESB (56% have implemented or are implementing)
- A SOA suite (44% have implemented or are implementing)
- A service registry (19% have implemented or are implementing)

See the section Current SOA Projects below for discussion of implementation projects described by the respondents.

### **What is the uptake of ERP web services?**

52% of respondents indicated they had implemented ERP web services, with another 7% in the process of implementing. The most commonly cited are:

- PeopleSoft Integration Broker (33% have implemented or are implementing)
- Kuali Enterprise Workflow Services (22% have implemented or are implementing)
- Kuali Identity Web Services (19% have implemented or are implementing)

### **What is the uptake of ESBs?**

41% of respondents indicated they had implemented an ESB, with another 15% in the process of implementing. The most commonly cited is:

- KSB (Kuali Service Bus) (26% have implemented or are implementing)
- Oracle Service Bus (18% have implemented or are implementing)

### **What is the uptake of SOA suites?**

41% of respondents indicated they had implemented a SOA suite, with another 4% in the

process of implementing. The most commonly cited are:

- Oracle SOA Suite (26% have implemented or are implementing)
- IBM Websphere (11% have implemented or are implementing)

### **What is the uptake of service registries?**

11% of respondents indicated they had implemented a service registry, with another 7% in the process of implementing. The most commonly cited is:

- Oracle Service Registry (18% have implemented or are implementing).

### **What SOA related standards are in use?**

#### **What is the uptake of vertical standards?**

The adoption of specific SOA vertical standards ranged from 4% to 22%. The most commonly cited standards are:

- IMS Global Learning Tools Interoperability (22% have implemented or are implementing)
- IMS Global Learning Infrastructure Services (22% have implemented or are implementing)
- PESC College Transcript (11% have implemented or are implementing)

#### **What is the uptake of technical standards?**

The importance of specific SOA technical standards (aside from SOAP and REST) ranged from 4% to 74%. The most commonly cited standards are:

- SAML (74% consider it important or very important)
- JAXB, JAX-WS (52% consider it important or very important)
- WS-Security (41% consider it important or very important)

SOAP and REST are both widely used:

- 81% consider SOAP important or very important
- 63% consider REST important or very important

### **Current SOA projects**

26 of the respondents reported being engaged in one or more SOA related projects.

In terms of business domains, the projects fall into four categories:

1. Access to student enrollment and transcript information: 13 projects
2. Access to backend admin information: 10 projects
3. Identity and Access Management: 3 projects
4. Technology infrastructure: 1 project

Another dimension that can be used for classifying these projects is along “horizontal” cross-cutting concerns:

- Enterprise integration
- New business functionality
- Governance

Some notable examples that highlight these different dimensions:

1. University of Wisconsin-Madison Curricular Hub  
<https://wiki.doit.wisc.edu/confluence/display/CHUB/Home>. This project shows clearly published APIs on a public website. Bindings for different technologies are made available.
2. University of Washington MyPlan. A deliberate SOA approach as a vehicle for future functionality
3. UC Irvine. Large scale ERP integration across multiple institutions

## Methodology

ITANA is an EDUCAUSE interest group and a peer group for enterprise, business, and technical architects in higher education. The ITANA SOA Working Group conducted an “environmental scan” on the state of SOA in higher education.

The working group gathered data from two surveys:

- 13 institutions participated in the first, longer survey. In most cases the first survey was conducted as an interview led by a member of the working group. The survey questions are listed at:  
<https://spaces.internet2.edu/display/itana/Questionnaire+for+institutions>
- 22 respondents from 19 institutions participated in the second, shorter survey. The second survey was conducted as an online form circulated to various email lists. The survey questions are listed at:  
<https://spaces.internet2.edu/display/itana/2012+SOA+Survey+Questions>

Some institutions participated more than once. In aggregating the quantitative data, for institutions that participated in both surveys, the second survey was used (Cornell University, Georgetown University, University of Maryland University College, University of California at Irvine). For multiple respondents for the same institution in the survey, the highest value for each question was used (Penn State, University of Bristol). One response on the second survey was not included because the institution could not be identified.

27 institutions are represented after eliminating or combining multiple responses.

- The sample size does not justify taking any data point in the survey as an absolute measure of the success of a standard or product.
- The data gathered are the opinions of the respondents; the institutions may have other activities not represented in the survey data.

- The data from the first and second survey are often not directly comparable because of differences in the questions; responses were ranked in each survey and combined in composite scores.
- Percentages in the analysis are expressed as a percentage of the institutions represented, rather than of the respondents to each question. In some questions, a significant number of respondents responded “don’t know”.

## Participants

Respondents from 27 institutions participated.

- All institutions that responded are large undergraduate and research institutions; no two year colleges or community colleges participated.
- Two thirds of the respondents fall within the AWRU ([www.arwu.org](http://www.arwu.org)) top 100 world ranked schools
- Most institutions that responded are in the US (22 institutions), with two in the United Kingdom, two in Canada, and one in Australia.

School	Country	Undergraduate	Graduate	AWRU
Carnegie Mellon University	US	6000	5000	51
Case Western	US	4000	5000	99
Cornell University	US	14,000	7,000	13
Florida State University	US	31000	8000	n/a
Georgetown University	US	7,000	8,000	n/a
Griffith University	Aus	31000	6000	n/a
Indiana University	US	32000	9000	84
Miami University	US	18000	1600	n/a
Michigan State University	US	36000	11000	96
MIT	US	4000	8000	3
Northwestern University	US	8000	10000	30
Penn State	US	38000	6000	49
The Ohio State University	US	42000	13000	65
UC Irvine	US	21000	5000	45
UC San Diego	US	23000	5000	15
University of Bristol	UK	13000	5000	70
Univ. of British Columbia	Cdn	38000	10000	39
University of Colorado	US			33
University of Edinburgh	UK	20000	10000	51
University of Maine	US			
University of Maryland UC	US	68000	17000	n/a
University of Michigan	US	27000	15000	22
University of Pennsylvania	US	10000	11000	14
University of Toronto	Cdn	33000	12000	27

University of Washington	US	30000	12000	16
Univ. of Wisconsin-Madison	US	28000	9000	19
Yale University	US	5000	6000	11