



Banner extensibility continuum revisited

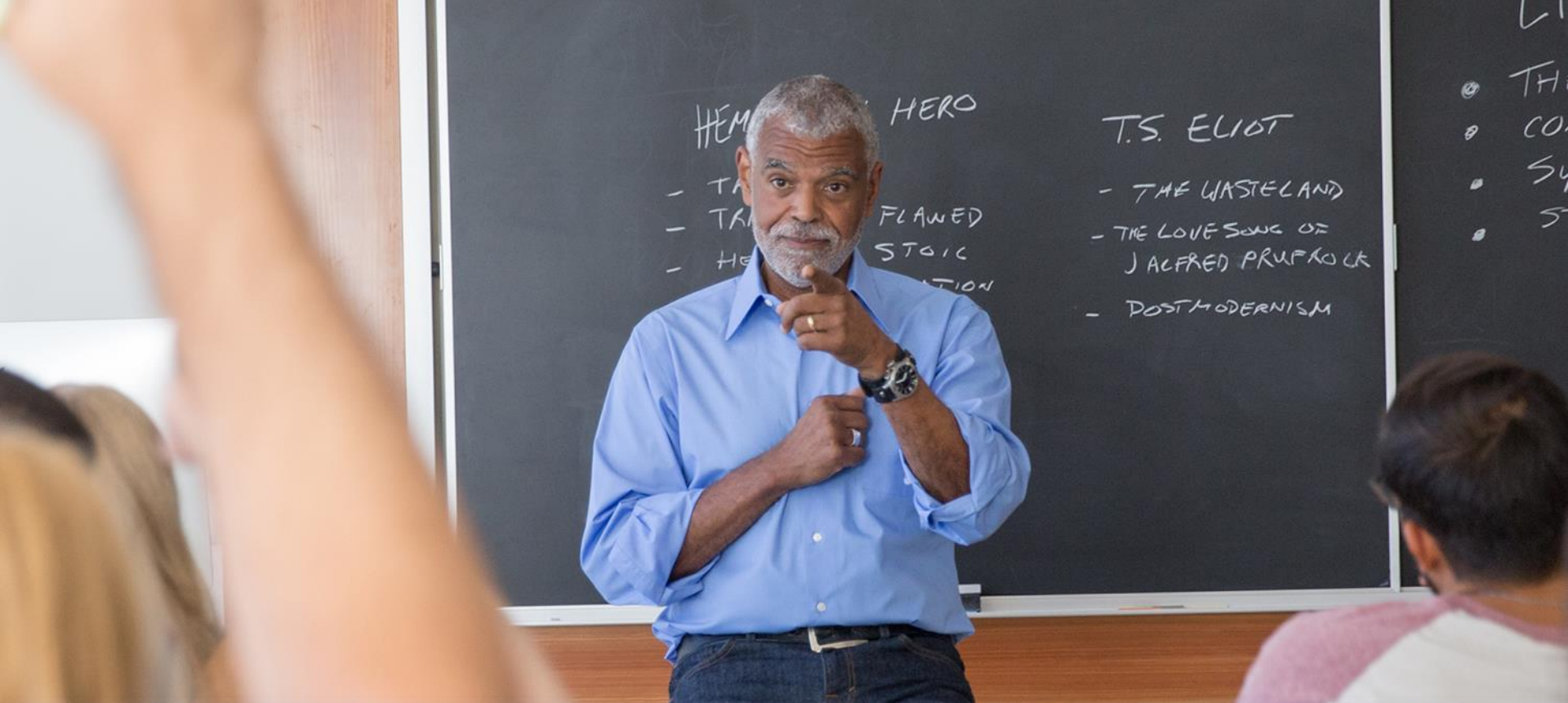
Mike Bates

Agenda

1 Banner Transformation and XE

2 The progress toward iHub

3 Q&A

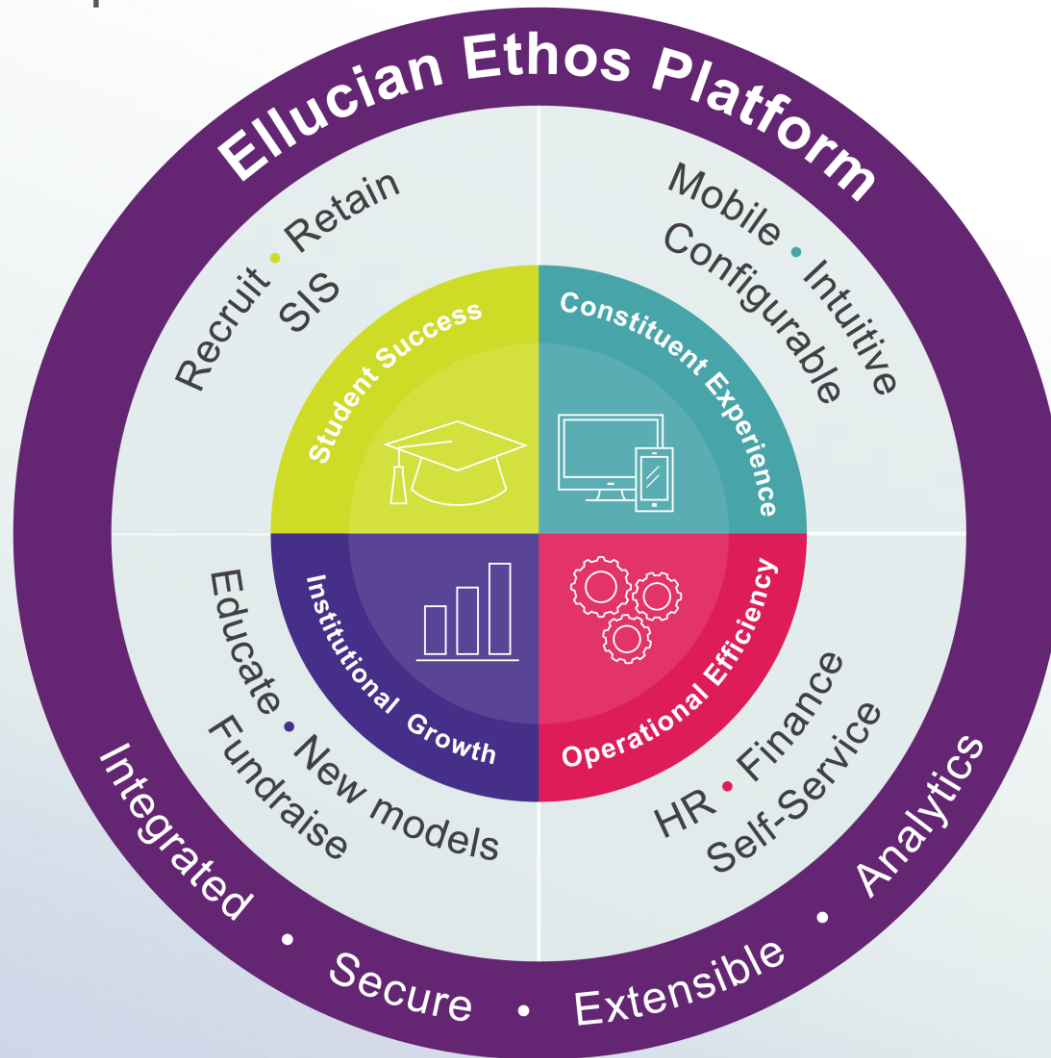


Our Story

Achieving student success advances
our entire society



Enhancing every aspect of the modern connected campus



Ellucian Extensible Ecosystem (XE)

