How Purdue University has Benefited from the Use of UniTime and Open Source Practices

Stephanie Schluttenhofer
Benefits

- Adaptability from Open Source Processes and Dialogue
- Availability of UniTime Data for Planning
- Cost Savings from Better Planning
- Ease of UniTime Integration with Other Systems
- Result: Improved Performance in the Fundamental University Mission - Educating the Students
Adaptability

Open Source Processes Encourage Dialogue and Innovation
Adaptability

My Observations of Traditional Software Vendors:

- Users learn the software
- Users use the software
- Users report bugs
- Unless critical, users wait for bug fixes
- Users request additional features
- Users wait for upgrades, often years
- Users are disengaged
- Traditional software becomes stale
Adaptability

My Observations of Open Source:

- Users learn the software
- Users ask, “Could the software do X?”
- Open source community says, “X is a great idea, with the data from X it can do Y?”
- Users get excited and ask, “Could it do Z as well?”
- The changes are implemented quickly
- Users are engaged
- Developers are engaged
- Engagement leads to more adaptability
Adaptability - Case Study

Advisor Recommendation Form

Users Asked:

- Can UniTime replace the paper Student Course Requests form Advisors use to advise their students?
- Can it be saved as a PDF as proof of the advising conversation?
- Can the students access it in UniTime?

<table>
<thead>
<tr>
<th>Course Requests</th>
<th>Credit Hours</th>
<th>NOTES</th>
</tr>
</thead>
</table>

Substitute Course Requests (used only if a course requested above is not available)

1. Substitute 2. Substitute

Student Course Requests

Student's Name: 
PUID: 
Advisor/Email: 
PIN #: 
Term: 
Substitute Course Requests (used only if a course requested above is not available)

1. Substitute 2. Substitute

Student's Signature 
Date
Advisor's Signature 
Date

Students are responsible for meeting course prerequisites and fulfilling degree requirements, and are ultimately responsible for their own educational plan and academic success.
## Adaptability - Case Study

### Advisor Recommendation Form

The student information header on the form was new, no old code to re-use.

Idea: The advisor could use the form to enable the student for registration.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Student's Name:</td>
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<th>Total Priority Credit Hours</th>
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Advisor’s Signature       Date

Student’s Signature        Date

Students are responsible for meeting course prerequisites and fulfilling degree requirements, and are ultimately responsible for their own educational plan and academic success.
Adaptability - Case Study

Advisor Recommendation Form

The Student Course Requests page uses similar data to paper form. Use this as a starting point.

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Substitute Course Requests (used only if a course requested above is not available)

1. Substitute

2. Substitute

Students are responsible for meeting course prerequisites and fulfilling degree requirements, and are ultimately responsible for their own educational plans and academic success.
Adaptability - Case Study

Advisor Recommendation Form

The original form doesn’t show existing data for the student, advisors would likely find it useful.

| Student's Name: | PUID: |
| Advisor/Email: | PIN #: |
| Term: |

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Adaptability - Case Study
Advisor Recommendation Form

Proposed Solution Advisor

Online Form
Downloadable PDF
Adaptability - Case Study

Advisor Recommendation Form

Proposed Solution

Student
Adaptability - Case Study

Advisor Recommendation Form

Additional Solution Idea for Student

Your Course Requests have been pre-populated with advisor recommendations. Please review the requested courses and hit the Submit Requests button to finalize your pre-registration.

You have made some changes in your course requests. Please click the Submit Requests button to update your submission.
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Advisor Recommendation Form

Less than 3 months from idea to implementation

- Project requested on December 19, 2019
- Multiple rounds of feedback
- Advisors Tested / Trained in February 2020
- In Production on March 14, 2020
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Advisor Recommendation Form

Phenomenally High Usage Among Advisors

- COVID hit
  - Advising went online
  - The form facilitated online communication
- Advisors are engaged
  - Regularly suggest improvements
  - Suggestions are often implemented
  - Suggestions are often expanded upon
- Fall 2022 - Used for all but 50 continuing students
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Advisor Recommendation Form

Watch my Lightning Talk to see the Advisor Recommendation Form in Action:

Streamlining Student Advising - The UniTime Advisor Recommendation Form
Data for Planning

UniTime has Useful Data for Planning
Data for Planning - Short Term

Curricula Data, Enrollment Data, Student Requests

This UniTime Data Helps Users Predict:

- Courses that have joint demand. — make sure these don’t conflict
- Which courses are expected to have increased demand. — offer more seats
- Which courses are expected to have decreased demand. — offer fewer seats
Data for Planning - Short Term

Weekly Student Contact Hours, Weekly Hours of Facility Usage

Allow UniTime to Help Users Predict:

- The types of rooms a department needs for their classes
- The number of rooms a department needs for their classes
Data for Planning - Long Term

Weekly Student Contact Hours, Weekly Hours of Facility Usage

Allow UniTime to Help Users Predict:

- The types of classrooms / labs / etc. that need to be built in the future.
- The timeframe in which new classrooms / labs / etc. need to come online.
- Where on campus new classrooms / labs / etc. should be built.
Data for Planning - Very Long Term

Course Demand + Room Utilization in Simulations

Purdue has used UniTime to run simulations of the long term future.

