Diffusion into the Core: Living Labs as the Primary Pedagogy (EAUC Webinar)

20 February 2017, 15:30-17:00

Introduction:

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Speakers:

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Arizona State University

Fletcher Beaudoin, Assistant Director,
Institute for Sustainable Solutions, Portland State University

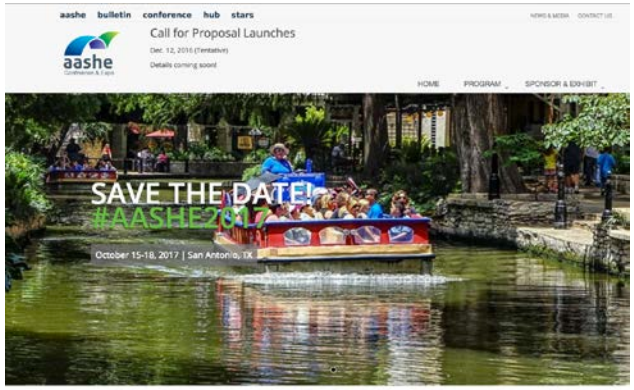
Webinar for EAUC

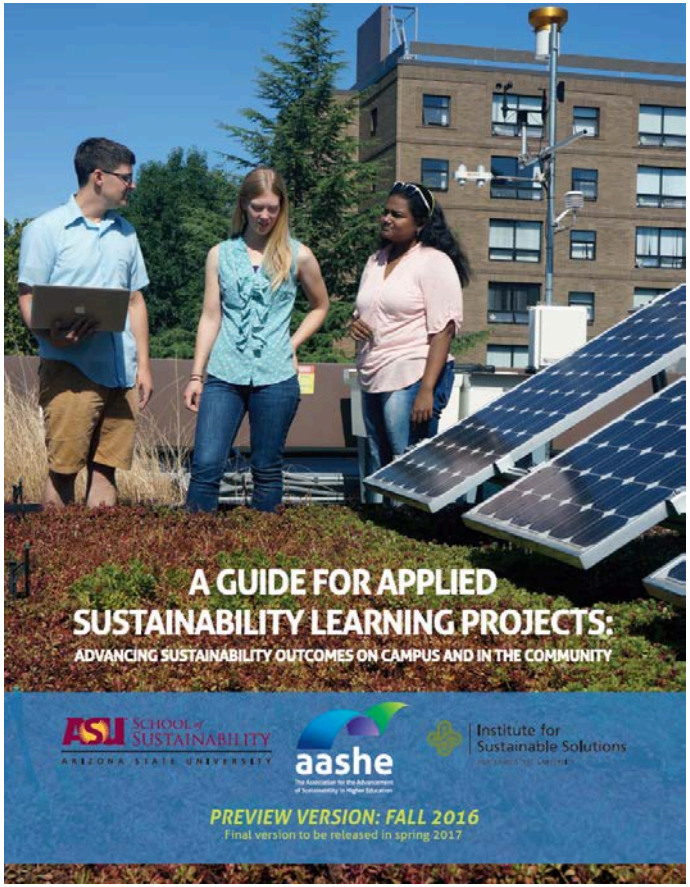
Portland State University's Institute for Sustainable Solutions: Fletcher Beaudoin

Arizona State University's School of Sustainability: Katja Brundiers

Background

Series of AASHE Workshops





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Institute for Sustainable Solutions
PORTLAND STATE UNIVERSITY

Background

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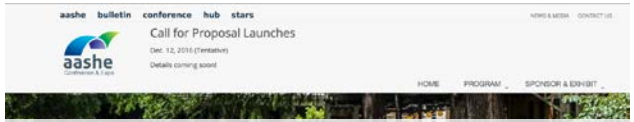
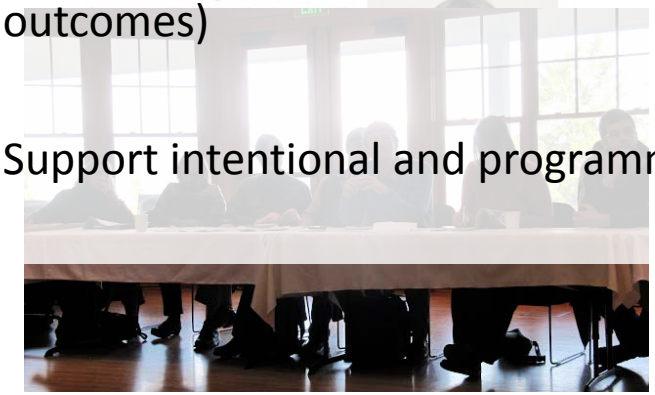


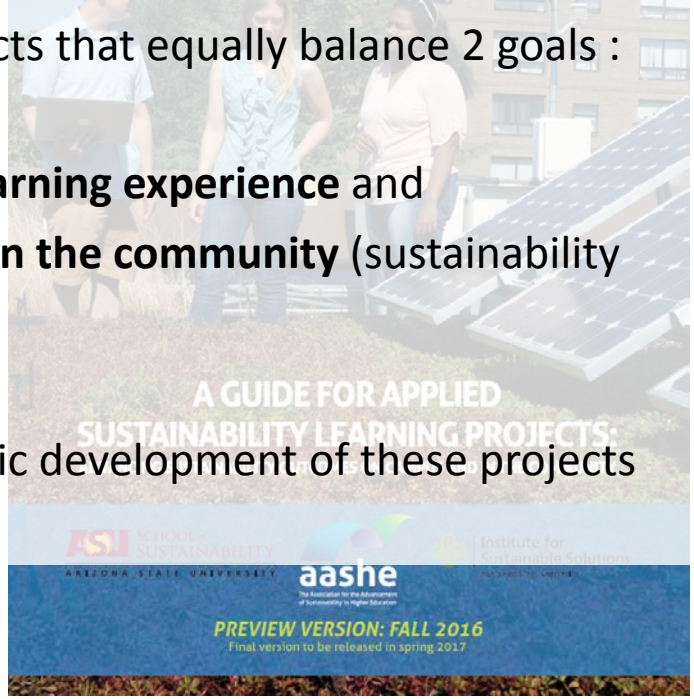
Applied sustainability learning projects that equally balance 2 goals :

1) provide transformative **student learning experience** and

2) contribute to measurable **change in the community** (sustainability outcomes)

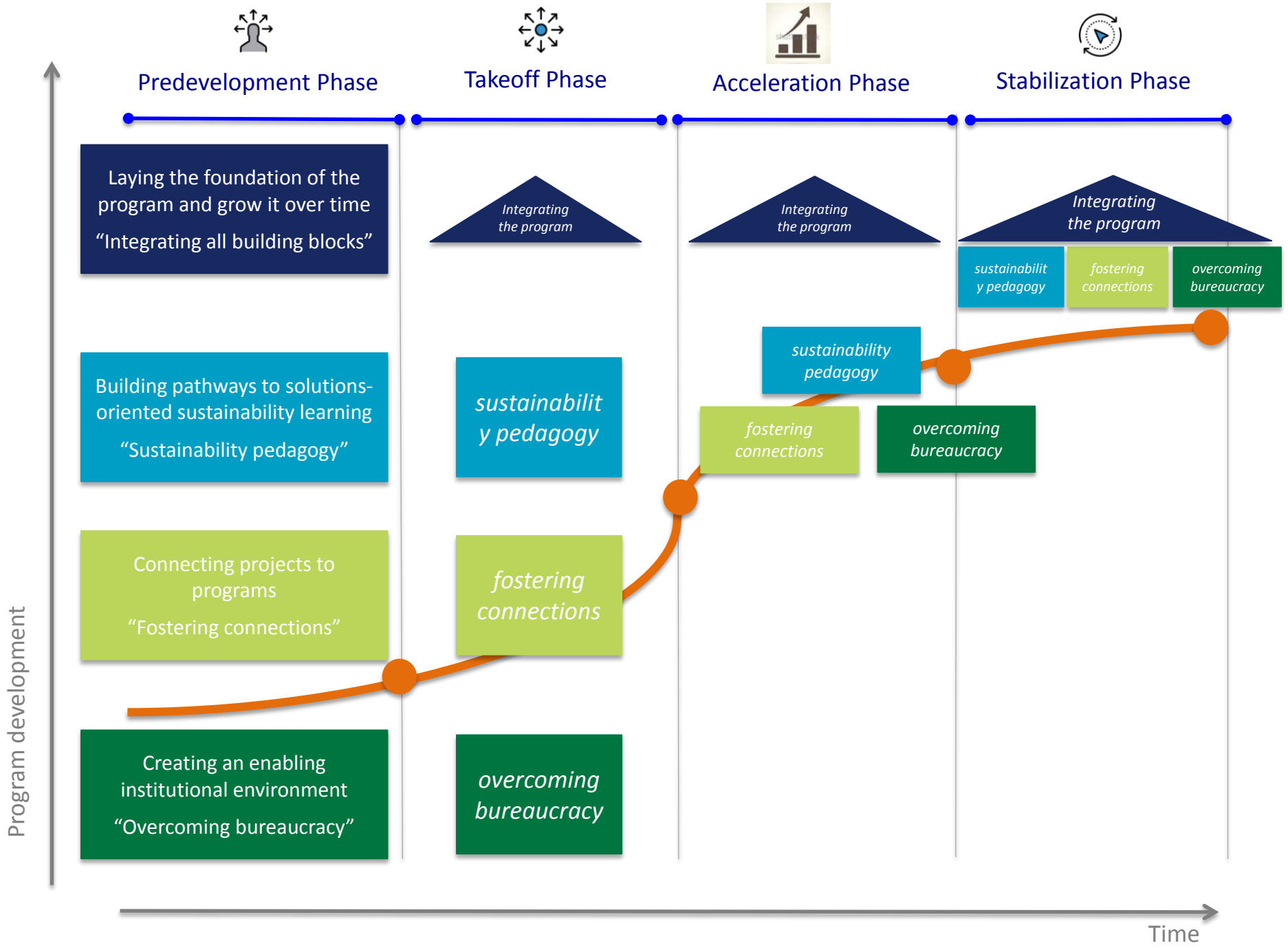
Support intentional and programmatic development of these projects





