Association of Public & Land-grant Universities

Building AI into Gateway Courses to Work for All Faculty

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Lumen Learning

APLU Digital Transformation for Student Success

The Association of Public and Land-grant Universities represents large public research and land-grant universities. Our 230 U.S. institutions serve nearly one half of all students attending public four-year bachelor programs.

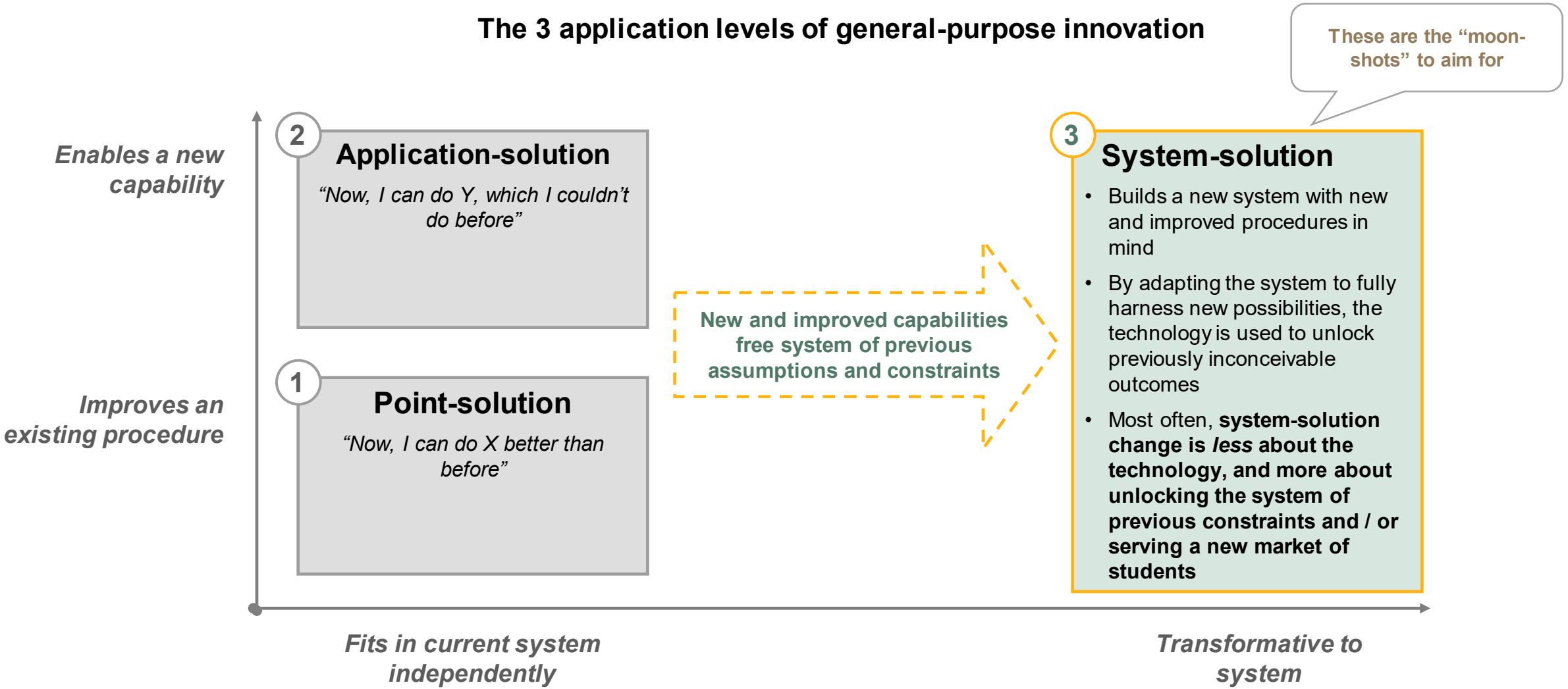
APLU's Office of Digital Transformation for Student Success was created to :

- Deepen understanding of how to drive digital transformation and identify successful models that scale to support student success
- Illuminate the role of data in strengthening teaching, learning and operations in support of student success
- Help institutions make evidence-based decisions about use of technology to support student success

Issues in Higher Education

- High DFW rates in gateway courses (Gardner Institute, 2019)
- Institutions are being called to provide more flexible learning opportunities
- Many faculty members feel burnt out and do not have enough time to teach their courses effectively (Alchemy, 2023)
- Fewer students have remained engaged during class lecture since the COVID-19 pandemic (McMurtrie, 2022; Young, 2023)

Can we adjust our use of adaptive learning tools like Generative AI to move us from improvement to transformation?



Sources: Power and Prediction, Tyton Partners analysis

Active Learning and “Flipping”

- Active learning is a highly effective teaching technique.
- Successfully flipping the classroom - with readings and “lecture” done outside of class so class time can be used for active learning - depends on students actually doing the prework and having some understanding of the main takeaways.
- Students are generally unable to ask questions, get clarifications, etc. outside of class and get quick feedback.