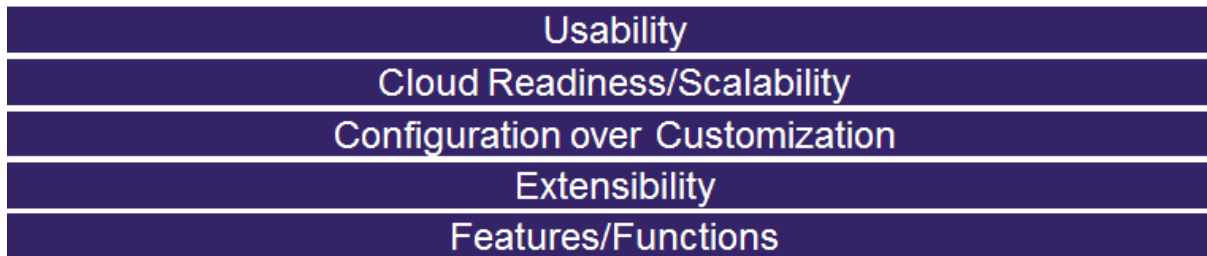
An innovative strategy grounded in common principles, standards, and services that help us leverage economies of scale across your portfolio



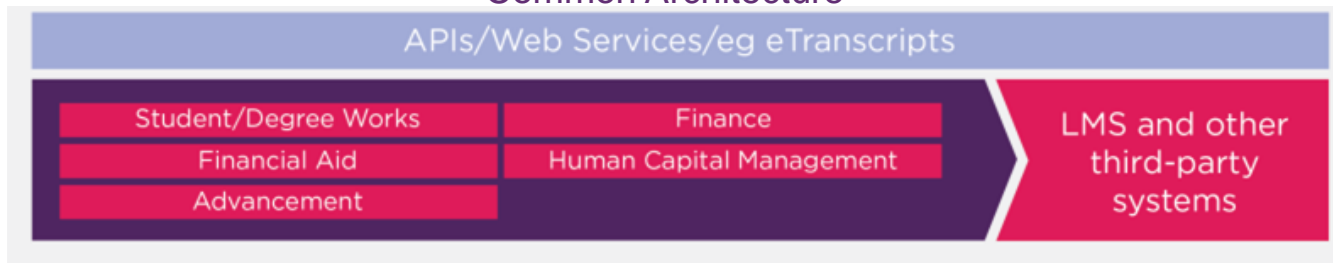
XE Strategy and Design Principles



XE Design Principles



Common Architecture



Applications Leveraging XE Strategy

- **Available Application**

- **Banner**

- Catalog
- Schedule
- Grade Entry
- Attendance Tracking
- Event Management
- Advising and Student profile
- Registration
- Employee Profile

- **Ellucian Elevate**

- **eTranscript APIs**

- **Ellucian Mobile**

- **Ellucian Portal**

- **Ellucian Perform**

Applications in Development

Banner

- Academic history, electronic gradebook
- Communication Management
- Position Description
- Purchase Requisition

**Banner HR, Position Control,
General Forms Transformation**

Banner Finance Forms Transformation

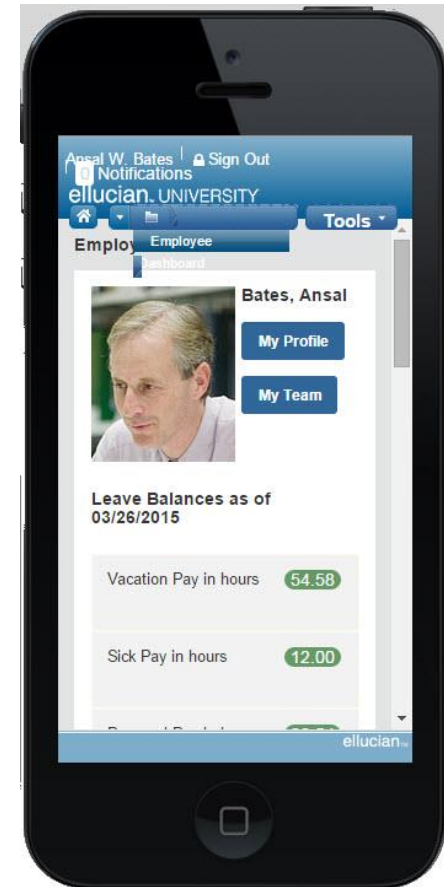
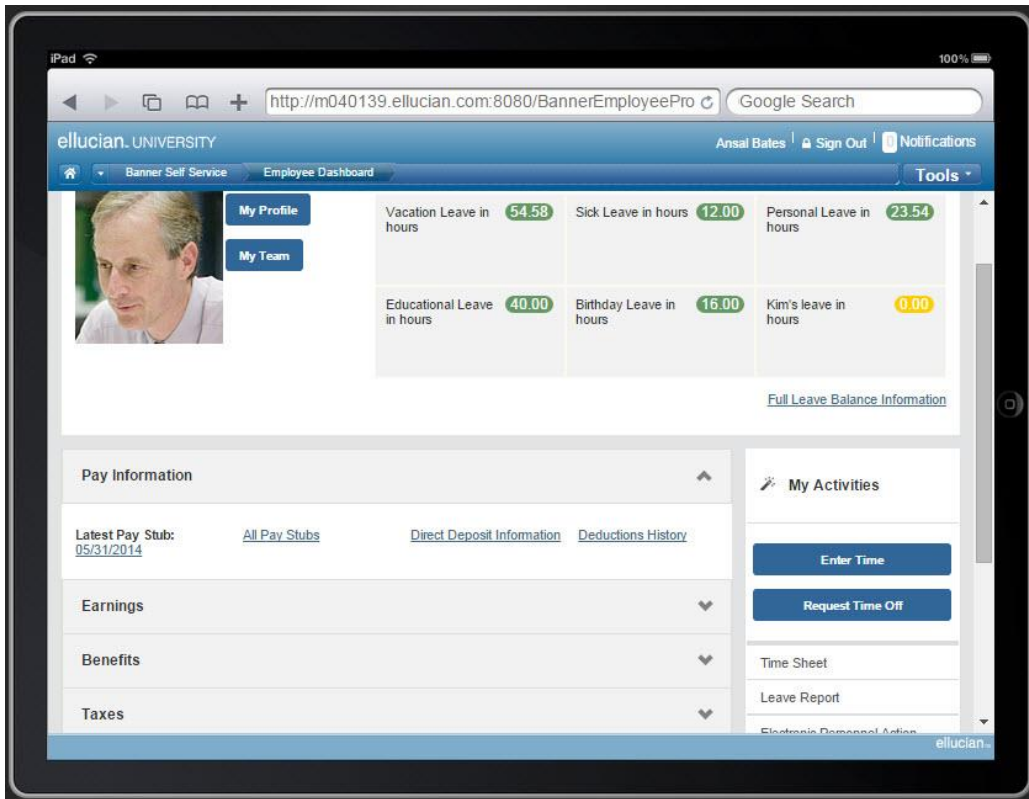
Ellucian Pilot





Banner Today

Tablet and Mobile Ready



Content First

Employee Dashboard



Gaddis, Bella

[My Profile](#)

[My Team](#)

Sick days

1.50

Vacation days

6.16

Ed Leave days

5.00

Birthday days

1.00

Personal days

2.94

[Full Leave Balance Information](#)