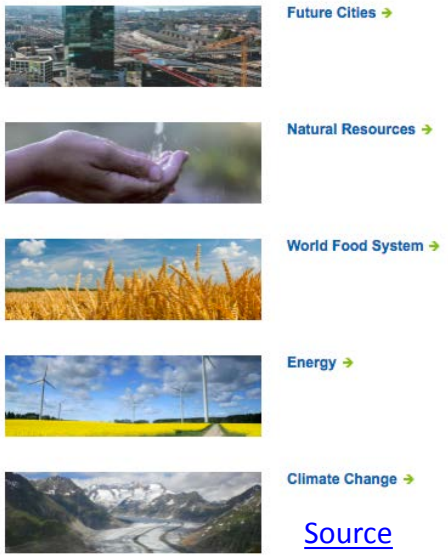
☺ Learning Objectives ☺

- Recognize that there are different starting points for developing a living lab
  - Case studies (e.g., bottom-up / top-down)
- Taking a long-term and visionary view in order to plan and sustain that process
  - 4 phases of social change
- Distinguish different avenues of change that work together to build the living lab
  - 4 avenues of change ~ 4 key stakeholder groups


Predevelopment Phase
Takeoff Phase
Acceleration Phase
Stabilization Phase
Laying the foundation of the program and grow it over time
"Integrating all building blocks"
Building pathways to solutions-oriented sustainability learning
"Sustainability pedagogy"
Connecting projects to programs
"Fostering connections"
Creating an enabling institutional environment
"Overcoming bureaucracy"
Integrating the program
sustainability pedagogy
fostering connections
overcoming bureaucracy
Program development
Time

Seed Sustainability at ETH Zurich

- Seed sustainability
  - Encourages student research in sustainability-related topics
  - Promotes cooperation between scientific theory and practice
  - Unites needs and expectations of research, education, & practice
  - Students' work is supervised by academics and practice partners
- Sustainability at ETH
  - Education
  - Research
  - Campus Sustainability



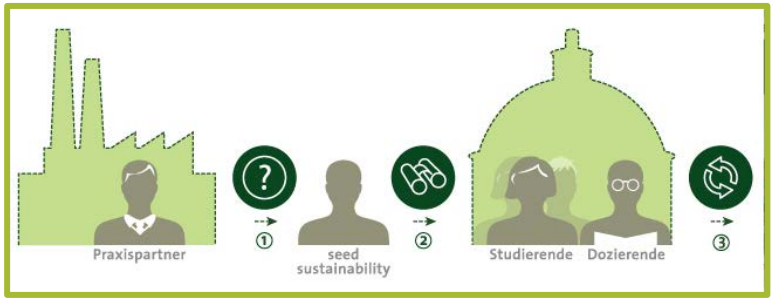
Source

Emergence of Seed Sustainability

- Student-driven initiative
  - Rooted in idea of “sustainability science”
- Not-for-profit association
  - Organizational model
  - Financing model
- Integration into ETH Zurich
  - Part of sustainability hub “ETH Sustainability”
  - Offers ETH-wide services

Key Features of Seed Sustainability

- Multi-disciplinary projects
  - One project → several student theses, including PhD
  - Examples:
    - Swiss Federal Council's Sustainable Development Strategy: Guidelines and Action Plan 2008–2011—Enhance Effective Communication
    - Sustainable Quality Management of Nanomaterial Production
- Process support
  - Based in methods of "co-creation of knowledge"
  - Facilitates collaboration from beginning to end



Activity: Develop good project guidelines

Develop
Good Project Guidelines

Accelerat

Take off

Predevelopment

Collaboration

Zoom in with the icon on the right

1. Start
It all starts when a question is raised by one of seed sustainability's partners from practice. The project is evaluated by Seed Sustainability and subsequently advertised as a subject for a Bachelor, Master or PhD dissertation.

2. Team Building
Seed Sustainability identifies students and supervisors from various faculties with the qualifications required for the project.

3. Processing
Working closely with Seed Sustainability →, supervisors and the partner from practice, students translate the practical problems into scientific research questions. Seed sustainability defines clear goals and time frames for the coordination and supervision of the work between students, supervisors and partners. Milestone meetings attended by all parties involved are an opportunity to monitor interim results and ensure their integration.

4. Synthesis
The research results are presented in a final report and made available for practical application.

Table 1 Evaluative scheme comprising seven requirements for sustainability research education with corresponding criteria and guiding questions

Requirement/Feature	Criteria	Guiding questions to help assessing each criterion
(1) Actual sustainability problems	a. Long-term dynamics	a. Does the problem impact future generations?
	b. Cross-domain and cross-scale complexity	b. Does the problem feature tensions between social, economic, environmental domains as well as inter-linkages across global, national, local level?
	c. Cause-effect structure	c. Does the problem have multiple causes and impacts?
	d. Specificity	d. Is the problem spatially and temporally embedded (place-based)?
	e. Urgency	e. Is the problem pressing because it is quickly getting worse, even irreversible?
	f. Harmfulness	f. Does the problem result in harm that threatens socio-ecological viability and integrity?
(2) Stakeholders facing the sustainability problems	a. Initiation	a. Do stakeholders approach researchers to address the problem?
	b. Problem ownership	b. Does a process of collaboration and negotiation lead to joint ownership?
(3) Preparing students to help create a better society	a. Corresponding specific and generic sustainability knowledge	a. Does the project allow for acquiring knowledge that is valid beyond the specific problem situation?
	b. Link knowledge to action	b. Does the project allow for acquiring knowledge that links various forms of knowledge and ultimately leads to substantiated and tested recommendations for change?
	c. Problem-solving techniques	c. Does the project allow for exploring problem-solving tools and techniques?
	d. Interpersonal skills	d. Does the project allow for acquiring communicative and collaborative skills?
(4) Generation of workable solutions and positive learning impact	a. Salient, extended peer reviewed products	a. Does the project result in theses and other products that include strategies, plans, or recommendations for action agreed upon by all relevant stakeholders?
	b. Generic transformative "impacts"	b. Does the project induce changes in knowledge, attitude, decision-making, or behavior towards sustainability?
(5) Stakeholders' specific knowledge	Two-way interaction	Does the project involve stakeholders during all research phases in a way that goes beyond extraction and exchange of information? Do stakeholders and scholars jointly negotiate, revise, and synthesize knowledge, and take decisions?
(6) Professorial supervision	Academic supervision	Do the professors advise students' academic thinking (e.g., structure, coherence, consistency), convey basic academic practices (e.g., research design, literature review, research techniques, scientific writing, presentations), and supervise their academic performance (e.g., jointly identifying objectives, providing feedback)?
(7) The Transacademic Interface Manager (TIM) as facilitator	Transacademic interface management	Does a TIM provide the services of translation of scientific knowledge and integration of scientific with practical knowledge, coaching, and project management that is satisfying for all parties involved?

Source: Brundiers, K., & Wiek, A. (2011). Educating Students in Real-world Sustainability Research: Vision and Implementation. Innovative Higher Education, 36(2), 107–124.

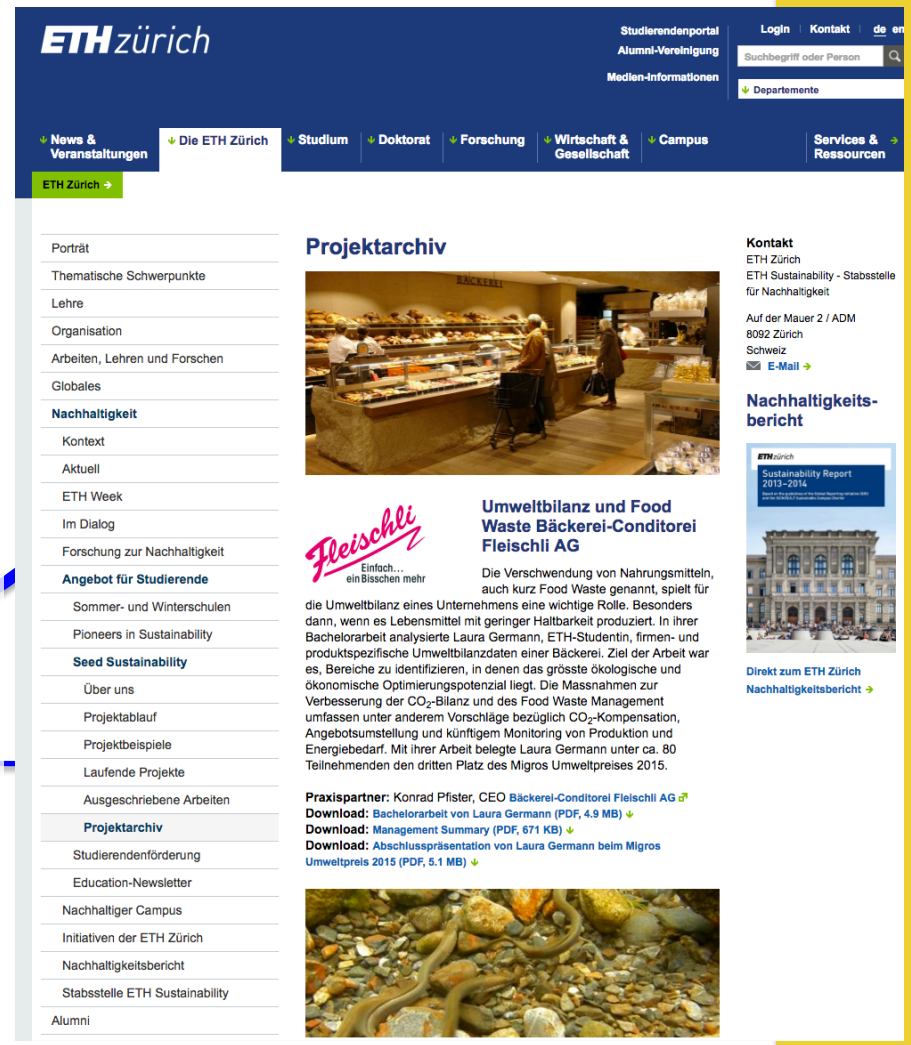
Activity: Develop a project-tracking database

