The next big thing will be a lot of small things.
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From the Executive Director

How do we characterize the *fifth* year of the Apereo Foundation? Our mission is unchanged: to help you, as educational organizations, deliver your mission by innovating and sustaining open source software and the communities around them.

This fifth year we have had three new projects enter incubation. The first two: ELMS:LN, and Tsugi, bring us differing approaches to the creation of a next generation digital learning environment. Tsugi builds directly from the standards work undertaken by Dr. Charles Severance. ELMS:LN, forwards the vision of a distributed learning object network, as exists because of the Drupal community at Penn State University. The third project: Angular.js portal, aims to radically enhance the uPortal user experience; it is being developed from an initiative at the University of Wisconsin-Madison, a longstanding Jasig and Apereo member.

While our software incubation process continues to mature, another complementary effort began with the goal of supporting and enhancing the use of shared resources to augment and grow existing Apereo projects. Cleverly named "FARM", for Funding and Resource Management, FARM provides a toolkit to make your idea visible, solicit feedback, mobilise stakeholders and find the right processes to coordinate contributions of human effort and finances. Incubation and FARM, like all of our activities, largely depend upon the time, effort and expertise of volunteers. To those who volunteer in this way- you have my profound thanks. Apereo would not be what it is without you.

Apereo and the Bigger Picture

In 2015, the Educause Learning Initiative performed a valuable service, by opening an extended conversation around the nature of the Next Generation Digital Learning Environment. The central problem statement behind the NGDLE¹ – that the learning management system is inflexible and rather better equipped to administer rather than enable learning – is not new. What is new is the amount of traction the concepts underpinning the NGDLE have gained in the sector, and the conversation this has engendered. The central concepts, that education requires a confederation of interoperable systems and services to meet diverse needs, that the experience provided to learners should be personalized, that systems should be underpinned by analytics, and that accessibility should be designed for at the outset, not bolted on as an afterthought, find a series of functional echoes across the Apereo software landscape. If an institution wants to begin to consider and deploy a next generation environment, we have tools – both specialist and generic - that can help.

Beyond the functional echoes, however, Apereo-sponsored software has two major contributions to make to the NGDLE agenda. On a practical level, open source software makes a great demonstrator of open standards. Want real conformance? With open source software you can both undertake conformance tests and see the code. Secondly, because Apereo software is driven by the needs of institutions working through our software communities, it is not driven to add feature after feature to a core application or environment. We can more easily gain flexibility by de-coupling functionality, rather than

¹ https://net.educause.edu/ir/library/pdf/eli3035.pdf
simply aggregating it. Our learning analytics stack – parts of which have been adopted at a national scale in the UK – is distributed as a distinct set of components, rather than being bundled with Sakai, and work just as well with Moodle. Sakai no longer bundles an ePortfolio solution – but Karuta offers a next generation portfolio solution that can be integrated with Sakai. All of which is to take one of the primary lessons of the last fifteen years and write it large: open source software helps keep the market honest. And Apereo software remains 100% open.

**Partnerships**
This is, of course, not to suggest that Apereo has all the answers, or even all the questions. As the organisation matures, Apereo continues to explore, and carefully construct, a series of interlocking partnerships with organizations operating in parallel areas of interest. Throughout the last twelve months we have continued to work closely with our longstanding partner, the ESUP-Portail consortium in France. In addition to continued engagement and support for uPortal, CAS and the Open Academic Environment, pilots have begun in France around the Apereo learning analytics stack – most notably at Université de Lorraine.

Apereo has also extended partnership activity, establishing memoranda of understanding with both the Data Interoperability Standards Consortium (DISC) and Postsecondary Education Standards Council (PESC). We have also further explored a relationship with the Society for Learning Analytics Research (SoLAR). DISC is the steward of the xAPI specification, one of two key specifications (along with IMSGlobal Caliper) in learning analytics space. Recent DISC efforts around the creation of xAPI profiles should improve ease of use and time to implementation of solutions utilizing the specification. That is of particular relevance to work of the Apereo Learning Analytics Initiative, and our incubating analytics platform components. PESC is the specifications and standards body behind the Apereo EdExchange incubating project supporting secure transcript exchange. Our joint focus is on the project completing incubation this year, and enriching information exchange. Apereo continues to develop a relationship with SoLAR around the learning analytics hackathon at the annual SoLAR conference, and is exploring the potential relationships between maturing research-focussed applications and the Apereo incubation process. In all these developing relationships, our focus is on small-step practical engagements that provide mutual benefit.

**Review and Renewal**
It is entirely appropriate for an organization approaching a fifth anniversary to review progress and renew aspects of its activity. There several key priorities. The Apereo Licensing Group has recently been reformed, and is driving towards greater inclusivity and engagement with all Apereo software communities. This is a critical element in our management of intellectual property, particularly in conditions where some projects entering incubation use GPL licensing (ELMS:LN and POET both operate within broader communities where the GPL is the norm).

Our principle means of communication, the Apereo newsletter and website have developed tremendously over the last year, in terms of regularity and expanded content. Work is underway to develop and integrate them further to showcase and communicate content more effectively. The objective is to encourage easier contribution, to better
reflect the breadth and depth of activity across our global community, and more effective
and targeted distribution.

As Apereo continues to evolve and grow, we must make sure that this is reflected in
materials that explain the full range of benefits Apereo membership brings. You can help
in two ways. The first is to offer to help draft, produce and localize communications. The
second is to act – in large or small ways – as an advocate for openness in for what Apereo
does. With your help, we can ensure the second five years of Apereo are as successful as
the first.