EMPLOYEE SUMMARY

Status: Active

Full Time Part Time Indicator: Full-Time

Home Department: Operations Research

Check Distribution: Operations Research

Employee Class: FT Administrative

Current Hire Date: 2008-01-14

Original Hire Date: 2008-01-14

Adjusted Service: 2008-01-14

Seniority: 2008-01-14

First Work Day: 2008-01-14

Hiring Location: BANNER University Main Campus

Hiring College: College of Engineering

Hiring Campus: Edmond

District/Division: Engineering Division

My Activities

[Request Time Off](#)

[Enter Time](#)

[Faculty Load and Compensation](#)

JOB SUMMARY

Director, Student Services MYE002-00, Operations Research Bates, Ansal

[Job Information](#)

Faculty Adjunct (FLAC) FAC002-00, Operations Research Brickhouse, Holly

PAY INFORMATION

Last Payment Paid on 2014-04-30

[All Pay Stubs](#)

[Download Latest Pay Stub](#)

EARNINGS

Year to Date Earnings:

\$24,538.49

[Earnings By Date Range](#)

[Earnings By Position](#)

BENEFITS

[Open Enrollment](#)

[Current Summary](#)

[Current Enrollment](#)

[Beneficiaries and Dependents](#)

TAX

Federal Tax

Filing Status: Single

Number of Allowances: 1

Pennsylvania Taxes

[W-4 Employee's Withholding Allowance Certificate](#)

[Electronic W-2 Consent](#)

[W-2 Wage and Tax Statement](#)

Attendance Tracking

ellucian. UNIVERSITY Brenda Jones | Sign Out | Notifications

Banner Self-Service > Attendance Tracker > Mark Attendance

Anthropology 1 102, Section 0 09/07/2012 | Class

Photo	Full Name	ID	Attendance	Monday 8/27	Wednesday 8/29	Friday 8/31	Monday 9/3	Wednesday 9/5	Friday 9/7
	Allan, Alice	210009304	100%	✓	✓	✓	✓		✓
	Allen, Bob	JKP0008	99%	✓	✓	✓	✓		✓
	Arnold, Julie	A00011812	100%	⊖	⊖	⊖	✓		⊖
	Auriemma, Kathy	A00010758	98%	✓	⊖	✓	✓		⊖
	Babbit, Bruce	210009305	86%	⊖	⊖	⊖	⊖		⊖
	Babcock, Alana	A00010675	100%	✓	✓	✓	✓		⊖
	Bailey, Andrea K.	A00010358	100%	✓	✓	✓	✓		⊖
	Barnyard, Benjamin J.	A00010091	100%	✓	✓	✓	✓		⊖
	Barr, Gerald	A00010891	96%	✓	✓	✓	✓		⊖
	Brinkley, Thomas C.	202003009	93%	✓	✓	✓	✓		⊖

Page 1 of 2 | Show 10 entries | Records found: 18

Update Empty Records to Present

Student Details

Bob Allen
 Status: "Registered"
 Attendance Percentage: 98%

This Person is Confidential. Do not share their personal information.

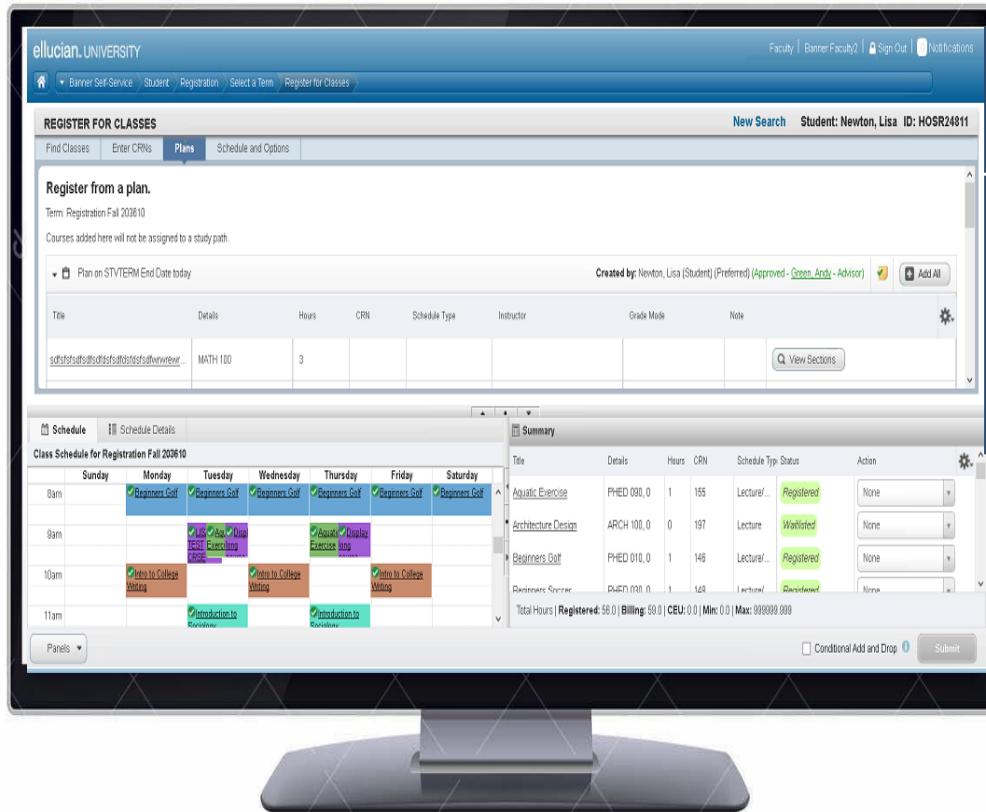
Present
 Hours Attended: 00 | 20

Absence
 Absence Notified:
 Note:

Extended Absence...

ellucian. en-GB

Registration Today



“This was an implementation that was just a dream—we have yet to have a single negative comment on our registration listserv or any calls to our office with issues...the students thought it was very intuitive and easy to use and used both the registration planning and registration function.”

University of Oklahoma



Acceleration of Banner

Modernizing Banner



Administrative Imperatives

- Technology—Eliminate Oracle Forms
- Usability—Consumer web in high productivity mode

The screenshot displays the Ellucian Banner HR system interface. The browser address bar shows the URL: m040042.ellucian.com:8081/applicationNavigator/seamless#PEAEMPL. The page title is "Employee PEAEMPL 8 & 1.10 (badev6)". The user is identified as PLEICHLI with a "Sign Out" link. The interface includes a "NOTIFICATION CENTER: 0" and a search bar. The main content area is titled "GENERAL EMPLOYEE DETAILS" and contains various fields for employee information:

- Employee Status:** ACTIVE
- Employee Class:** [Dropdown]
- Employee Group:** [Dropdown]
- Leave Category:** [Dropdown]
- Benefit Category:** [Dropdown]
- Part or Full Time Status:** Full Time
- Allow New Hire Benefits Enrollment:**
- COA ORGANIZATION:**
 - Home Department: [Dropdown]
 - Check Distribution: [Dropdown]
 - District or Division: [Dropdown]
- Service Dates:**
 - Current Hire: 22-AUG-2014
 - Original Hire: 22-AUG-2014
 - Adjusted Service: 22-AUG-2014
 - Seniority: 22-AUG-2014
 - First Work Date: 22-AUG-2014
 - Last Work Date: [Dropdown]
- Termination:**
 - Reason: [Dropdown]
 - Termination Date: [Dropdown]

The interface also includes a "Go" button and a "Save" button at the bottom right.