Project
Tracking Database

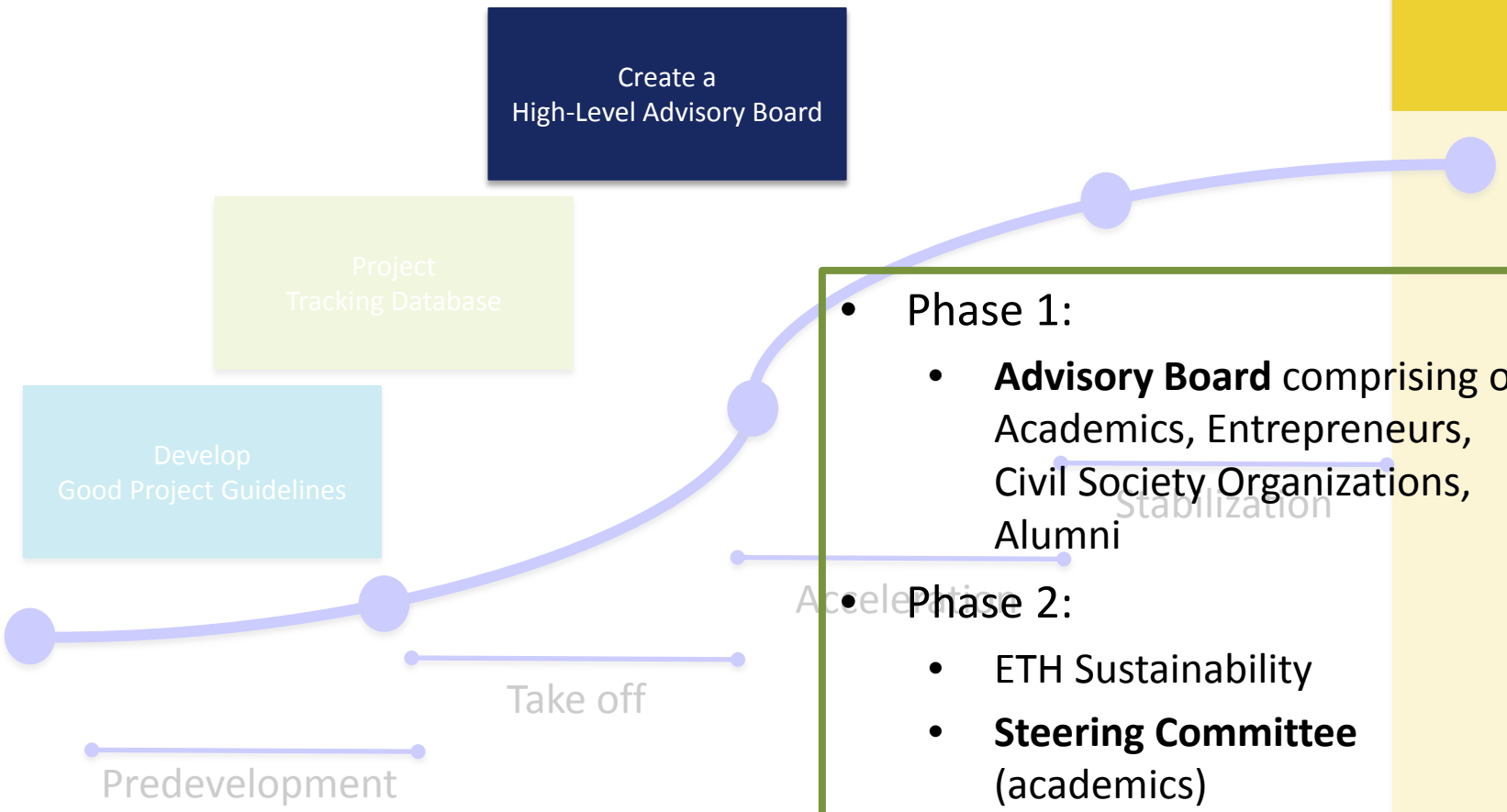
Develop
Good Project Guidelines

Take off

Predevelopment

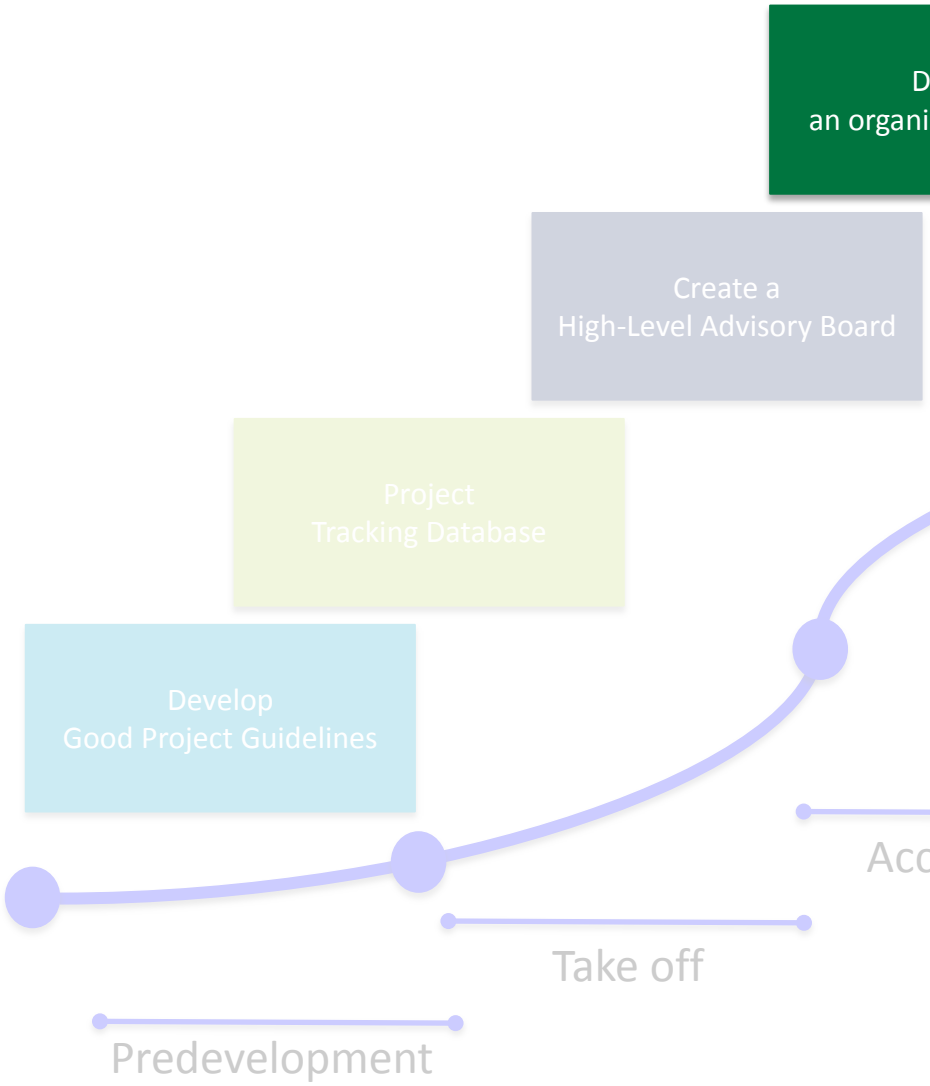


Activity: Create high-level advisory board



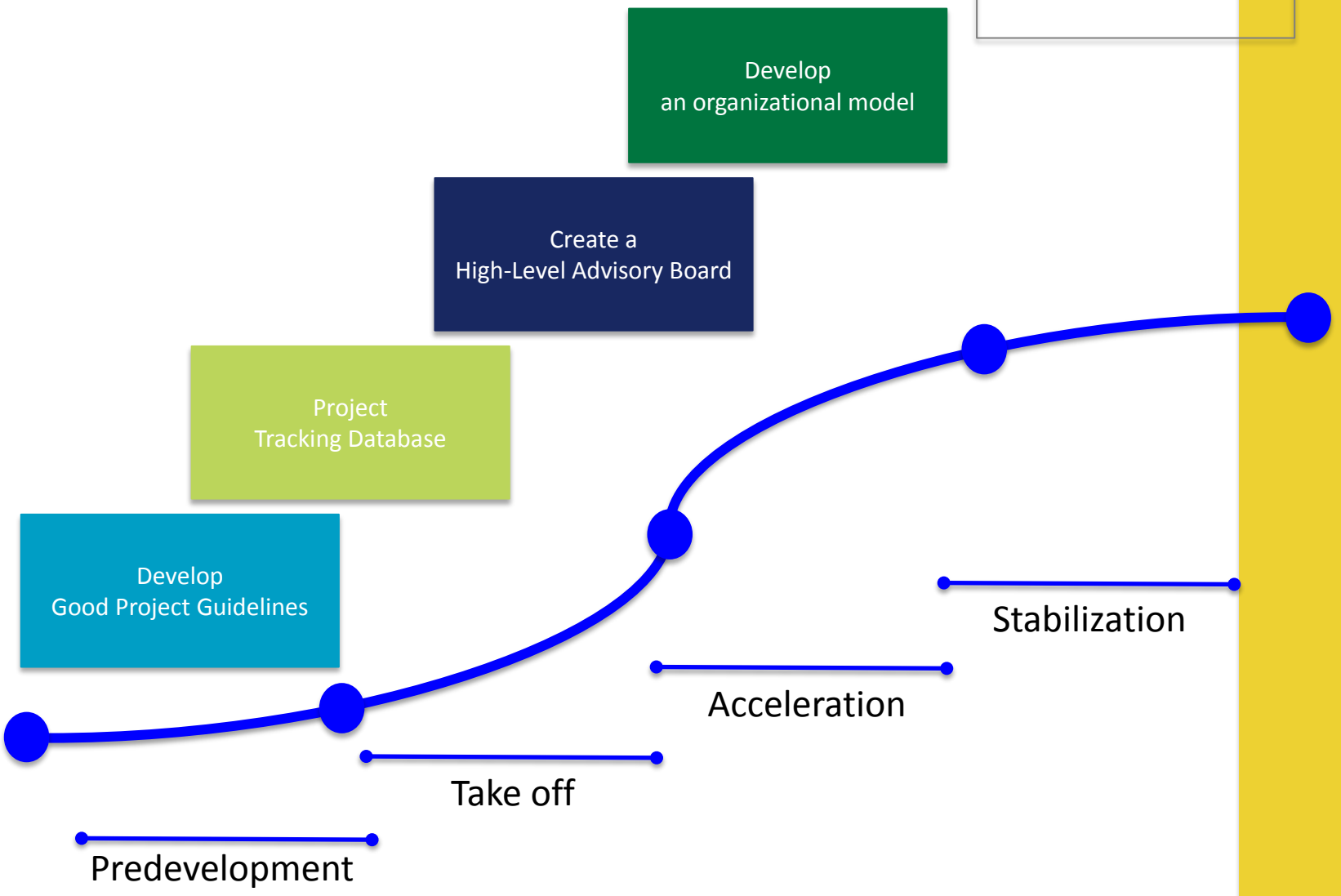
- Phase 1:
  - **Advisory Board** comprising of Academics, Entrepreneurs, Civil Society Organizations, Alumni
- Phase 2:
  - ETH Sustainability
  - **Steering Committee** (academics)
  - President's Office