*Ian Dolphin*

*25th May 2017*
1 Incubation

The Apereo Incubation Process is designed to help steward a project from “great idea” towards the development of a sustainable software community. It is a structured process (available at https://www.apereo.org/content/apereo-incubation-process), which is supported by volunteer mentors drawn from the broad Apereo community. The time commitment to being a mentor averages two hours per month. The skill set we seek is diverse. Mentors do not need to have a technical background, but experience of technology related projects is an advantage. Apereo provides training and other opportunities to develop skills. Above all, the mentor must be capable of acting as a critical friend to projects. Not providing “the answers”, but helping elaborate the alternatives available and encouraging consideration of alternative paths. If you are interested in discovering more about becoming an Apereo Incubation Mentor, please contact jaeques.koeman [at] apereo.org or ian.dolphin [at] apereo.org.

Currently Incubating Apereo Projects

1.1 AngularJS-portal
AngularJS-portal is an alternative user interface for use with uPortal, leveraging APIs, content, and functionality in uPortal and adding experiences. The AngularJS-portal project includes an alternative-to-Portlets framework for developing applications for delivery through the portal. It also continues to support uPortal rendering of JSR-286 Portlets (so long as they are rendered in maximized or exclusive window states), in a snappy client-side way when it can, and via the traditional uPortal rendering pipeline when it cannot. AngularJS-portal entered incubation in March 2017.

1.2 EdExchange
EdExchange, a project of the Postsecondary Electronic Standards Council (PESC) Common Data Services (CDS) Task Force of over 30 institutions and vendors, aims to create a secure network for the exchange of transcripts between US educational institutions. The open source, web service based software EDexchange creates has the potential to be utilized to setup secure networks to exchange education data regionally and locally in many countries.
In the 2016-2017 period, EdExchange –

- Completed development of V1 reference implementation of EdExchange network server and directory server
- Implemented OAuth 2.0, to accompany digital signature technology in the document security stack.
- Published onboarding document that describes how to become an active EdExchange member and exchange a transcript in hours, using AWS.
- Formed steering committee to provide governance for EdExchange.
- Completed selection and contracting service provider to manage hosting of EdExchange directory server (with AWS)
- Parchment integrated EdExchange into their ordering and fulfillment workflow as part of pilot with the California Community Colleges Technology Center
- California Community Colleges Technology Center and Parchment successfully tested transmission of transcript request, transcript and transcript acknowledgments.
1.3 ELMS Learning Network
ELMS Learning Network (ELMSLN) is an open source educational technology platform for building and sustaining innovation in course technologies. It is a Next Generation Digital Learning Environment (NGDLE) that utilizes a Suite of Tools approach to system design and deployment. We believe it takes an ecosystem to effectively meet the needs of educators and believe in empowering faculty by treating courses as small networked ecosystems that encourage experimentation, fragmentation, growth, and then ultimately stabilization of new ideas.

1.4 Image Quiz
The goal of the Image Quiz Project is to increase comprehension of complex subjects through visual learning. This goal is accomplished through the development of a series of computer-based visual training programs under the working title Image Quiz. Programs in the Image Quiz family are designed to rapidly help users become visual experts. Unlike novices, visual experts are able to quickly recognize patterns. This allows chess masters to recognize meaningful chess configurations, and field biologists to identify organisms at a mere glance.

1.5 POET
POET was originally formed by a group of organizations that use Moodle and/or provide services around Moodle. These groups wanted to unify their efforts to provide a quality certification process for the third party plugin development community in Moodle. This would provide them, and the general Moodle community, with visible resources to help identify the best quality plugins for their needs. POET is a group of people and organizations that believe in the power of open source to innovate and advance their learning and educational solutions. By working together under a single organization, POET's members can provide additional resources to help advance the open source projects that matter to them.

1.6 Tsugi
The goal of Tsugi is to build a scalable multi-tenant “tool” hosting environment based on the emerging IMS standards to help move the industry toward a Next Generation Digital Learning Environment (NGDLE). The use of this framework does not automatically imply any type of IMS certification. Tools and products that use the Tsugi framework must still secure formal certification through the IMS certification process (www.imsglobal.org) if they wish to be certified.

1.7 Learning Analytics Incubation Cluster
Learning Analytics Processor
The Learning Analytics Processor project is aimed at accelerating the future of predictive learning analytics through the development of a flexible and highly scalable tool that will facilitate everything from academic early alert systems to data visualizations. Along with this powerful “big data” tool will come a library of open predictive models which can be shared across higher education free of licensing costs and, most importantly, allow institutions to collaborate on enhancing and improving these models over time.
**OpenDashboard**
OpenDashboard is a web application that provides a faculty and staff facing view of student activity known as the “Student Pulse.”

In 2016-2017 OpenDashboard made the conscious decision to pivot away from its previous visualization framework towards faculty and staff with an IMS LTI enabled tool providing a view of student activity within a particular class. Like OpenLRW, 2016-2017 saw growth in adoption in both the United States and Europe. Other key features developed in OpenDashboard over the last year include a new administrative user interface and support for the IMS OneRoster standard for representing entities such as users and classes.

**OpenLRW**
OpenLRW is an open source Java based Learning Record Warehouse that is compatible with the Experience API, IMS Caliper and IMS OneRoster. OpenLRW is the successor to the OpenLRS project.

2016-2017 saw growth in adoption as several institutions in both the United States and Europe embarked upon projects that utilized OpenLRW. Key new features in OpenLRW include support for IMS Caliper for event data and support for IMS OneRoster for supporting data such as classes, users and enrollments.
3 Membership Dues Restructuring

In 2015 Apereo began the process of separating Sakai and Foundation level dues into a “Core Foundation Subscription” and a “Sakai Supporting Subscription”. Dues levels were modelled carefully to establish a dues level required to support Sakai and the Sakai Community Coordinator. Given the lack of a common invoicing date, and a customary “tail” of late payers, it is anticipated that the process will complete during 2017-2018.