Yesterday

Oracle Fusion Middleware Forms Services: Open > NBAPBUD

File Edit Options Block Item Record Query Tools Help

Position Budget NBAPBUD 8.8 (GVUDB)

Fiscal Year: 2014 Employee Class: 01 FT Administrative
Position: A00002 Position Title: Vice President for Development

Position Budget Salary Budgets Fringe Benefit Premium Earnings Totals Labor Distributions Comments

Fiscal Year: 2014 Organization: 12403 Create Date: 01-JUL-2013
Status: Closed * Budget ID: FY14 Salary Group: 2010
COA: B Phase: POSN Base Units: 12.0

Salary Create FTE or Salary Records

Budgeted Amount:	834,145.99	Position Budget Basis:	12.00
Encumbered Amount:	1,227.00	Position Annual Basis:	12.00
Expended Amount:	19,470.84	Budget Appointment Percent:	100.00
Remaining Amount:	813,448.15	Budget FTE:	1.0000

Fiscal Year; Press LIST for valid codes.
Record: 1/? | | ... | | <OSC>

Today... Banner HR in Beta

The screenshot displays the Ellucian Banner HR system interface. At the top, the user is logged in as PLEICHLI. The main header shows the current position: Position: A00100, Position Title: Director of Alumni Relations, Employee Class: 02, FT Professional. The interface is divided into several sections:

- Position Budget Summary:** Shows Fiscal Year 2014, Organization 12401, Budget ID FY14, and Phase POSN. The Budgeted Amount is 909,697.50, Encumbered Amount is 25,776.92, Expended Amount is 39,223.10, and Remaining Amount is 844,697.48.
- Salary Budgets:** Shows Position Budget Basis at 0.00, Position Annual Basis at 0.00, Budget Appointment Percent at 0.00, and Budget FTE at 16.0000.

Navigation and control elements include a 'Start Over' button, a 'Create FTE or Salary Records' checkbox, and a footer with 'Record: 1/3' and 'ellucian' branding.

Modernizing Banner



Self-service Imperatives

- Usability—Consumer web for casual users
- Rich functionality, evolving with Higher Education

ellucian. UNIVERSITY Brenda Chafin | Sign Out | Notifications

Banner Self-Service Attendance Tracker Mark Attendance

World History 14201, Section 01 08/25/2014 Class

Photo	Full Name	ID	Attendance	Monday 8/18	Wednesday 8/20	Friday 8/22	Monday 8/25
	Boadle, Sam	N00020938	88%	✓	✓	✓	✓
	Drake, Lindsay	N00020943	100%	✓	✓	✓	✓
	Eller, Dan	N00020940	100%	⊖	⊖	⊖	⊖
	Garret, Mike	N00020939	96%	✓	✓	✓	✓
	Linze, Will	N00020941	96%	✓	✓	✓	✓
	Overt, Kelli	N00020944	96%	✓	✓	✓	✓
	Tracy, Ben	N00020942	96%	✓	✓	✓	✓

Student Details

Sam Boadle

Status: "Registered"
Attendance Percentage: 88%

Present

Hours Attended: 00 | 50

Absence

Absence Notified:
Extended Absence...

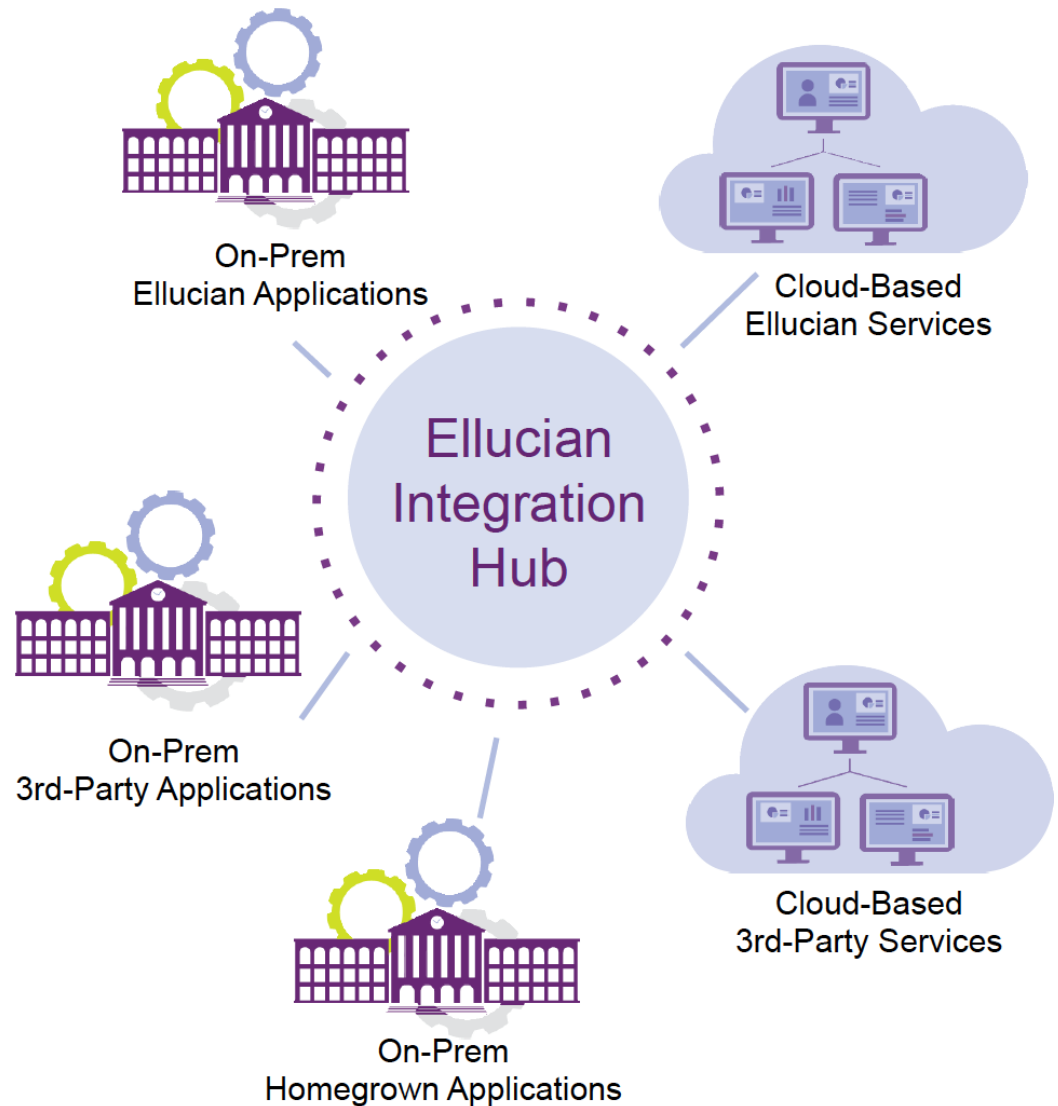
ellucian.