The AI Flip

- Students read readings, watch lecture videos, etc. outside of class.
- They copy and paste a “review prompt” into their LLM and engage in the ensuing activity.
- Their homework is to upload the transcript of their conversation to the LMS the night before class. “Everyone is prepared for class.”
- You review transcripts before class to see where to focus time and attention. (Tip: have an LLM help with this review.)
- You use class time for active learning.

The Review Prompt

1. **Goal**: Make it easy for students to engage in retrieval practice.
2. **Goal**: Get students thinking and dialoguing about how they study and learn.

- The review prompt directs an LLM to engage students in a review activity with open-ended questions, immediate corrective feedback, and the opportunity to dive deeper on any topic.
- Designed for students to use after they have read / watched / prepared for class, but before they come to class.

Ed Tech Review Prompt Example

I've just finished studying about large language models. I'm trying to develop a solid conceptual understanding of the key ideas. Give me a quiz where you ask me the following questions:

- What are tokens? - What is self-attention?
- What is pre-training? - What is fine-tuning?
- What is a base model (or foundation model)?
- What is reinforcement learning with human feedback (RLHF)?
- How do LLMs use tools?

Ask me one question at a time and wait for my answer. After each answer, give me feedback on my answer and explain anything it seems like I don't understand. Then ask if I'd like additional information on that question. When I indicate I'm finished, ask me the next question.

Ed Tech Student Feedback

- “I loved the activities. It was so helpful in improving my understanding. It was so easy to just copy and paste the prompt and get started. **The immediate personalized feedback was incredible compared to any feedback I have ever received**.”

- “I also **wasn't afraid or embarrassed to just say, ‘I still don't get it.** Can you explain it to me like I am 5?’”

Ed Tech Student Feedback

- “I found this review prompt activity to be helpful, especially as someone who was new to AI and had very little experience with it. This activity gave me an opportunity to begin using ChatGPT from the start in a 'low risk' way. I hope that makes sense - **it was on my level, and for a novice, it was a great way to become familiar with it** .”

Intro to Psych Student Feedback

- “This was extremely helpful, it was really cool to be able to answer sample questions **without having to create my own questions** and quiz myself, but instead giving ChatGPT a general prompt and topics I'd like to cover.”
- “I liked it -- I never thought to use AI to help me with studying before, this is **quicker than creating a quizlet**.”
- “I was surprised at how in depth the responses ChatGPT was, as it would confirm you answered the right thing, but also **gave feedback and provide extra information**.”

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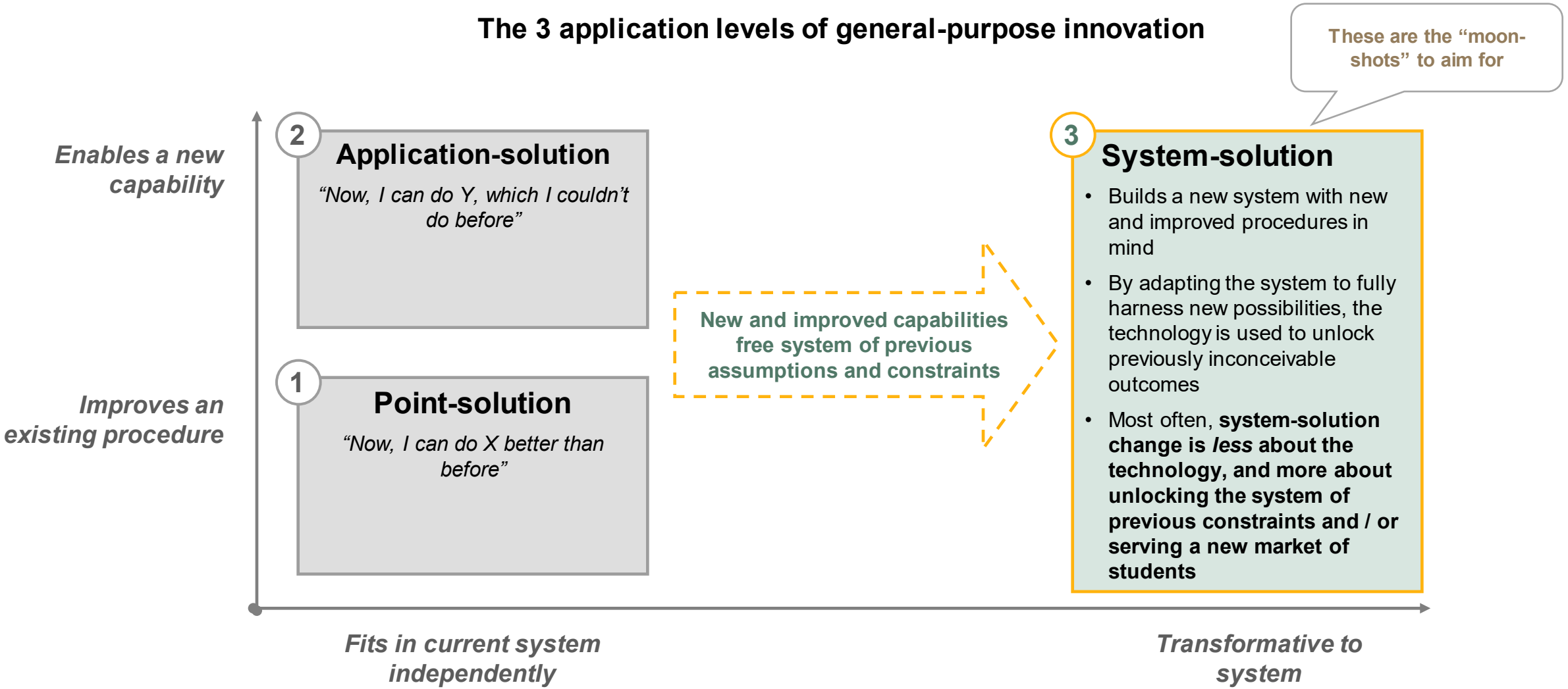