In addition, Bedework, uPortal, and CAS have set “Supporting Subscriptions”. These are designed to provide support for community and contributor facilitation and engagement, in the case of Bedework and CAS, and additional release management capacity in the case of uPortal.

Core Foundation Subscription, Sakai, CAS and Bedework Supporting Subscriptions

<table>
<thead>
<tr>
<th>USA (USD)</th>
<th>Core Apereo</th>
<th>Sakai</th>
<th>CAS</th>
<th>Bedework</th>
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<tbody>
<tr>
<td><strong>Annual Budget</strong></td>
<td><strong>0-25m</strong></td>
<td><strong>2,160.00</strong></td>
<td><strong>900.00</strong></td>
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</table>

uPortal Supporting Subscription

<table>
<thead>
<tr>
<th>Level</th>
<th>Amount (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze - uPortal Friend</td>
<td>1,000.00</td>
</tr>
<tr>
<td>Silver - uPortal Booster</td>
<td>5,000.00</td>
</tr>
<tr>
<td>Gold - uPortal Sustainer</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Platinum - uPortal Champion</td>
<td>20,000.00</td>
</tr>
</tbody>
</table>

Global Membership Efforts

Apereo has its origins in North America, and is registered as a non-profit in New Jersey. Historically, membership dues have been set in US Dollars. It is increasingly obvious that this model is not sustainable for an increasingly global organisation in an era of currency fluctuation, and significant differences in educational funding models around the world. The Executive Director and Board will work with national and regional communities over the coming period to address this issue.
4 Board Elections 2016

Doug Johnson, of the University of Florida, and Shoji Kajita, Kyoto University were re-elected to the Apereo Foundation Board of Directors in 2016. Cheryl Brown, of the University of Cape Town, was elected for the first time. The Apereo Foundation wishes to thank all candidates for their willingness to stand, and also extends thanks to 2016 retiring Board members, Alain Mayeur, Université de Valenciennes, and David Kahle, Tufts University for their service.

Apereo Board for 2016-2017
Lucy Appert, Columbia University (Vice Chair)
David Ackerman, NYU (Chair from January 2017)
Alan Berg, Universiteit van Amsterdam
Susan Bramhall
Cheryl Brown, University of Cape Town
Tim Carroll
Laura Gekeler, University of Notre Dame
Mathilde Guerin, Université de La Rochelle (ESUP-Portail Nominee)
Jim Helwig, University of Wisconsin-Madison (Chair until January 2017)
Doug Johnson, University of Florida (Secretary)
Shoji Kajita, Kyoto University
Charlie Leonhardt, Georgetown University (Treasurer)
John Lewis, Scholastic
Theresa Rowe, University of Oakland

5 Intellectual Property

Apereo registers and maintains service and trademarks for software communities graduating incubation and becoming recognised Apereo Software Communities. During the course of 2016-2017 CAS and Student Success Plan were successfully registered, and action was taken to prevent unauthorised use of the Sakai mark by a commercial entity. A series of applications were undertaken for late-stage incubation projects. These typically take six to eight months to process.

6 Licensing Group

John Lewis (Scholastic) retired as Chair of the Apereo Licensing Group in March 2017. John had served in that role for Apereo, Jasig and Sakai for the best part of a decade, and has the profound thanks of the Foundation for that extended service. Andrew Petro (University of Wisconsin-Madison) volunteered, and was confirmed by the Apereo Board as the new Chair of the Licensing Group.
7 ATLAS Awards

The annual Apereo Teaching and Learning Awards promote excellence and innovation in the use of Apereo software for teaching and learning. Award submissions are carefully evaluated against formal rubrics by a panel of peers to ensure the highest standards, and focus on the underpinning use of at least one piece of Apereo community produced software: the Sakai Collaboration and Learning Environment, Open Academic Environment, Karuta next-generation portfolio tool, Xerte for authoring interactive and accessible content, or Opencast for media capture and distribution. This year’s awards represent excellence and diversity across the community of Apereo software adopters. Here the award winners describe their activities –

Composing the Internship Experience: Social Media and Digital Discourse – Denise Comer, Duke University, USA
“Composing the Internship Experience is an innovative, fully online undergraduate course at Duke University, based in Sakai, that enables students to meaningfully reflect on and productively narrate their summer internship or work-related experiences using digital rhetoric and social media. Sakai serves as the foundational platform for the learning experience, with weekly lessons revealed each week, interactive forums for peer and instructor feedback on writing and peer-to-peer and student-instructor engagement, wikis, and guided reflections for in-depth reflections. The course integrates within Sakai links to many forms of media for course content, as well as a variety of other learning platforms such as WordPress, Instagram, and Google Hangouts for weekly real-time virtual writing workshops and student-instructor conferences.”

Introduction to Communication Online Class – Jennifer Robinette, Marist College, USA
“The introduction to communication online class is a virtual threshold to the communication major at Marist College. All communication majors are required to take the course, in-person or online, and students from many other majors take it as an elective. When developing a new site for the class, iLearn (the Marist instance of Sakai) tools enabled me to bring theory to life for students by creating experiences with communication theories in action that would be impossible in a traditional classroom. These interactive activities involve online skill challenges and reflective tasks soliciting feedback from family and friends to cultivate self-awareness, theory application, and critical thinking skills.”

Diploma in experimental sciences – Ursula Bernal and Marco Antonio Bernal, U-Red, Mexico
“This on-line course provides high school teachers with innovative tools for the teaching of experimental sciences from an interdisciplinary perspective. It approaches the teaching and learning of science through selected subjects in physics, health, chemistry, psychology, biology and geography. The development and utilization of Sakai boosts the effectiveness and efficiency of science education and collaborative learning. There are numerous examples of how Sakai has been used to facilitate better learning in a cost-effective manner by creating collaborative groups. Sakai enables more rewarding and efficient use of teacher time through the integration of solutions to current and complex problems.”
8 Apereo Fellows Program

The Apereo Foundation Fellows Program acknowledges, celebrates and rewards the contributions of important Apereo volunteer contributors. The program seeks to foster community leadership and contribution through recognizing and supporting active contributors. Contributors bring varied expertise to the community, including architecture, design and development of technology, best practices in teaching, learning, research and collaboration, and community coordination. The Fellows program recognizes such contributions, and supports the efforts of the Fellows through a modest stipend.