Modernizing Banner

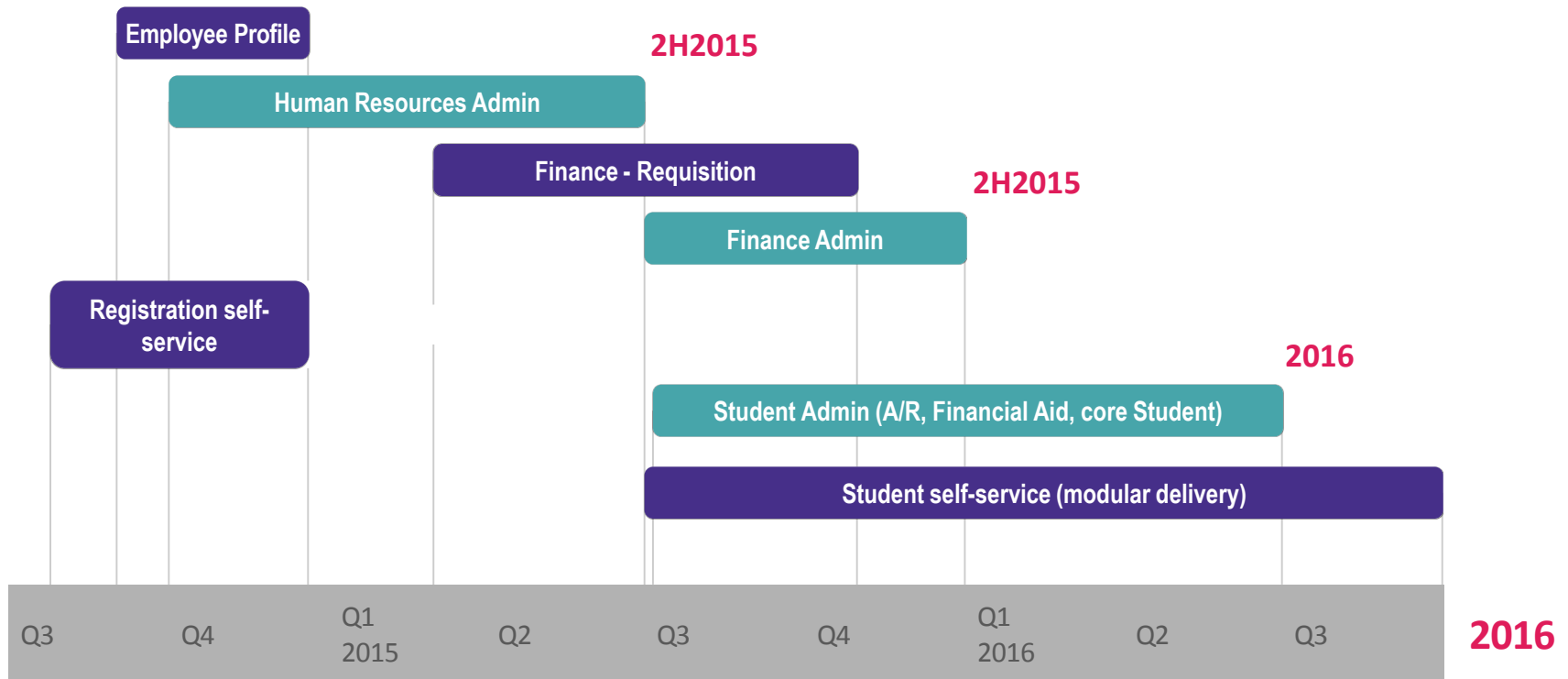


Integration Imperatives

- API-based integrations
- Enterprise strength connections



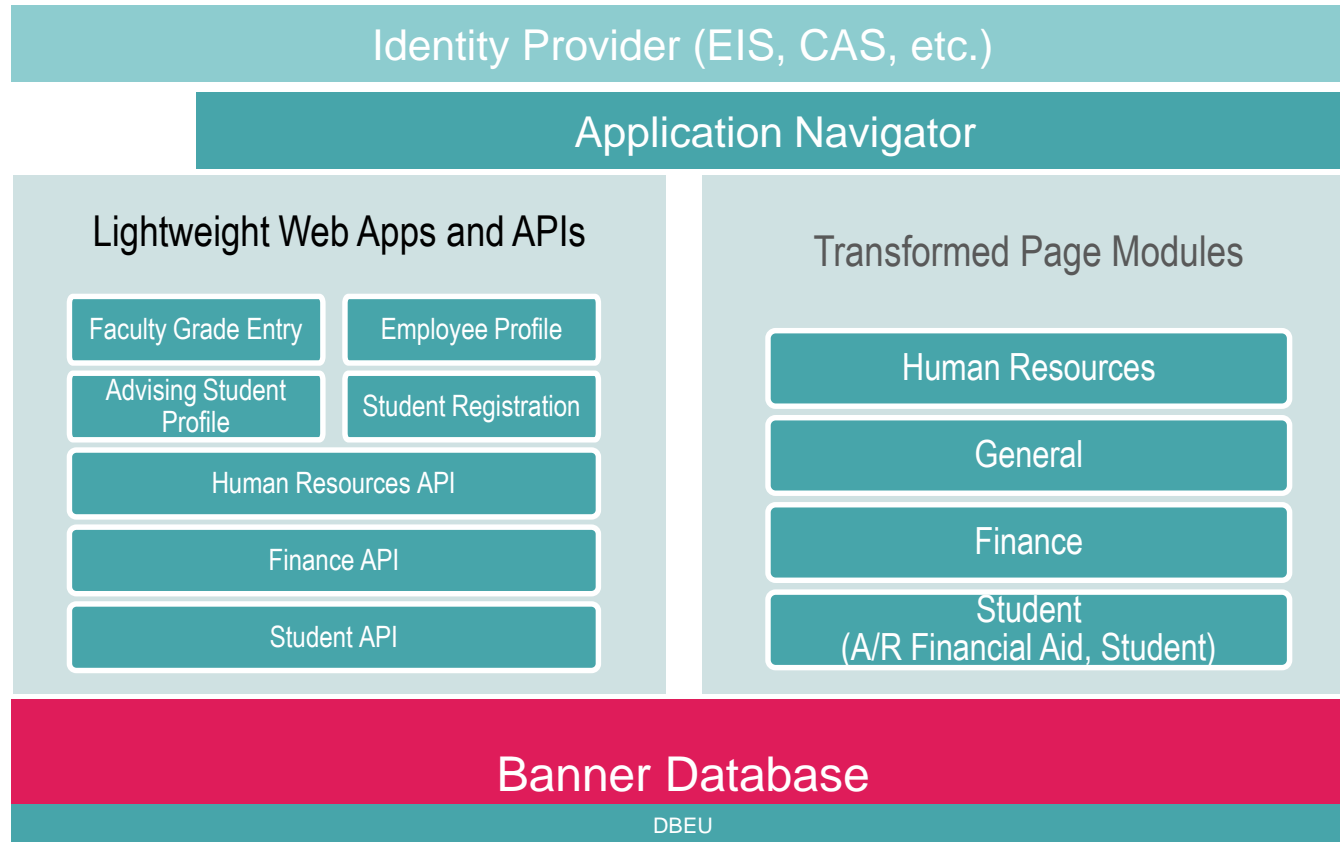
Target Roadmap Delivery



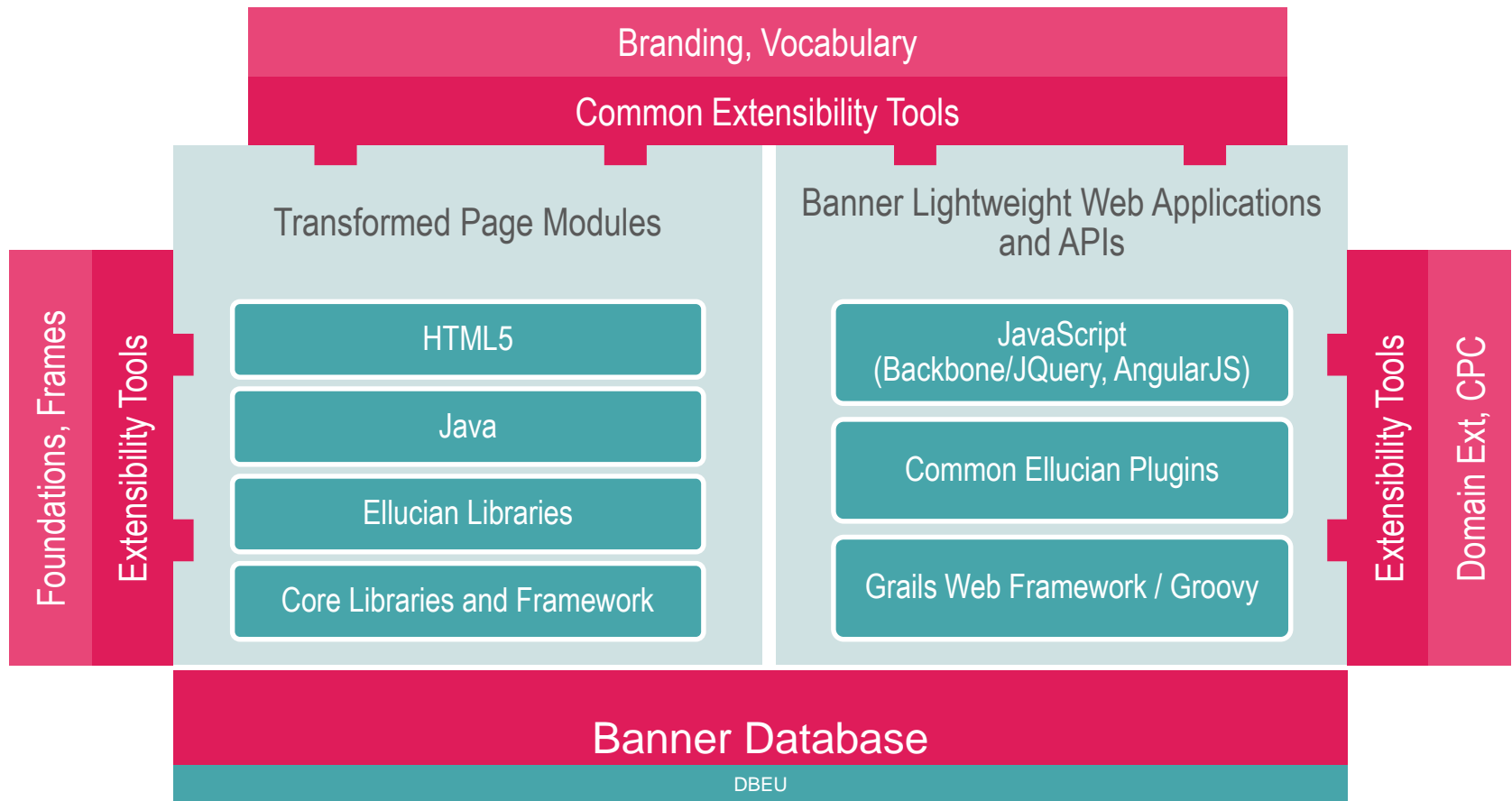


Future Ready Technology

Banner powered by XE – Deployable Applications



Changing Banner is Simplified through Extensibility Tools



The Extensibility Continuum (expanded view)

		Source Required?	Output	Admin	Web Apps
Configure Applications “non-developer” tools (Analysts, UXD)					
•	Hide, reorder, modify, add page components (CPC Tool)		JSON	✓	✓
•	Change colors, fonts, graphics	–	tbd	–	–
•	Change field labels, error messages		tbd	–	–
Extend Applications Developer-centric tools, documentation					
•	Extend domains (Domain Extension Tool, documentation)	✓	.war	✓	✓
•	Extend Business Logic (documentation)	Input only		–	✓
•	Extend transformed administrative pages (Foundations, Frames tools)		.jar	✓	–
Modify Applications Developer-centric documentation					
•	Modifications that cannot be made with configure or extend tools (Source code in Git)	✓	.war	✓	✓
Develop Applications Developer-centric tools, documentation					
•	Developers Guide—getting started, standards	–	–	✓	✓
•	Ellucian-developed Grails plugins	✓	.war	✓	✓
•	Application Development Tools (Foundations, Frames, Page Builder)	contingent	.war	✓	✓

Configure Page Components

Provides a tool for changing data entry fields on pages in Grails applications

Needed when

- Baseline data entry fields are not used by your institution
- Field level validations do not meet your institution's needs
- Modifications made to the domain layer need to be exposed in the user interface.

Available now!

Configure Page Components

Characteristics

- Non-developer tool
- Does not require application source
- “Built-in” to applications via Grails plugins (i.e., Banner Platform Plugins)

How it's used

- Application is configured prior to deployment for extension location
- Authorized user accesses the tool via the Tools menu in the Banner app
- Changes made to pages using the tool are saved as JSON files
- JSON files are injected at runtime to override page behavior

Configure Page Components Features

Hide existing fields

Change the type of fields

Change the editable length of fields (within database limits!)

Add fields for unused or extended domain attributes

- Checkbox, Combobox, Datebox, Decimalbox, Intbox, Listbox, Textbox
- Multiline Component, Radiogroup, Spinner
- Datebox (with Time Value enhancement)
- Lookup Control
- Large Text Box for CLOB

Add validation to fields

Domain Extension Tool

Provides a mechanism for extending the domain (data access) layer of Grails applications

Needed when

- the application does not capture all the data required by your institution
- data requirements at your institution require remapping fields in the UI to different database columns