Activity: Develop an organizational model



- Developing an organizational model: ongoing process,
- Co-evolution: adaptation of organizational model of seed sustainability in correspondence to sustainability at ETH

NEXT STEPS?


Develop
an organizational model
Create a
High-Level Advisory Board
Project
Tracking Database
Develop
Good Project Guidelines
Stabilization
Acceleration
Take off
Predevelopment

Time for Discussion

PSU's Institute for Sustainable Solutions

- Focused in on urban sustainability; designed with a cross university-reach; community-university sustainability broker

PSU's Sustainable Neighborhoods Initiative (SNI)

- Connecting PSU's expertise in community-based learning with sustainability-minded neighborhoods

Building Our Approach

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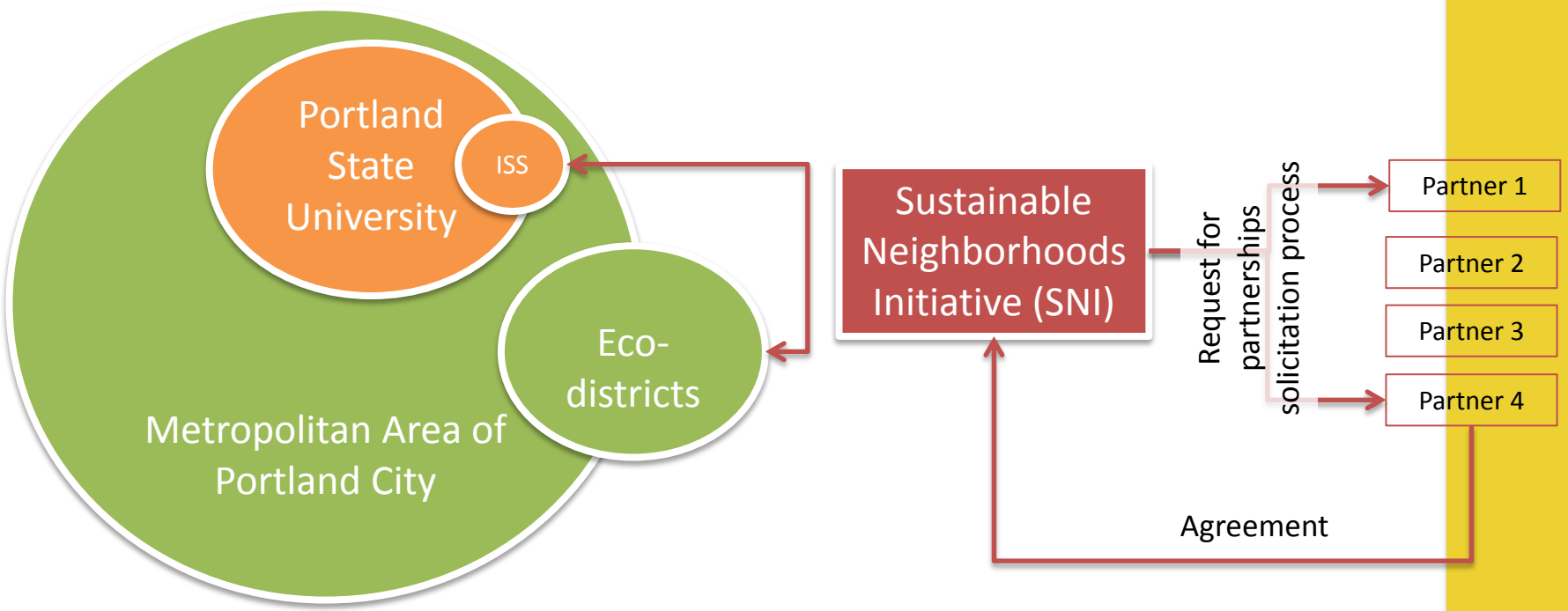
Partnership Framework



Impacts on Students and in the Community

Impacts on Students and in the Community

- 2014-2015: 44 courses, 800 students engaged
- 2015-2016: 32 courses 600 students engaged
- 2016-2017: Pathways approach; no final numbers yet

Activity: Build a Coalition

- Important tool early on
- Small group of committed people to start
- Focus in on a few things to build a foundation

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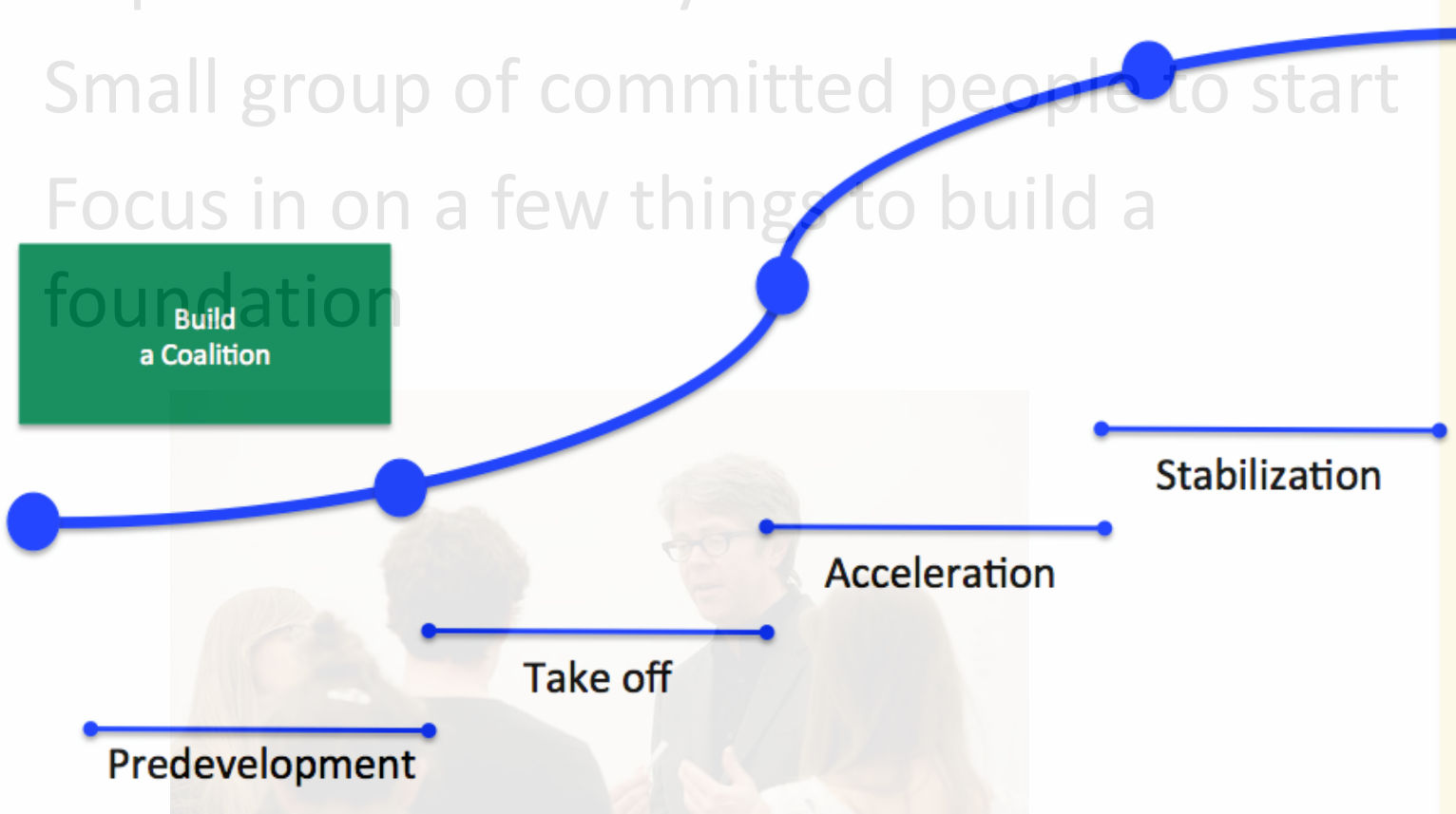