Apereo Fellows for 2017

Adrian Fish - Lancaster University
Adrian has been a member of the Sakai community for over 10 years. He started on his open source journey working on one of Sakai’s original source codebases, Michigan’s CHeF, and has been a constant presence in the community ever since, primarily as a developer and mentor. Adrian has worked on and contributed to many parts of Sakai over the years, most recently on social and academic alerts (a.k.a. Bullhorns). He also wrote the Clog (Collaborative Log) tool, co-wrote Oxford’s Feedback tool, wrote YAFT (Yet Another Forum Tool), wrote Portal Chat and he updates and maintains the Roster tool. His current focus is on the social aspects of Sakai and UX.

Benito Gonzalez - Unicon
Benito first joined the JASIG and Sakai communities in 2005. He joined Unicon Inc. in 2015 to better server the Apereo Community (merged from JASIG and Sakai). Benito is a regular presenter at Open Apereo and regularly contributes to uPortal and related Apereo portlets. He has sat on the Open Apereo Conference Planning Committee, and is currently a member of the uPortal Steering Committee and Incubation Work Group.

Dede Hourican - Marist College
Dede is the Senior Support Specialist at Marist College, building on improvements and technical solutions to teaching and learning within the institution’s Sakai instance. A long term community member within multiple projects and events, Dede has most recently focused on quality assurance with her participation in the Sakai QA committee. Dede is also an adjunct faculty member in the school of Computer Science and Math, holds a BS in Integrative Studies from Marist College and is currently working towards her MA in Integrated Marketing Communication.

Ron Mitchell - Mitchellmedia.co.uk / XerteAcademy
Ron is currently a self-employed consultant providing training, development and consultancy across the UK and internationally. His last full-time post involved managing staff development and e-learning in a large East London college. Ron joined forces with the University of Nottingham and Jisc Techdis in the very early developments of Xerte (2006) and has worked tirelessly with the Xerte project ever since. Ron played a key role in the organization of the Xerte 16 conference last year and organized and facilitated the recent developer meeting in Edinburgh. He is very active on the Xerte GitHub and community forums, where he is one of the more frequent responders to requests for support from our users, often going out of his way to investigate problems and provide
guidance or to provide fixes. Ron is an excellent ambassador for the Xerte project and has engaged with many UK institutions to help them establish and maintain a Xerte installation, to provide training to users, and to reflect the evolving needs of our user base into tangible development work for the project.

Miguel Pellicer - Entornos de Formación
Miguel is the CTO at EDF and an LMS market entrepreneur with a strong commitment in Open Source learning technologies. An active member of the Sakai Community and the Spanish S2U Team since 2008. Miguel is responsible of more than thirty projects all over the world involving Sakai, including elite universities in Spain, UK, Colombia, Mexico, Chile and the USA. He is always excited to develop ideas and initiatives that serve the academic mission and to share the knowledge gained openly. To all of my team mates, colleagues, customers, community and the S2U Group, this recognition means a lot to me. Thank you so much for helping me.

Sven Stauber - SWITCH
Sven encountered the phenomenon Open Source Communities for the first time more than a decade ago while he was research assistant at the Swiss Federal Institute of Technology (ETH). He remembers being impressed by the enthusiasm shared in the Oberon community, a community formed around an Open Source operating system built by the Native Systems Group at ETHZ. Later, when his current employer SWITCH choose to use the Open Source product Opencast in one of its national services offered to Swiss higher education institutions, he found himself again heavily involved in the middle of a highly motivated, capable and enthusiastic community: The Opencast community - a project of the Apereo Foundation. Sven enjoys being part of the Opencast community and is impressed by what it has become and its future potential.
9 Software Communities

9.1 Apereo Open Academic Environment

The Open Academic Environment is a powerful new way for researchers, students and faculty to create knowledge, share, collaborate and connect with the world. It is a multi-tenant and highly scalable platform that is able to support multiple institutions at the same time.

The Open Academic Environment has seen significant change over the course of 2016-2017. The project reviewed and renewed the OAE vision, relating it to the backdrop of conversations around the “Next Generation Digital Learning Environment” stimulated by the Educause Learning Initiative, but retaining a clear vision of OAE as an environment to support unified academic practice – an environment both to support and bridge teaching, learning and research. The renewed OAE vision statement can be found at http://oaeproject.org/assets/pdf/OAE_Vision_2017.pdf

OAE is currently supporting a pilot in France involving 11630 users in 2780 groups sharing 32000 documents and 15 institutions, the *Unity service hosted by *Research with 123249 users at 18352 Institutions, and an instance in South Africa hosted by OpenCollab.

Following the departure of the core OAE team in August, the project reviewed both development practice and sustainability model, determining that a more open model was appropriate. Following the appointment of a new project lead, located at *Research, actions have been taken to improve installation by using Docker containers and git submodules, and improving documentation. Engagement and feedback is solicited from the broader community around these developments.

In April 2017 OAE met with Dr Charles Severance, to assess the potential for adding extended IMSGlobal LTI support to OAE using the Tsugi framework. The meeting proved very positive, and the OAE team are working on adding the ability to integrate tools and services with OAE via LTI. This will be a particular focus for the project in the coming period, alongside the addition of richer document collaboration features.

9.2 Bedework

Bedework is an open-source enterprise calendar system that supports public, personal, and group calendaring. It is designed to conform to current calendaring standards with a goal of attaining strong interoperability between other calendaring systems and clients.