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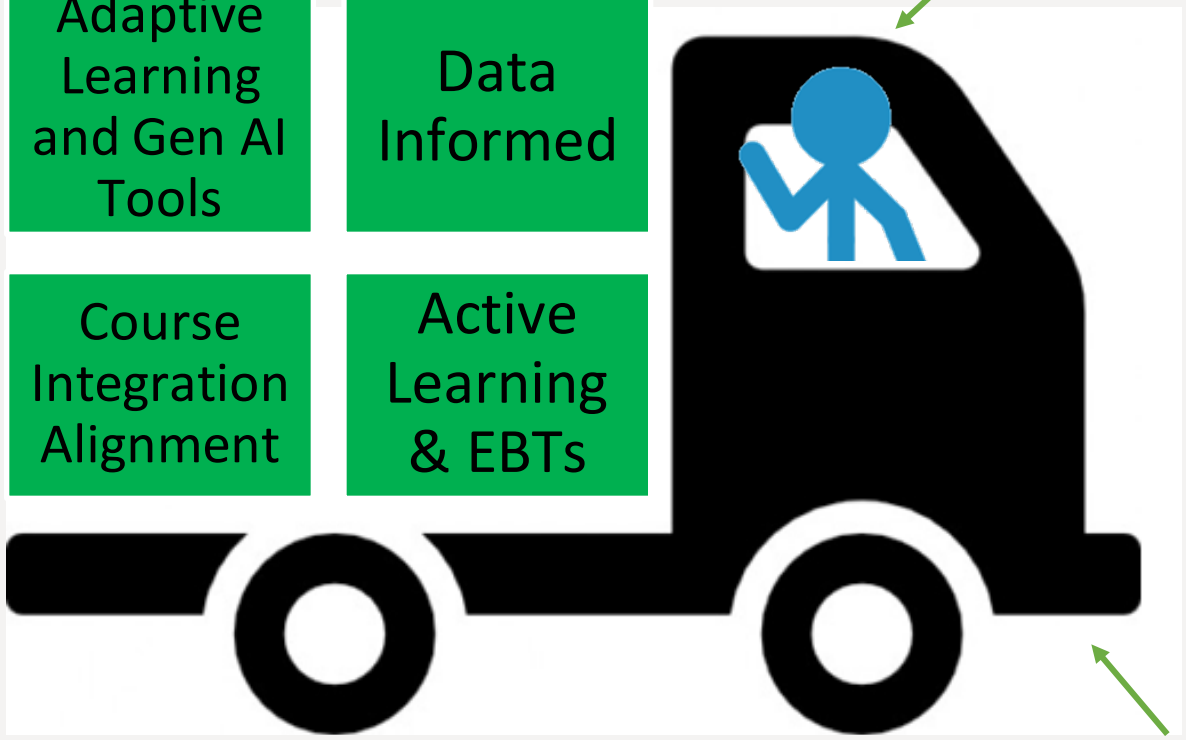
Adaptive Learning Initiatives as a Mechanism for Course Transformation

Faculty & Department



Institutional Resources

Note: Image adopted and modified from Oregon State University (2018) presentation, "All Hands on Deck," for APLU Accelerating the Adoption of Adaptive Courseware grant reporting.

Benefits of a Coordinated, Collaborative Approach

- Create clearly defined, measurable institutional goals that guide redesign efforts
- Align design work and learning objectives across multiple courses, creating a more seamless experience for students
- Create a common learning culture and an effective faculty learning community
- Reduce instructor variability in student outcomes
- With increased faculty engagement and adoption of evidence-based pedagogies, departmental scaling efforts is supported and student impact increases over time

DTSS Technological Implementation Process

1. Create a cross-functional institutional team
2. Build knowledge of the technology
    1. Support partnership with vendor
3. Collaborative course redesign with meaningful integration of the technology
4. Connecting real-time data to inform teaching practices
5. Personalized coaching for institutional team
6. Gathering feedback with considerations for scaling

Takeaways

- Use course redesign and technological implementation as an opportunity to promote cross-functional collaboration and system-solutions
- Department chairs and course coordinators (and other institutional staff) should support faculty through the implementation process
- Build data literacy across the department
- Meaningfully integrate the technology throughout the course
  - Transparency of this integration to students
  - Leverage technology to promote evidence-based teaching practices like active learning

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Project Opportunity:
https://info.lumenlearning.com/aplu-collaborate

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