Activity: Inventory Applied Learning Projects

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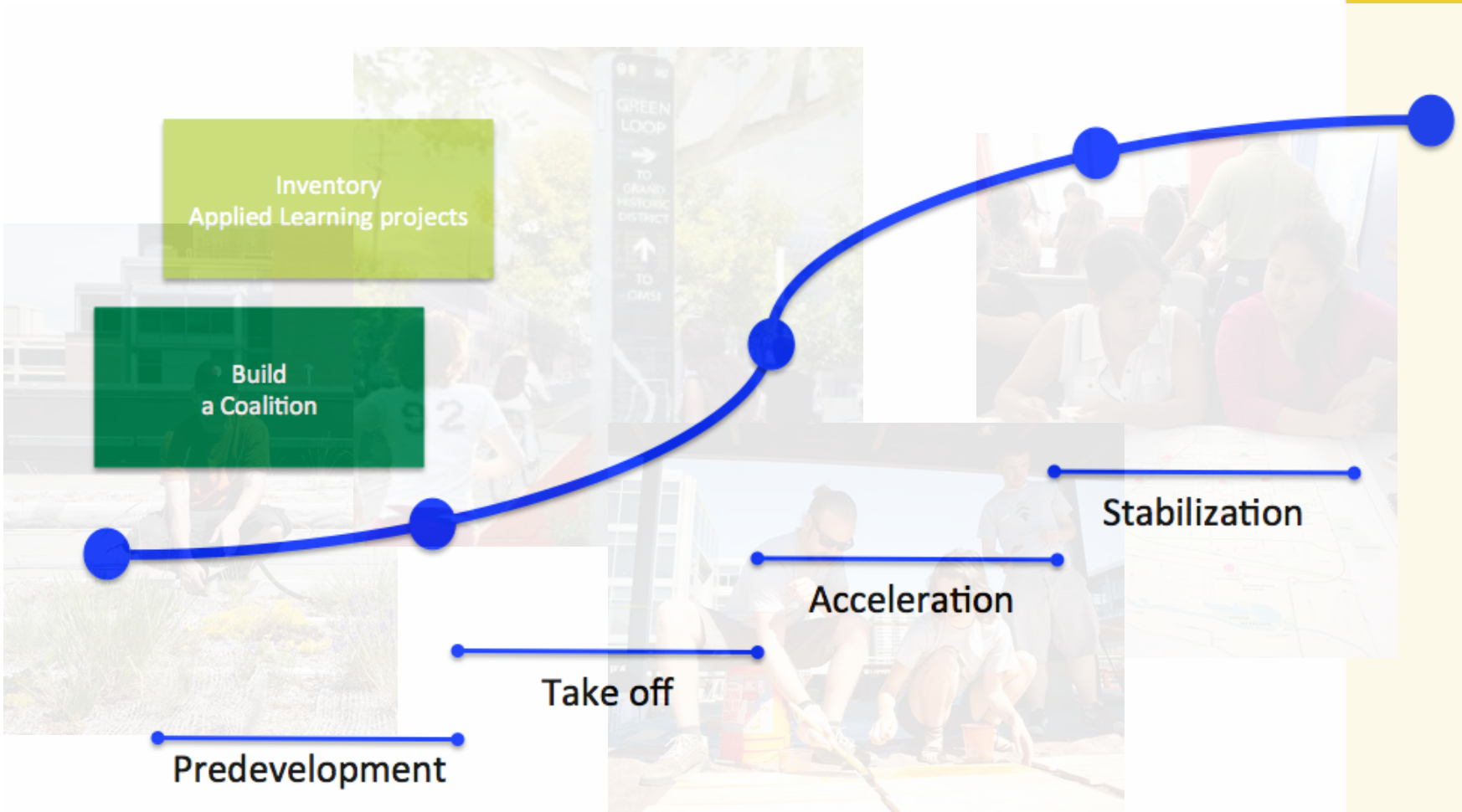

Activity: Develop Faculty Engagement Workshops

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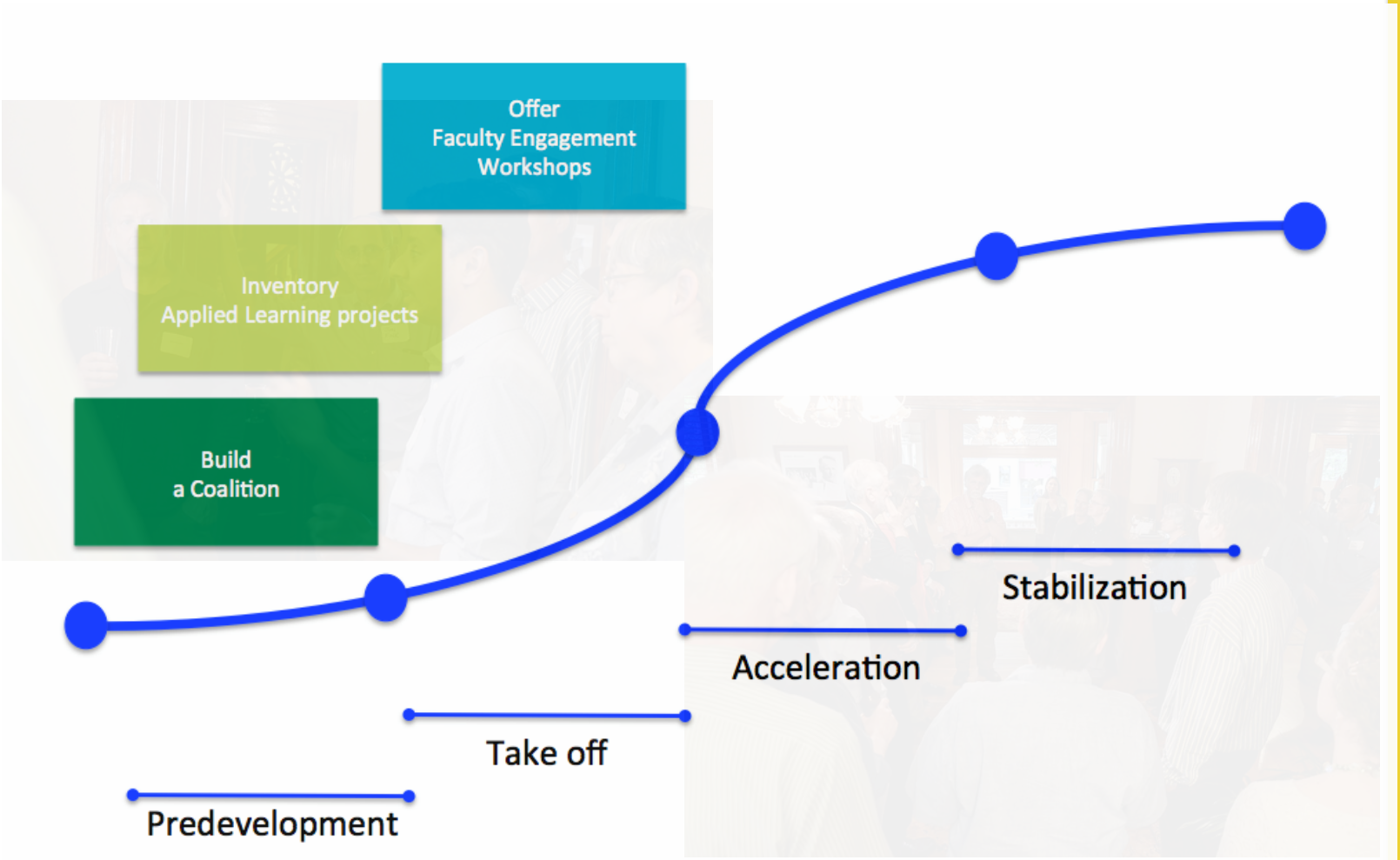
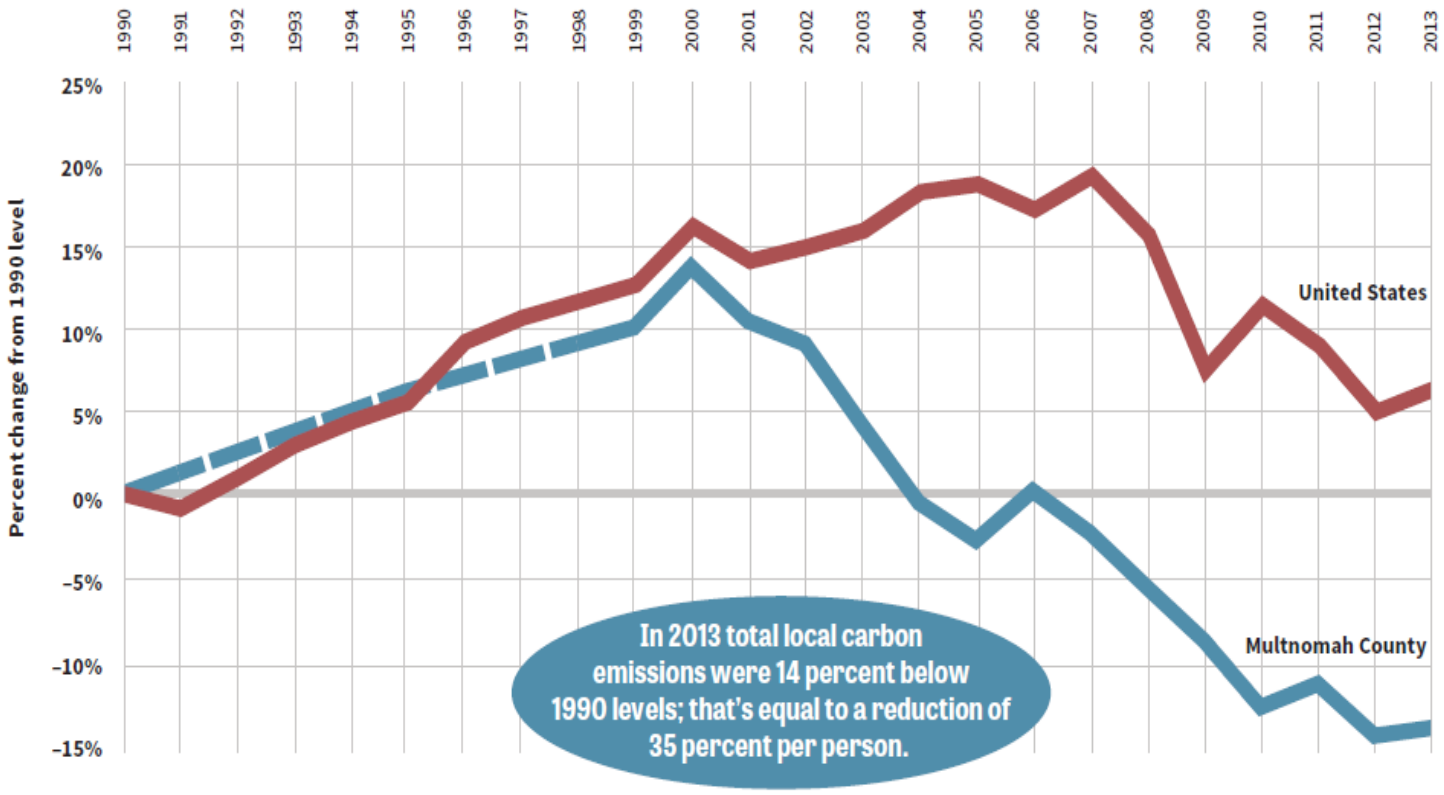
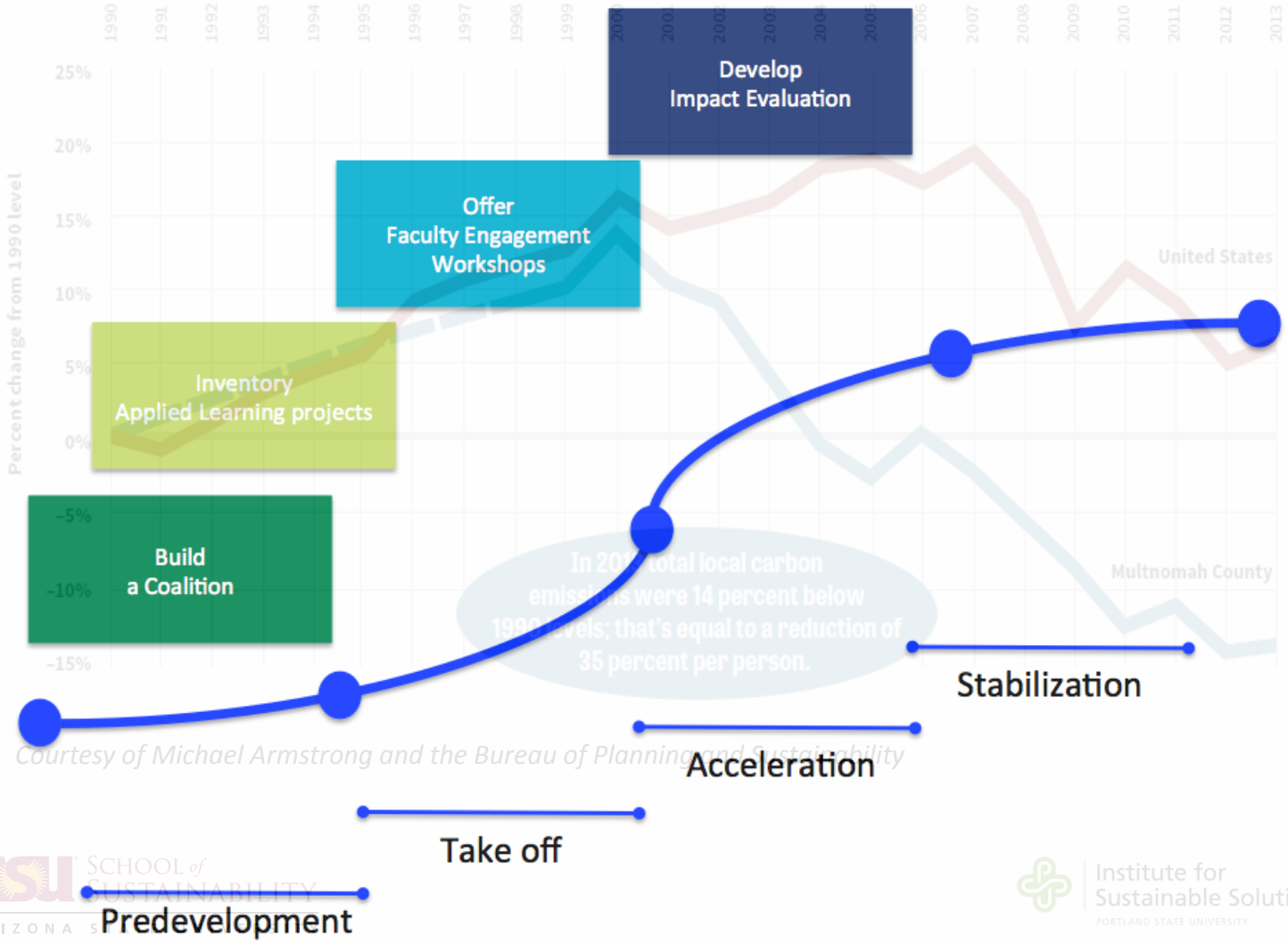