Bedework has made four releases since its last major update: 3.10.2, 3.10.3, and 3.10.4. 3.11 will be released by the Open Apereo 2017 conference. This work has included replacing JBoss 5 with Wildfly, together with other major enhancements to the core Bedework architecture. Performance Improvements have corrected bottlenecks and other performance issues, allowing for significant load and large-scale deployments. Bedework has also extended use of ElasticSearch and enabled further caching.
The Bedework Timezone server has moved closer to specification, and there have been several enhancements to Public Calendaring, including external subscriptions via the synch engine, together with better handling of contacts, locations and categories. New author and approver roles allowing for moderated publishing of events by administrative groups have improved workflow. Self-registration has been added for public calendaring.

Public Calendaring Event Registration has been improved significantly. Improvements to event registration features include the addition of custom fields to any registration form, together with a form builder for constructing and managing custom forms (extra text inputs, checkboxes, radio buttons, and select boxes).

Public Calendaring Notifications now provides administrative users with notifications of actionable items such as workflow approval requests, suggestions from other groups, and responses to each.

There have been several improvements to the public administration client, allowing for free tagging (i.e. hashtag-style tagging) of events, and breaking down locations into sub-locations such as buildings and rooms. The public web client has also seen significant improvements around ADA compliance.

9.3 CAS

The Apereo CAS project has been marching at full speed towards its mission statement: to provide enterprise-level single sign-on as a comprehensive open source platform. To this end, the project took the initiative to present large measures of automation strategies for both deployers and developers in order to deliver long sought-after features such as multifactor authentication and multi-protocol support.

Today, the CAS project is able to support more than six authentication protocols including SAML2 and OpenID Connect and seamlessly integrates with a host of multifactor authentication providers such as Duo Security, Google Authenticator and more. Work is also underway to provide better built-in password management support, consent-driven attribute release and largely improve upon UI dashboards and gadgets to further given into the new cloud deployment trends.

The project has also started to aggressively make the platform ever more extensible so as to allow and very much encourage adopters to start contributing patches and improvements independently. As the result, the CAS latest release received well over 200 pull requests on Github from all over the world and today stands at an exciting 2618 Github stars and 1532 forks. The numbers grow every day. This demonstrates a rise in the popularity of CAS both amongst deployers and other sister projects in the Open Source and boasts a much healthier community atmosphere where everyone is inspired to participate in the dialog, take action and engage at full capacity.
Karuta is a web-based flexible tool for the incremental prototyping and the diffusion of digital portfolios or eportfolios for various purposes, including showcase portfolio, learning portfolio, and assessment portfolio.

Karuta has seen two point releases in the last twelve months; Karuta 2.1 and 2.2. These releases enhanced the following functionality -

- Designers can set the maximum number of words in a text field.
- Users can click on the text editor for a full-page view.
- Designers may grant users permission to invite others via email to edit their portfolios.
- Reports can be used in much more sophisticated ways to create dashboards and aggregated reports.
- Designers can use batch files to create users and portfolios and to share portfolios with roles and/or individual users.
- Optimising the Karuta administration page in implementations of more than 100 portfolios, by limiting the loading of portfolios to open projects.

There has been a complete reorganization and rationalisation of the Karuta core code and files configuration.

A Karuta community server in France and in Canada has been established and maintained by ePortfolium.

New adopters include Université de Poitiers and IEA Grenoble, Université de Liège and the New Brunswick Theological Seminary. Karuta supports two graduate programs at the Kyoto University, and is also used by HEC Montreal. Prototype have been established for CNAM and Haute école de la province de Liège.

New Contributors and Committers: David Roldan Martinez, Universitat Politècnica de València and Eric Duquenoy, Université du Littoral, France.

Opencast believed it had lost a major contributor, but this was proved not to be the case, with Extron committers continuing to make frequent code contributions. A vibrant support culture, together with institutions investing financially, are continuing to ensure Opencast's growth. In particular, the collective approach institutions took in sponsoring and supporting a "quality booster" initiative led by the Swiss academic service provider SWITCH proved the community is reliable and responsible towards the shared vision for Opencast. Workshops for developers and adopters were organised during 2016-2017 to encourage community members to take an active role in sustaining Opencast.

Opencast had two major releases during 2016-2017 - 2.2 and 2.3. Release 2.3 added an API to Opencast, and organized repository ownership as well as a code cleanup.
Community growth in Western Europe and Germany was particularly visible during 2016-2017 when 100 community members attended the Cologne, Germany, for the 2016 Opencast summit, plus 60 for the meeting of the German-speaking community (DACH) in September.

Since the end of the incubation process, Opencast remains an active part of the Apereo foundation and has a consistent presence at Open Apereo.

### 9.6 Sakai

Over the last twelve months, Sakai has had over 1,786 commits from 91 developers updating its 1.5-million-line code base. Since June 2016, Apereo has received thirteen new contributor licenses listing Sakai as a primary project. Sakai has at least 250 institutional adopters worldwide - the exact number of institutions using Sakai is unknown, since Sakai is free to download without registration and has no mechanism to "call home" to let us know it is being used.