- Put together its dream student body for 10 years into the future.
- UniTime projected this onto the current student body to generate course demands of this future dream student body.
- Users familiar with Purdue’s programs then took their best guess at how the growth / shrinkage of demand for courses would be handled.
Data for Planning - Very Long Term

Course Demand + Room Utilization in Simulations

A Simulated Course Timetable was Created.

- Added course sections where determined
- Increased course section size where determined
- Shrunk courses where determined
- Removed rooms in buildings slated to be torn down
- Added rooms expected to be built
- Added rooms that weren’t planned but were needed to schedule all classes in the simulated timetable.
- Simulated future students were scheduled to the timetable to ensure it was a usable timetable.
Data for Planning - Very Long Term

Course Demand + Room Utilization in Simulations

The Simulated Course Timetable was Analyzed

- Which departments would need additional staff to support their growth
- Which departments could be expected to shrink
- Whether planned rooms matched what was needed
Cost Savings

Improved Planning leads to Cost Savings
Cost Savings

Purdue

Purdue benefits from cost savings thanks to better planning

- Offering the right classes, at the right capacity, at the right time
- Knowing where to focus resources in faculty hiring
- Knowing what types of spaces to build and where
- Knowing what types of spaces not to build

All of the above can lead to cost savings by avoiding wasteful spending on unneeded resources.
Cost Savings

Students

Students benefit from better planning

- Improved planning interactions with their advisors
- Able to get the courses they need to graduate on time
- Cost savings are passed on to the student
Integration

UniTime’s Open Source Foundations Allow for Easy Integration
Integration

Purdue has Integrated UniTime with Many Systems

![Diagram showing UniTime integration with various systems]

- **Registrar (Functional Admins)**
- **System Admin (Application Admins)**
- **Authenticated Users for Event\Room Requests**
- **Event Managers (Owners of Specific Rooms)**
- **Academic Advisors**
- **Schedule Deputies**
- **Instructors**
- **STAR REZ (Learning Community)**
- **PREMIS (Vstars)**
- **Explorers**
- **Degree Works**
- **Learning Spaces Instructional Technology Support**
- **Informatics Course Studio Suite**
- **Research Computing**
- **Banner**
- **Registration Workflow**
- **Students**
- **In-Person Course Planning Tool**
- **College of Science IT (STEM iPADS)**
- **ODS**
- **EMAR**

**UniTime**

- TimeTable
- Student Schedules
- Registration Override Requests
- Critical Courses
- Student Curriculum Requirements

- Web Service API
- Course Offerings, Timetabling, Schedule Preferences
- Timetabling, Registrations, Scheduling
- App Config
- Room Schedules Room Requests
- Schedule, Rosters
- Student Registration Info, Course Demand
- Learning Community

- STAR REZ Dashboard
- Data
- ODS Replicated Data for Reporting
- TimeTable, Student Schedules
- Registration Override Requests
- TimeTable & Room Capacity
- Student Schedules

- COGNOS

- Updated 9/30/20
Benefit: Improved Performance

Improved Performance in the Fundamental University Mission of Educating the Students
Benefit: Improved Performance

Fundamental University Mission of Educating the Students

To get an education students must be able to get the courses they need.

- Improved hand off of advising information encourages student to stay on track to meet their goals.
- Improved planning allows Purdue to do a better job of meeting student needs in a more affordable manner.
Benefit: Improved Performance

Fundamental University Mission of Educating the Students

Additionally, UniTime is geared toward getting students the courses they need.

- UniTime provides tools to allow Purdue and other institutions to see when they are not meeting a student’s needs.
- Identifying the individual students affected by poor course planning encourages better course planning.
  - Has this made Purdue perfect at meeting student needs? No, far from it.
  - Does Purdue have the tools needed to improve? Yes!
  - Is Purdue striving to improve? Yes!
Conclusion

Open source practices have encouraged engagement with UniTime that has benefitted Purdue.
Conclusion

- Adaptability from Open Source Processes and Dialogue
- Availability of UniTime Data for Planning
- Cost Savings from Better Planning
- Ease of UniTime Integration with Other Systems
- Result: Improving Performance in the Fundamental University Mission - Educating the Students
UniTime Resources

- Website: www.unitime.org
- Online Demo: demo.unitime.org
- Manuals: bit.ly/unitime46docs (or Help > Manuals in the app)
- Online Help: help.unitime.org
- Research Publications: www.unitime.org/publications.php
- Presentations: www.unitime.org/presentations.php
- Webinars: www.unitime.org/webinars.php
- GitHub: github.com/UniTime
- Downloads & Nightly Builds: builds.unitime.org
- Twitter: @UniTimeOrg
- Email: team@unitime.org
Join the Conversation

Website: https://www.unitime.org
Email: team@unitime.org
Thank You!

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