Activity: Develop an Impact Evaluation



Courtesy of Michael Armstrong and the Bureau of Planning and Sustainability

Activity: Develop an Impact Evaluation

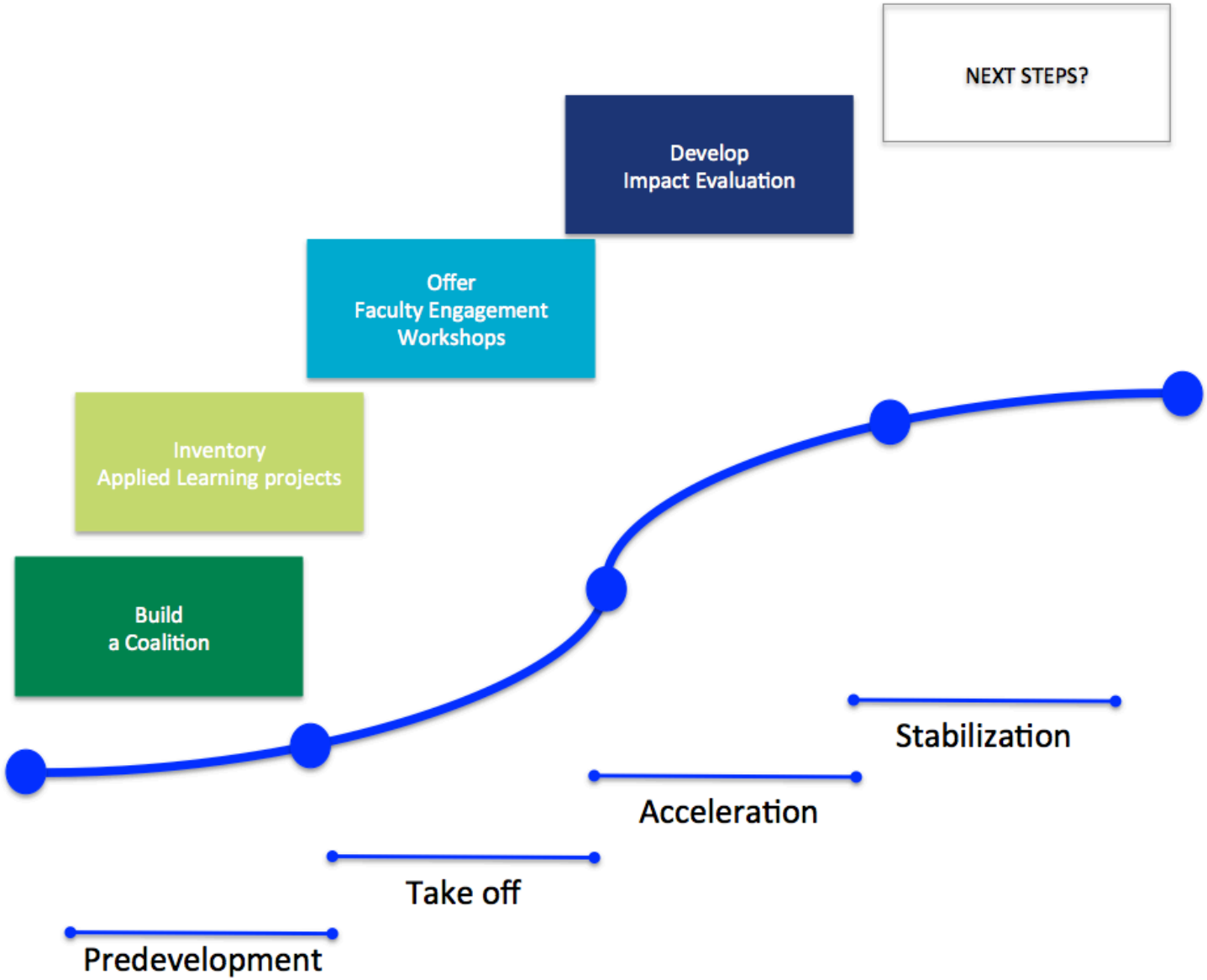


Courtesy of Michael Armstrong and the Bureau of Planning and Sustainability

Where to Next?

- Building out affinity departments and course pathways
- Tighter focus on high-impact projects
- Connecting city and neighborhoods goals

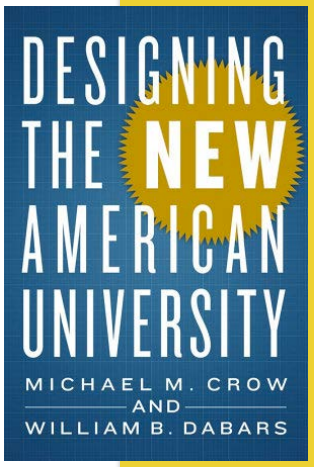
Where to Next?