Adopters include:

**Public Research Universities**
- Brock University (Canada)
- Texas State University (USA)
- Nagoya University (Japan)
- Kyoto University (Japan)
- Tokyo Metropolitan University (Japan)
- University of Cape Town (South Africa)
- University of North Carolina at Chapel Hill (USA)
- University of Virginia (USA)
- University of Western Ontario (Canada)

**Private Research Universities**
- Duke University (USA)
- Hosei University (Japan)
- Loyola University Chicago (USA)
- New York University (USA)
- Oxford University (UK)
- University of Dayton (USA)
- University of Notre Dame (USA)
- Wake Forest University (USA)

**Higher Education Institutions in other categories**
- Claremont Colleges (USA) - a consortium of five undergraduate and two graduate schools
- Marist College (USA) - private liberal arts college
- Universidad de Murcia (Spain)
- Universitat Politècnica de València (Spain)
- University of South Africa (South Africa) - largest university on the African continent and one of the largest distance education institutions in the world.
Sakai 11
Sakai 11 was released in June 2016. It was one of the largest releases since Sakai’s inception. Some of highlights of the release include a new responsive design to optimize Sakai to work on mobile and tablet devices; a redesigned Gradebook with a new spreadsheet interface; and support for mathematics notation using MathJax throughout the system; as well as several new administrative tools. Since the original release, just one year ago, 584 fixes and improvements have been made to Sakai 11. There were three maintenance releases for Sakai 11 and we are about to release our fourth.

Sakai 12
Planning for the Sakai 12 release continues, with significant features already in the “master” branch (the main repository for all new features and fixes, which is constantly being updated). Some of the main targets for Sakai 12 include enhanced student notifications for academic and social notifications, grading rubrics, and WCAG AA 2.0 certification for accessibility. Significant progress has been made in all these areas. targeting a third- or fourth-quarter release this year, 2017.

SakaiCamp
In January 2017, the second-annual “SakaiCamp” in Orlando, Florida took place. SakaiCamp is an unconference-style meeting of community members. SakaiCamp provides attendees with opportunities for in-person discussions and working sessions to further develop and enhance Sakai and Sakai initiatives.

The SakaiCamp discussions and working sessions have launched a reinvigorated QA group, an exploration of possible efficiencies and automation of tasks within the project, a new community-based Marketing group to promote Sakai, and the Apereo FARM (Funding and Resource Management) initiative to provide support for grassroots, collaborative efforts to enhance Apereo projects, including Sakai.

Community Based Initiatives
We have had five community-based initiatives that involved collaboration and resource sharing (money and people) for Sakai, including GradebookNG, the new gradebook interface in Sakai 11; LEaP, a reimagining of the Lessons tool; and STEP, improvements to the Sakai Tests and Quizzes tool. Currently underway are Ra11y, our accessibility initiative; and Rubrics, native Sakai grading rubrics integrated into Assignments and Gradebook tools. Both initiatives are targeted for inclusion in Sakai 12.

Sakai Virtual Conference
The Sakai Virtual Conference has continued to be a major success. Nearly 400 Sakai users from around the world participated in the 2016 Sakai Virtual Conference. We hold an annual virtual conference cognizant of the fact that travel budgets are constantly vulnerable to cuts and that international travel can be especially expensive for attending an in-person conference.

Recorded sessions from the 2016 Sakai Virtual Conference are available on Sakai’s YouTube channel: https://www.youtube.com/user/SakaiCLE
Popular presentations include:
“Selling” Sakai: Building an enticing, engaging brand for your institution’s LMS - https://youtu.be/3MXrE4FHFf0
Sakai, ATLAS, and NGDLE - https://youtu.be/MFntsdGkP60

Regional and Local Meetings
In addition to the Sakai Virtual Conference, our global communities often organize local meetups and conferences. In the last year, we have had a local Sakai gathering in North Carolina at Wake Forest University; in Cape Town for the 2017 Apereo Africa event; in Kyoto, Japan for the 2017 JA Sakai conference; and in Valencia, Spain for a combined Opencast and Sakai conference. And, of course, Sakai has a strong presence at the annual Open Apereo event.

Community Coordination
Sakai has many active online communication options. We have nine Sakai-specific email groups with our two most-active groups being our developers group (sakai-dev) and our users group (sakai-users). The Sakai community also actively uses Slack for real-time discussions.

The community meets online via BigBlueButton for weekly calls for groups such as the Sakai Core team (development) and the Sakai QA planning group; and regularly for the Sakai usability group, the Sakai documentation group, the Sakai accessibility group, the teaching and learning group, and many others. We keep all these meetings open and publish them on our community calendar. Details are posted to our email groups.

Conclusion
The Sakai community has strengthened its product development, placing an increased focus on usability, accessibility, and mobile compatibility. Sakai also continues to lead the LMS market in adoption of the latest open standards (IMS LTI, Content Item, etc.). Community participation is active and sustained, with regular community working group meetings (Teaching and Learning, Usability, and Accessibility), conferences, and the recently-created SakaiCamp. Sakai’s commercial affiliates continue to play an active role in the ongoing development and maintenance of the product, bringing years of development and functional expertise to bear on the project. The newly-constituted marketing group has worked to strengthen our marketing messaging and materials, including a redesigned website and professionally-produced videos. Through these efforts, Marketing is working to expand awareness of the existing community and draw in additional institutions. This will ensure that Sakai continues to be an innovative and collaborative community, pushing the effective use of standards, including for those who use non-open source solutions, which benefits all of higher education.
9.7 Student Success Plan

The open source Student Success Plan (SSP) case management software supports a holistic coaching and counselling model that expedites proactive interventions for students in need. The January 2017 release of Student Success Plan version 2.8 added a variety of features that will benefit both current users, and those who are considering a holistic academic planning and caseload management solution. Major work included security upgrades via support for Java 8/Tomcat 8; work to enhancement or improve current features included configurable search by success indicator, auto-generation of Early Alerts for at-risk students, and multiple changes to make the application more flexible and configurable. Other improvements include: performance of the nightly database sync was significantly improved, and major improvements were made to the UI for accessibility. Overall, the release included 40+ bug fixes and dozens of new features, configurations and improvements to make SSP more user-friendly, configurable, secure, and performant.

9.8 UniTime

UniTime is a comprehensive education scheduling system that supports developing course and examination timetables, managing changes to these timetables, sharing rooms with other events, and scheduling students to individual classes. The UniTime project became a sponsored project of the Apereo Foundation in March 2015.