Domain Extension Tool

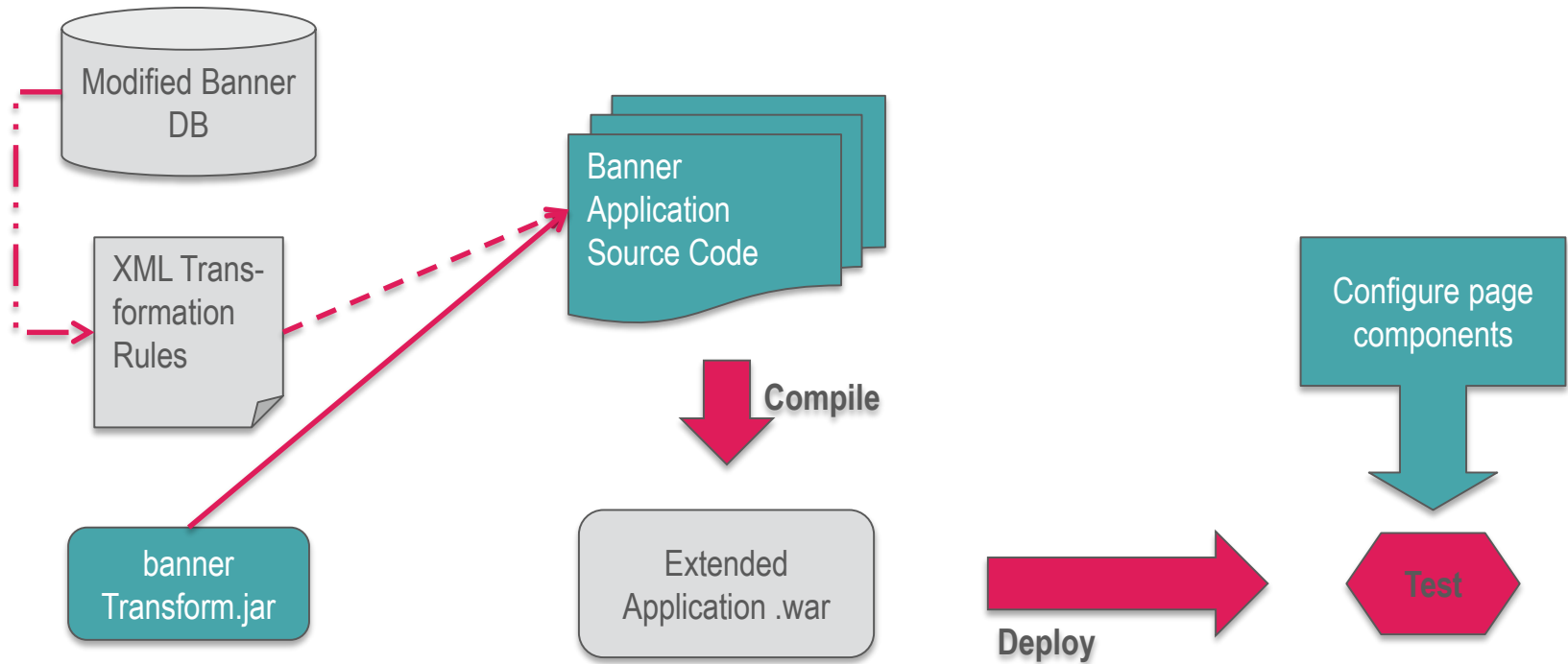
Characteristics

- Developer-oriented tool
- Requires application source
- Extends the domain layer when the application is compiled

How it's used

- .jar file added to application source
- XML file defines domain extensions – fields, mappings, constraints
- AST transform at compile time

Domain extension process flow



Extensibility Tools for Transformed Banner Pages

Eclipse-based development tools for extending transformed Banner pages

Needed when

- Baseline data entry fields are not used by your institution
- Field level validations do not meet your institution's needs
- Modifications made to the domain layer need to be made and exposed in the user interface.
- Forms-based business logic needs to be changed

Available soon!

Extensibility Tools for Transformed Banner Forms

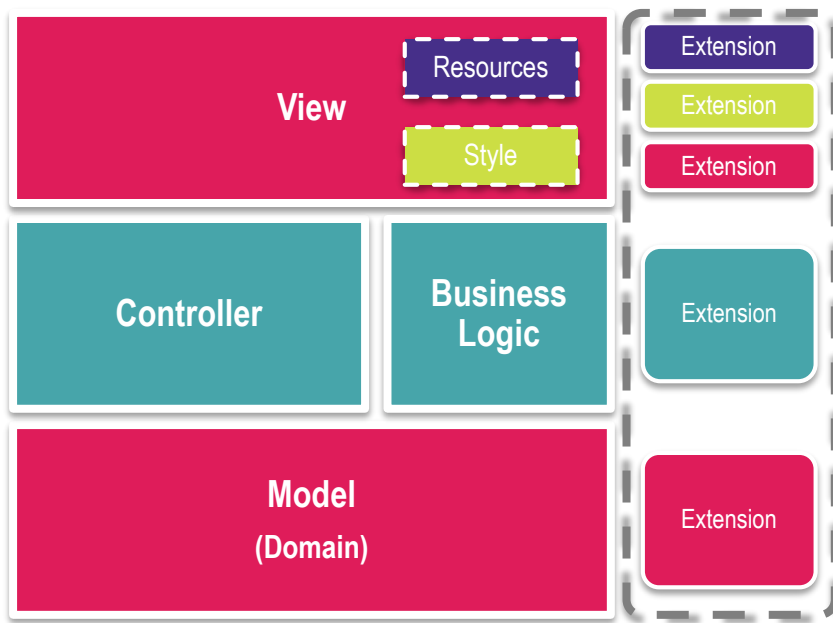
Characteristics

- Developer-oriented tool set
- Foundations tool for server-side code (model, controller)
- Frames tool for client-side code (view)
- Requires application source code

How it's used





- Developer accesses application source code
- Establishes extension packaging and inheritance hierarchy
- Uses tool to define extensions – often wizard-driven and/or rule-based
- Extensions are compiled into the application as separate .jar file

Extensions defined



- **Supplemental code or code artifacts that change the application**
- **Made separate from application source**
- **Not overwritten when the system is upgraded**
- **“Future-proofs” institutional personalization**
- **Implementation may vary based on application architecture**

The Extensibility Continuum (expanded view)

		Source Required?	Output	Admin	Web Apps
	Configure Applications “non-developer” tools (Analysts, UXD)				
	<ul style="list-style-type: none"> Hide, reorder, modify, add page components (CPC Tool) 		JSON	✓	✓
	<ul style="list-style-type: none"> Change colors, fonts, graphics 	–	tbd	–	–
	<ul style="list-style-type: none"> Change field labels, error messages 		tbd	–	–
	Extend Applications Developer-centric tools, documentation				
	<ul style="list-style-type: none"> Extend domains (Domain Extension Tool, documentation) 	✓	.war	✓	✓
	<ul style="list-style-type: none"> Extend Business Logic (documentation) 	Input only		–	✓
	<ul style="list-style-type: none"> Extend transformed administrative pages (Foundations, Frames tools) 		.jar	✓	–
	Modify Applications Developer-centric documentation				
	<ul style="list-style-type: none"> Modifications that cannot be made with configure or extend tools (Source code in Git) 	✓	.war	✓	✓
	Develop Applications Developer-centric tools, documentation				
	<ul style="list-style-type: none"> Developers Guide—getting started, standards 	–	–	✓	✓
	<ul style="list-style-type: none"> Ellucian-developed Grails plugins 	✓	.war	✓	✓
	<ul style="list-style-type: none"> Application Development Tools (Foundations, Frames, Page Builder) 	contingent	.war	✓	✓



Higher Education Data Model

For organizations worldwide, the information that they create, manage and share becomes mission critical to the overall success of the organization. Frequently, the information is contained within complex data structures and each separate application has a different concept of how that information looks, how it is structured and how it is communicated.

At Ellucian, our on-going work across the HE sector led us to recognize that enabling our customers to unlock this information was a necessity. To achieve this, making multiple systems work “as one” was a critical requirement. Put simply, it meant that we needed a standardized means of illustrating the world of higher education.

In many industries standards already exist, albeit with only partial adoption. In the HE sector, however, Ellucian had a unique opportunity to start with a “clean slate” and to create something new...and so we created the Higher Education Data Model (HEDM).

HEDM is a defined standard to illustrate a uniform view of “the world”, so that users can view data and interact with each other. The data model itself creates a defined data object or entity, reaching all corners of an institution, covering Recruitment, Students, Finance, Advancement and beyond.

HEDM is designed to make data easy to read and removes the complexity of tables, schemas and relational structures. It provides information where and when you need it.



HEDM

The model is segmented into logical groupings leveraging years of experience and domain knowledge.

HR / Payroll

Student

Foundation

Finance

Recruitment

Curriculum
Management

Financial Aid

Fund Raising

Registration

applications point of view



HEDM entities or data objects are our method to talk with other solutions whether Ellucian or 3rd Parties

The notion of HEDM is part of our core understanding of our application and is not a “separate” thing.