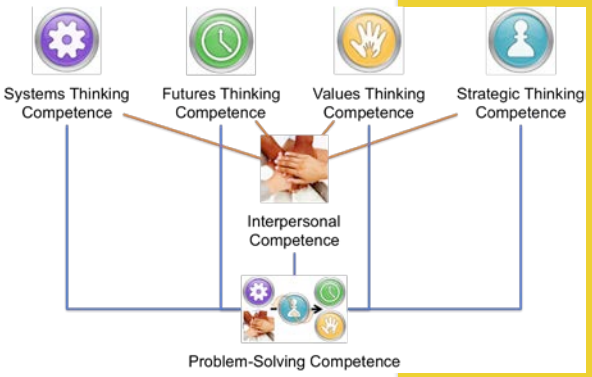


Time for Discussion

Arizona State University, School of Sustainability

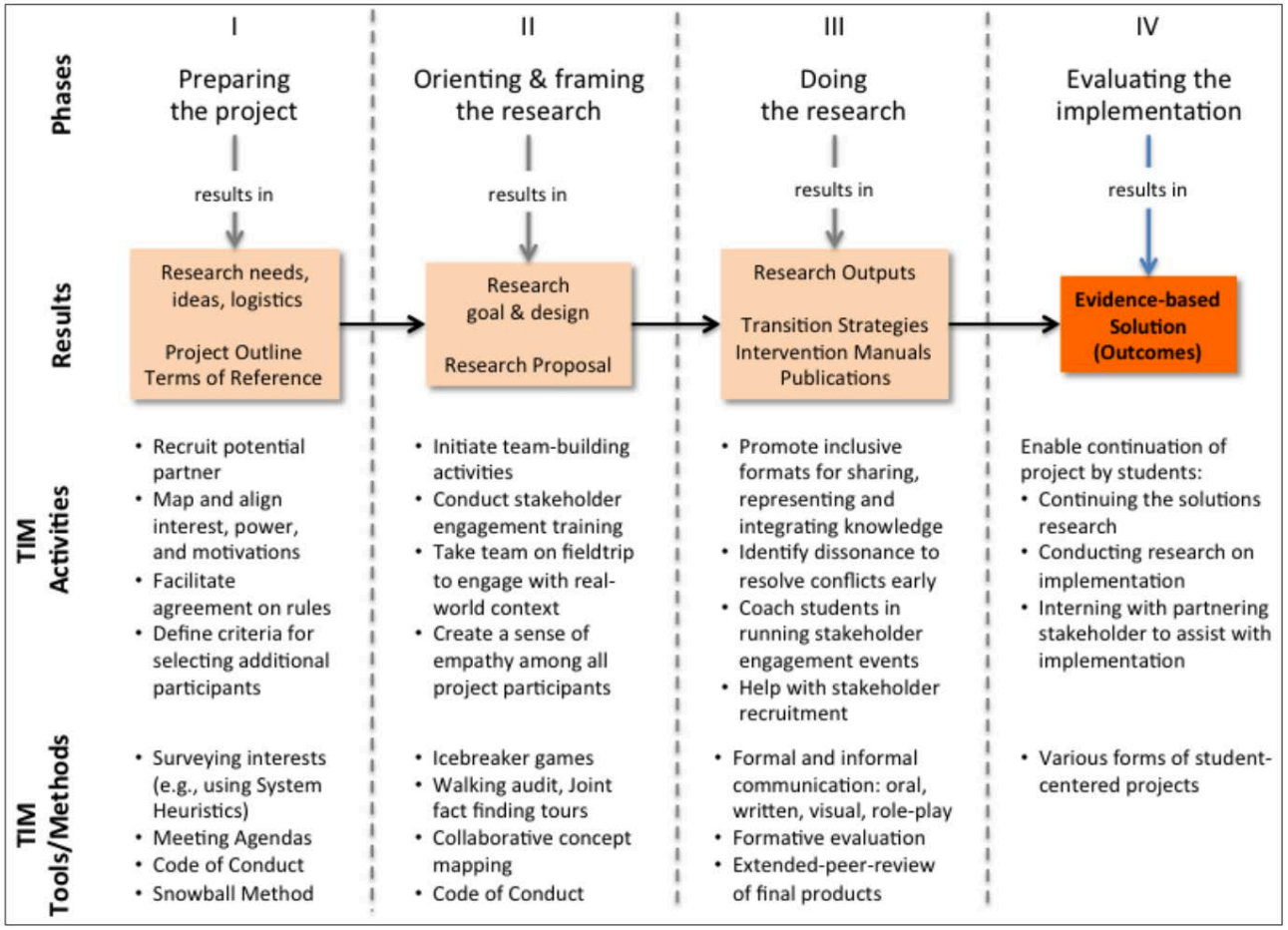
- Enabling context for sustainability science
  - New American University
    - Design aspirations
    - Office of University Sustainability Practices
  - Julie Ann Wrigley Global Institute of Sustainability
    - Hub for sustainability in research, education, service
  - School of Sustainability (SOS)
    - Degrees in sustainability science
- School of Sustainability
  - "Solutions-oriented Learning"
    - Key competencies in sustainability
    - Problem-and project-based learning
    - Real-word learning experiences





Activity: Enable A Sustainability Broker

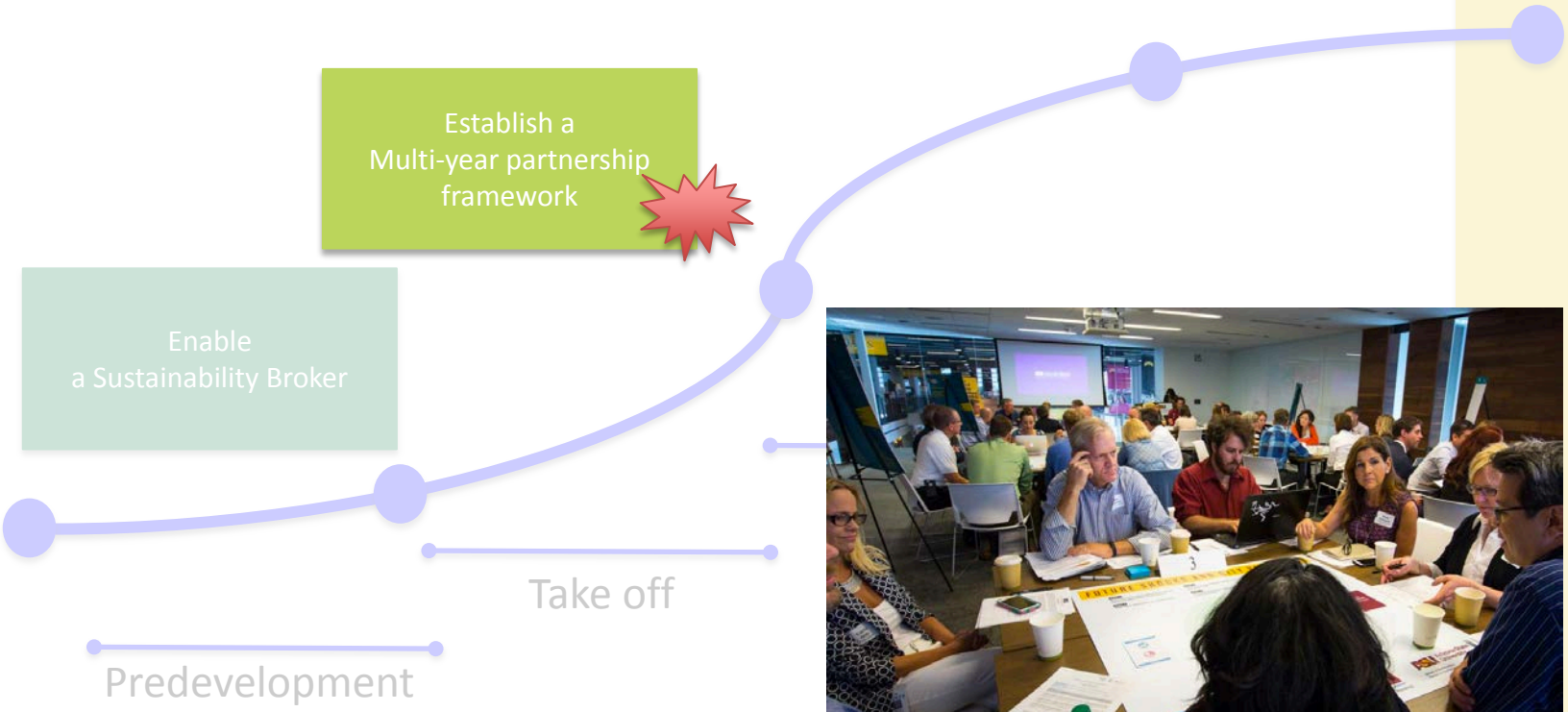
Enable
a Sustainability Broker



Predevelopment

Source: Brundiers, K., Wiek, A., & Kay, B. (2013). The Role of Transacademic Interface Managers in Transformational Sustainability Research and Education. Sustainability, 5(11), 4614–4636.