Releases

The current version of UniTime (UniTime 4.1) saw release in March 2016, following a steady pattern of one release every 15 months. It provided new room management, integration with Ellucian Banner and Degree Works APIs for student scheduling, new RESTful APIs and many improvements across all the components. We have had 5 minor releases since that point, including dozens of bug fixes and smaller improvements.

A new version of UniTime (UniTime 4.2) is currently in Beta, with a release planned in June 2017. Two universities are currently using this version in production. It features a brand new instructor scheduling component, more mobile-friendly user interface (using responsive web design), improved ability to keep students of a particular group together in both course timetabling and student scheduling, point in time reports, and a number of other improvements across the whole application.

Next release of UniTime (4.3) is currently being specified. A significant amount of work is planned on student scheduling around student schedule quality/fairness, asynchronous interfaces with external systems, and event management components. Efforts also continue to improve the user interface look & feel more modern, mobile friendly, and easier to localize.

For more details, please see the UniTime 4.2 release documentation at https://goo.gl/4g1XQV.
Other UniTime Achievements
76 institutions from 42 countries filled out our voluntary registration form over the last twelve months – an increase of eighteen on May 2016. Total registrations stand at 256 from 79 countries. Of these, 55 institutions from 40 countries have indicated that they are using UniTime in production.

There is a steady increase in interest and adoption from around the world. Interest in UniTime in Turkey and the Middle East has been notable. There are around 1000 downloads of the UniTime code each month, with a round 6000 unique web site impressions.

Although the number of code contributions external to the core team is low - two last year – institutions are beginning to sponsor feature additions and improvements. Thanks to Purdue University, the Banner-side of the UniTime - Banner interface has been made available to other Banner schools through the Ellucian Community Shared Source Code Repository. This was the final piece needed for a Banner school to make full use of that interface. A similar interface now exists with Ellucian College, which has been developed in cooperation with Maryville University last year. We have had a presentation at the Ellucian Live 2017 conference about Purdue’s integration of UniTime with Ellucian Banner and DegreeWorks.

A research paper about the course-timetabling solver was published and presented at the 11th International Conference on the Practice and Theory of Automated Timetabling in Udine, Italy in August 2016. A workshop and two presentations will take place at the Open Apereo 2017 conference. UniTime presented an Apereo Webinar around student scheduling in November 2016.

9.9 uPortal

uPortal is the leading open source enterprise portal framework built by and for the higher education community. In addition to the core platform, the greater uPortal ecosystem includes many other related projects. There are classic portlets, including WebProxy, Announcements, Notification, Weather, Feedback, SimpleContent, and more. There are supporting services, such as resource-server, rest-proxy, lti-proxy, tcrypt, etc. And there are alternative frontends, including uMobile and uPortal-Home. Over the last year, there were over 90 releases of projects within the uPortal ecosystem.

The uPortal community continues to be active, as demonstrated through the 5 virtual meetups, community calls, and updates; 17 conference presentations at Open Apereo 2016, ESUP-Days, Educause; and 1,200+ discussion list posts. The development community grew through the addition of 9 new contributors this last year, bringing the total number of active contributors to 19. This year also saw the uPortal-Home aka angularjs-portal project enter Apereo incubation. And finally, the uPortal Supporting Subscription program was introduced. This new program is a way institutions can help support continued improvements to the uPortal project such as releases that are more frequent, more complete, more stable, and better documented.
Releases of uPortal-related Apereo projects
uPortal: one patch release 4.3.1 on October 20th
FeedbackPortlet: one minor 1.1.0
Resource-server: three patch 1.0.46
SimpleContentPortlet: one minor 2.1.0
AnnouncementsPortlet: one minor, three patch 2.2.3
CalendarPortlet: one minor, three patch 2.4.1
JasigWidgetPortlets: three patch 2.2.7
NewsReaderPortlet: one minor, three patch 4.2.2
NotificationPortlet: two patch 3.0.3
WeatherPortlet: one patch 1.1.5
WebProxyPortlet: two minor, four patch 2.3.1

Releases of incubating projects:
uPortal-home aka angularjs-portal: two major, ten minor, thirteen patch 6.5.0
uPortal-app-framework aka uw-frame: two major, seven minor, sixteen patch 4.1.0

Releases of supporting, non-Apereo projects
rssToJson: one major, four patch 1.0.5
personalized-redirection: one major 1.0.0
rest-proxy: two patch 2.1.4
tcrypt: one patch 1.1.10
KeyValueStore: one major 3.0.0
lti-proxy: one major 1.0.1

Contributors to uPortal:
There were twenty-one active contributors May 1, 2016 to April 30, 2017, with nine new contributors -
  • Andrew Lasek (new contributor)
  • Andrew Petro
  • Andrew Stuart
  • Benito Gonzalez
  • Brandon Powell (new contributor)
  • Chris Paraiso
  • Christian Cousquer
  • Corey Rowe (new contributor)
  • Christian Murphy (new contributor)
  • David Sibley (new contributor)
  • Doug Reed (new contributor)
  • Drew Wills
  • Gary Roybal
  • James Wennmacher
  • Josh Helmer
  • Julien Gribonvald
  • Mark Mace (new contributor)
  • Michael Gillian
  • Michael Vose (new contributor)
• Seema Talele (new contributor)
• Tim Vertein

Other uPortal items of note in 2016-2017:
• Launched the uPortal Supporting Subscription program
• 5 uPortal-related virtual meetups, community calls, Unicon uPortal OSS updates
• 17 uPortal-related presentations and workshops at Open Apereo 2016, ESUP-Days, Educause
• 1,200+ discussion list posts (uportal-user, uportal-dev)
• One project (angularjs-portal) entering incubation

9.10 Xerte

2016 – 17 was a year of real success for the Xerte project, with three releases over the year, a well-attended conference in Nottingham bringing users and developers together from all over Europe, and the largest developer meeting we've held so far in Edinburgh. It's fantastic to see our user and developer communities continue to grow and develop and to see Xerte so well established, particularly in the UK and across Northern Europe.