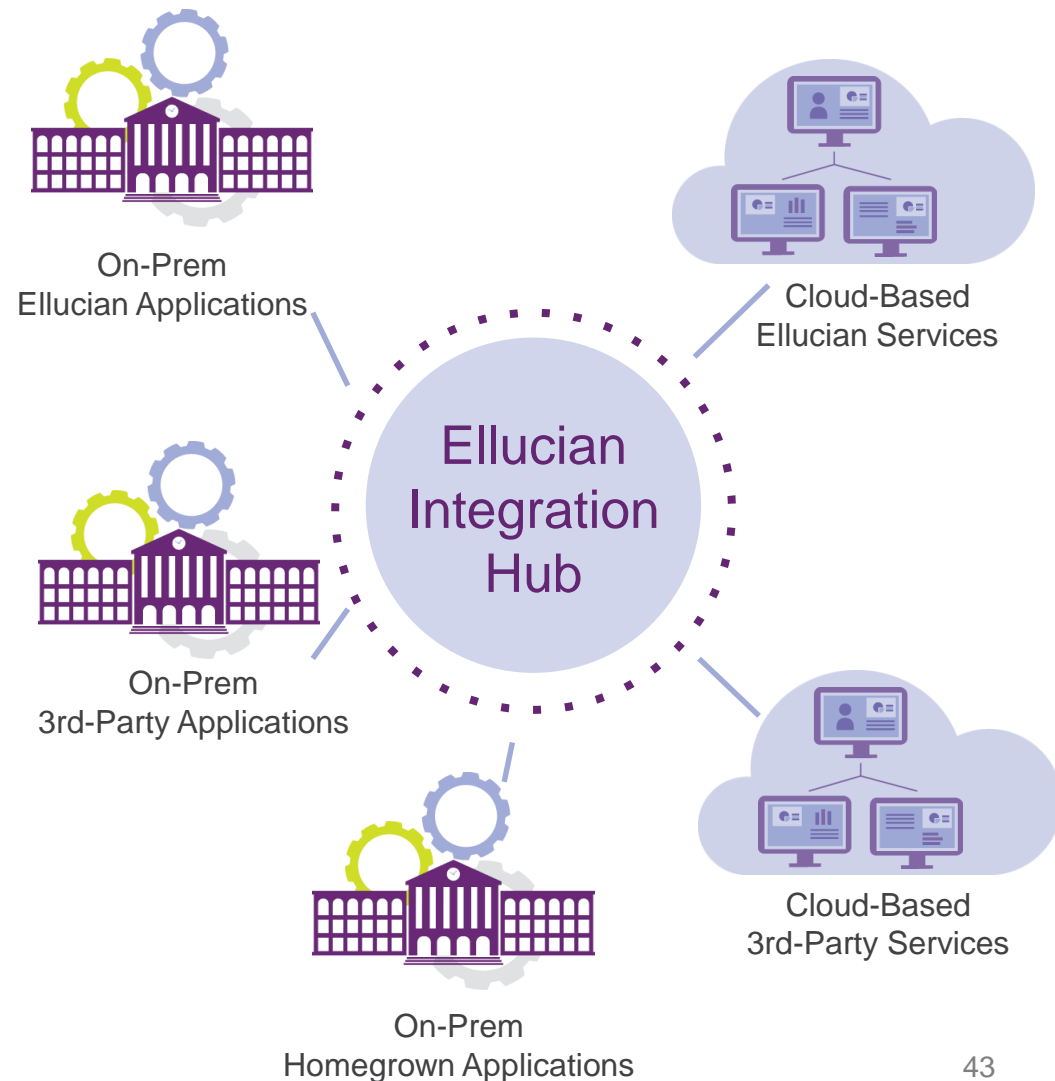
HEDM adoption is defined in our roadmaps.

We publish messages to our best ability, meaning fully formed and not for restrictive use cases.

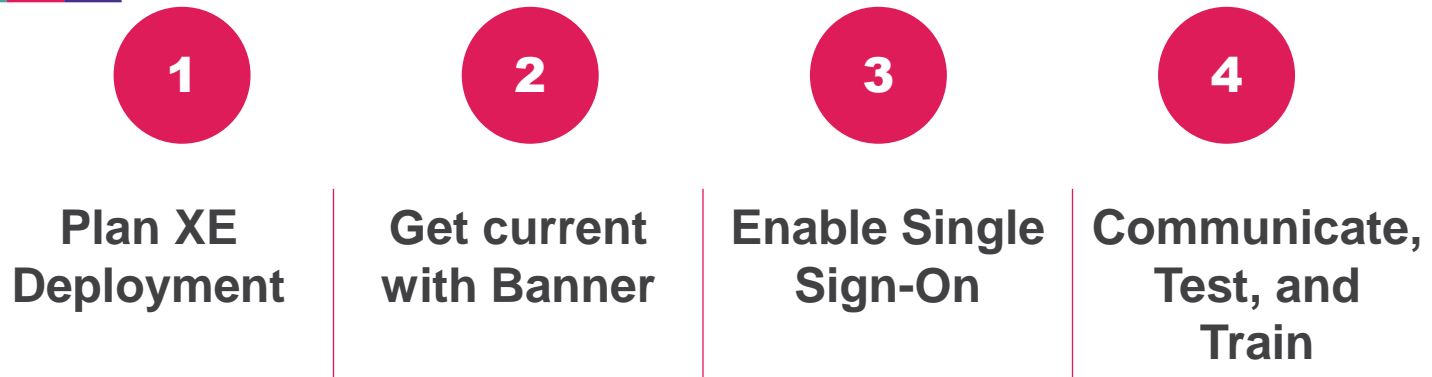
Our internal events that enable us to publish are not restrictive based on a centric view of who consumes the information.

Ellucian Integration Hub

- **Introducing the cloud-based Ellucian Integration Hub**
- **Provides hub-and-spoke, publish/subscribe data services**
- **Use for integration out-of-the-box**
- **Included as a part of every Ellucian application**
- **Uses open standards and HeDM**
- **Works well with ESBs and iPaaS of your choice (no vendor lock-in)**
- **Offers out-of-the-box integration with Higher Education specific services**



XE Guide is Here! Visit ellucian.com/xeguide



Your guide to Banner XE adoption

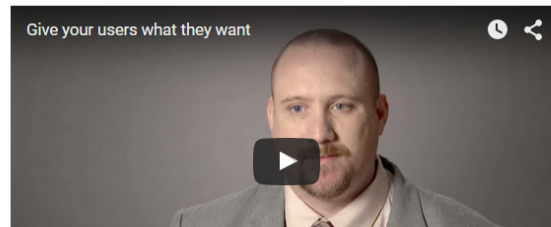


Welcome to the XE Guide

Mobile. Simple. Flexible. That's the vision behind the Ellucian Extensible Ecosystem (or simply, "XE"). Institutions should be able to extend, configure, and add solutions as campus needs evolve—and do so without sacrificing existing investments.

This site is your interactive guide to tracking your institution's progress. Check the "Step Completed" box at the bottom of each page as you progress and it'll be here for you when you return.

This site is your one-stop-shop for deploying XE applications. Ellucian's XE strategy makes it easier and more efficient for institutions to implement, manage, and extend our solutions. This innovative strategy supports improved functionality, better integration, more agile development, expanded points of access for users, and innovative delivery methods. But don't take our word for it, here's what other institutions have to say:



Learn More

[What's new with Banner \(PDF\)](#)

[Banner Transformation Overview \(PDF\)](#)

[Texas Tech prepares for future growth with XE \(video\)](#)

[Available XE Apps](#)

[Start Process](#)

Places to Find More Information

XE Guide – Adoption help with XE

- www.ellucian.com/xeguide

eCommunities

- Banner community
 - White papers, webinars, documents, etc.
- Banner HR and Banner Finance communities

Roadmaps

- <http://www.ellucian.com/Roadmaps/>

Download documentation from the Support Center

Attend an Ellucian education class

Contact your Client Partner



Contact us for more information.



ellucian.

Mike Bates

Mike.Bates@ellucian.com