We've seen some really significant developments in Belgium, with the government providing access to Xerte, for free, to every school-teacher in the country. Congratulations to Andrea Zhok and Marcella Oliviero from the University of Bristol who won the Apereo Atlas Award 2016 for their work with Xerte, drawing on its real strength with respect to student generated content.

The Xerte 16 conference was held at the University of Nottingham, with attendees from all over Europe. The event was entirely user-driven, with a wide ranging programme of talks and demonstrations from our user community, and very positively received by all attendees. Following the success of the Xerte16 event, we aim to organise another event later in 2017 or early 2018. We used some of the funds raised to support attendance at Open Apereo, whilst the remainder helped us put on the Edinburgh Hackathon. A record of the event can be found here: xot.xerte.org.uk/play.php?template_id=1.

Members of the developer team attended Open Apereo in May 2016, running a number of workshops and delivering presentations on the new features and functionality.

The Xerte Edinburgh Hackathon in March 2017 was our largest and most successful developer meeting to date. 16 developers came together for several days of hands-on work on the software and a number of significant new features and enhancements were implemented. We'd highly recommend all users to update their installations to the forthcoming release which we will have ready before Open Apereo 17.
10 Events Listing 2016-2017

Open Apereo/Open Summit, NYU May 2016
Sakai Virtual Conference November 2016
Sakai Camp January 2017
ESUP-Portail-Apereo Conference, Paris, February 2017
Opencast/Spanish Sakai Event, Valencia March 2017
JA-Sakai March 2017
Xerte Edinburgh Hackathon March 2017
Apereo Africa May 2017

Webinars - including highly successful analytics webinar around IMSGlobal Calliper and xAPI and individual software community webinars
11. Financials

### Statement of Assets, Liabilities, and Net Assets

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and Cash Equivalents</td>
<td>$ 261,322</td>
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<tr>
<td>Receivables</td>
<td>$ 5,677</td>
</tr>
<tr>
<td>Other Current Assets</td>
<td>$ 251,155</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>$ 256,832</td>
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</table>

#### 2016 Financials

**Net Assets**

<table>
<thead>
<tr>
<th>Support and Revenue</th>
<th>General</th>
<th>Events</th>
<th>SAKE</th>
<th>OAE</th>
<th>OpenCast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>$ 411,440</td>
<td>$ 121,471</td>
<td>$ 63,511</td>
<td>$ 22,030</td>
<td>$ 2,158</td>
<td>$ 7,286</td>
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<tr>
<td>Operating Expenses</td>
<td>$ 479,985</td>
<td>$ 147,730</td>
<td>$ 63,511</td>
<td>$ 22,030</td>
<td>$ 2,158</td>
<td>$ 7,286</td>
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<tr>
<td>Total Revenue</td>
<td>$ 295,735</td>
<td>$ 210,105</td>
<td>$ 287,523</td>
<td>$ 190,946</td>
<td>$ 576</td>
<td>$ 8,353</td>
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<tr>
<td>Change in Net Assets from Operating Activities</td>
<td>$ 124,447</td>
<td>$ 63,263</td>
<td>$ 224,004</td>
<td>$ 108,416</td>
<td>$ 482</td>
<td>$ 11,250</td>
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<td>Foreign Currency Gains and Losses</td>
<td>$ 33</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
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<tr>
<td>Interest Income</td>
<td>$ 221</td>
<td>$ -</td>
<td>$ 221</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
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<tr>
<td>Change in Net Assets</td>
<td>$ 119,875</td>
<td>$ 188,008</td>
<td>$ 211,702</td>
<td>$ 218,827</td>
<td>$ 535</td>
<td>$ 11,250</td>
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<tr>
<td>Net Assets at beginning of year</td>
<td>$ 575,850</td>
<td>$ 235,875</td>
<td>$ 358,716</td>
<td>$ 109,875</td>
<td>$ 10,179</td>
<td>$ 11,250</td>
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<tr>
<td>Net Assets at end of year</td>
<td>$ 575,850</td>
<td>$ 235,875</td>
<td>$ 358,716</td>
<td>$ 109,875</td>
<td>$ 10,179</td>
<td>$ 11,250</td>
</tr>
</tbody>
</table>

**Net Assets**

- General Fund
- Events
- SAKE
- OAE
- OpenCast
- **Total**

**Unrestricted Funds include: General and Events**

#### Administration Expenses

<table>
<thead>
<tr>
<th>General</th>
<th>Events</th>
<th>SAKE</th>
<th>OAE</th>
<th>OpenCast</th>
<th><strong>Total</strong></th>
</tr>
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<tbody>
<tr>
<td>Credit Card Fees</td>
<td>7</td>
<td>3,202</td>
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<td>3,209</td>
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<tr>
<td>Bad Debts</td>
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<td>50,000</td>
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<td>Office Supplies</td>
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<td>1,082</td>
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<td>Shipping</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>16</td>
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<td>Bank Fees</td>
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<td>-</td>
<td>9,917</td>
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<td>Dues and Subscriptions</td>
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<td>-</td>
<td>-</td>
<td>554</td>
<td>715</td>
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<tr>
<td>Miscellaneous</td>
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<td>-</td>
<td>2,733</td>
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<tr>
<td>Accounting</td>
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<td>-</td>
<td>-</td>
<td>39,302</td>
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<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td><strong>Total</strong></td>
<td>55,995</td>
<td>3,258</td>
<td>35</td>
<td>50,000</td>
<td>554</td>
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