Activity: Establish a multi-year partnership framework



Activity: Implement pilot-project to coordinate all building blocks

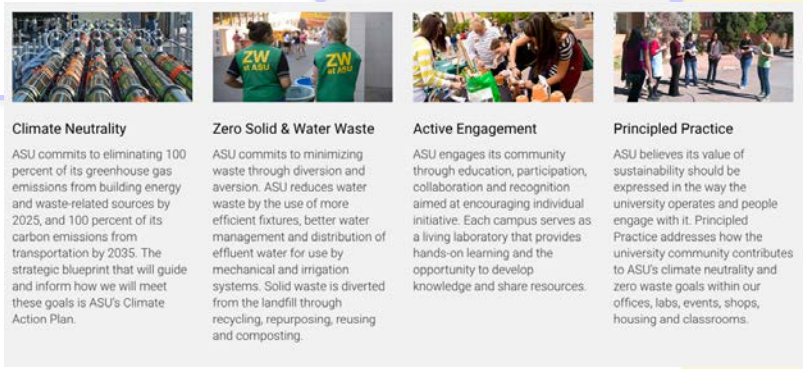
Implement pilot-project to coordinate all building blocks

Establish a Multi-year partnership framework

Enable a Sustainability Broker

Take off

Predevelopment



Climate Neutrality

ASU commits to eliminating 100 percent of its greenhouse gas emissions from building energy and waste-related sources by 2025, and 100 percent of its carbon emissions from transportation by 2035. The strategic blueprint that will guide and inform how we will meet these goals is ASU's Climate Action Plan.

Zero Solid & Water Waste

ASU commits to minimizing waste through diversion and aversion. ASU reduces water waste by the use of more efficient fixtures, better water management and distribution of effluent water for use by mechanical and irrigation systems. Solid waste is diverted from the landfill through recycling, repurposing, reusing and composting.

Active Engagement

ASU engages its community through education, participation, collaboration and recognition aimed at encouraging individual initiative. Each campus serves as a living laboratory that provides hands-on learning and the opportunity to develop knowledge and share resources.

Principled Practice

ASU believes its value of sustainability should be expressed in the way the university operates and people engage with it. Principled Practice addresses how the university community contributes to ASU's climate neutrality and zero waste goals within our offices, labs, events, shops, housing and classrooms.

Activity: Offer training in professional skills

Offer
training in professional skills

Implement pilot-project to coordinate all building blocks

Establish a
Multi-year partnership framework

Enable
a Sustainability Broker

Take off

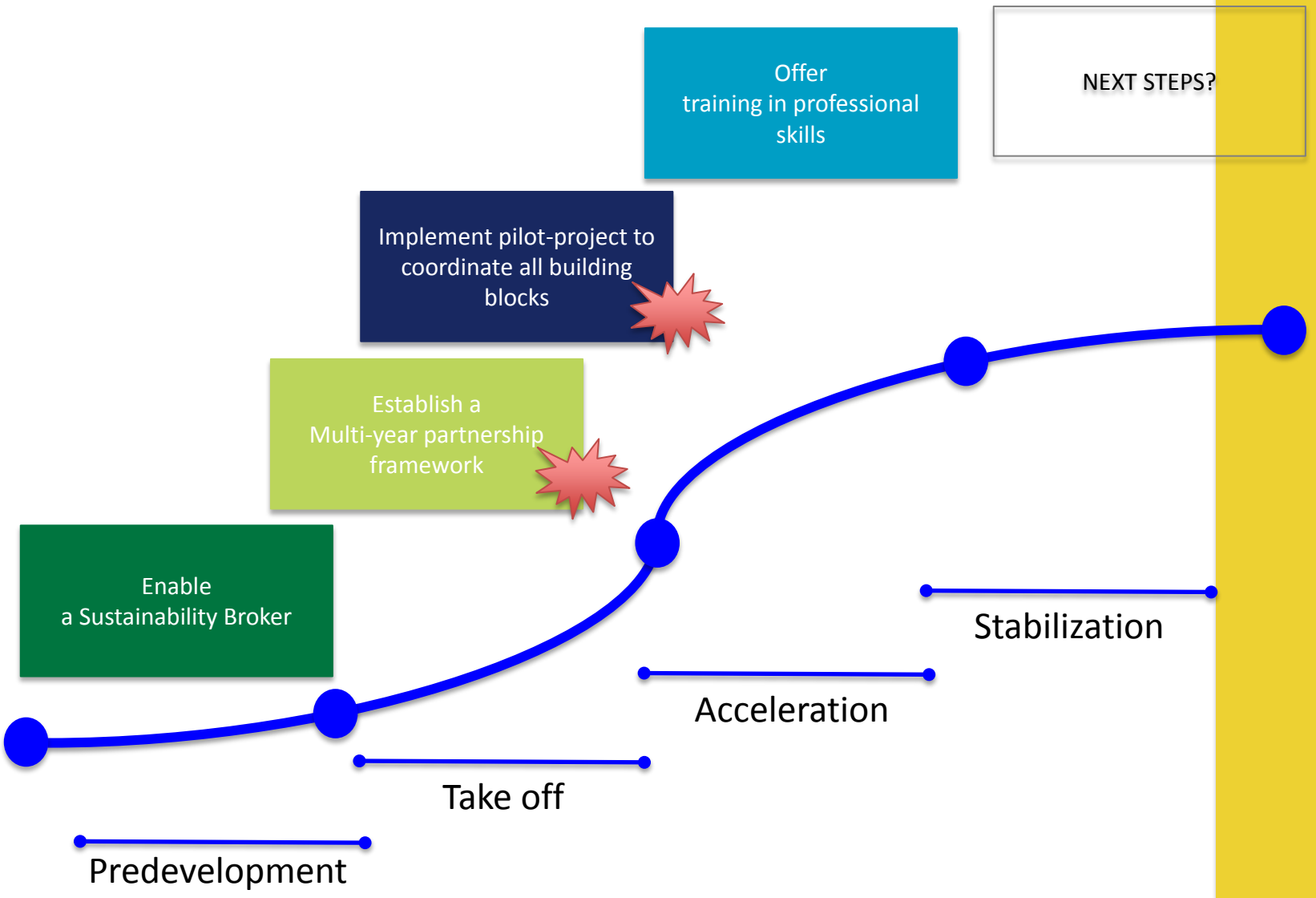
Predevelopment

Activity: Offer training in professional skills

Offer
training in professional
skills

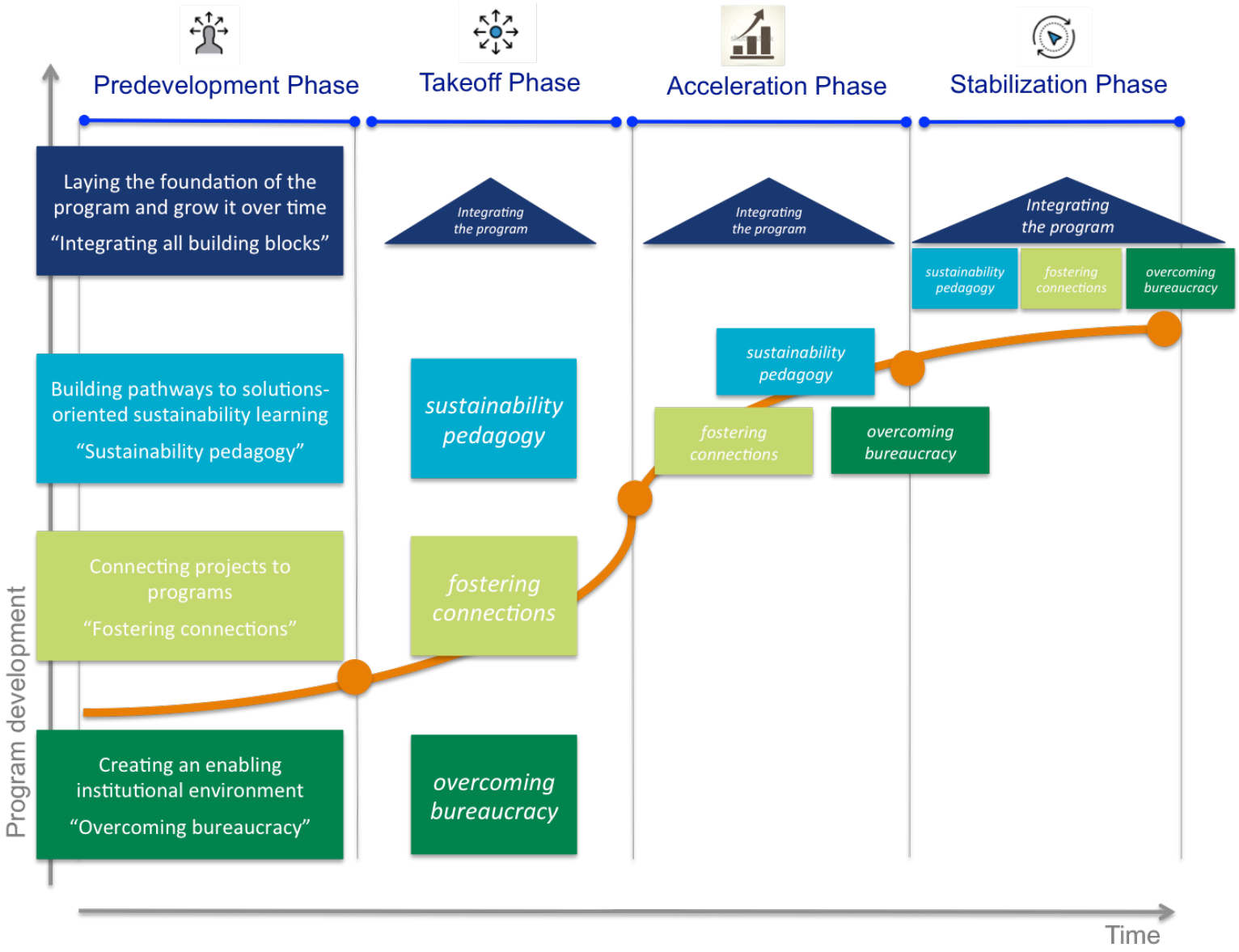
- Training based on working on a real-world project and with a project partner
- Six professional skill areas
  - Preventive **Self- and Other-care**
  - Collaborative **Teamwork**
  - Responsive **Project Management**
  - Impactful **Stakeholder Engagement**
  - Advanced Continuous **Learning**
  - Effective and Compassionate **Communication**

Activity: Next Steps? Build the Framework



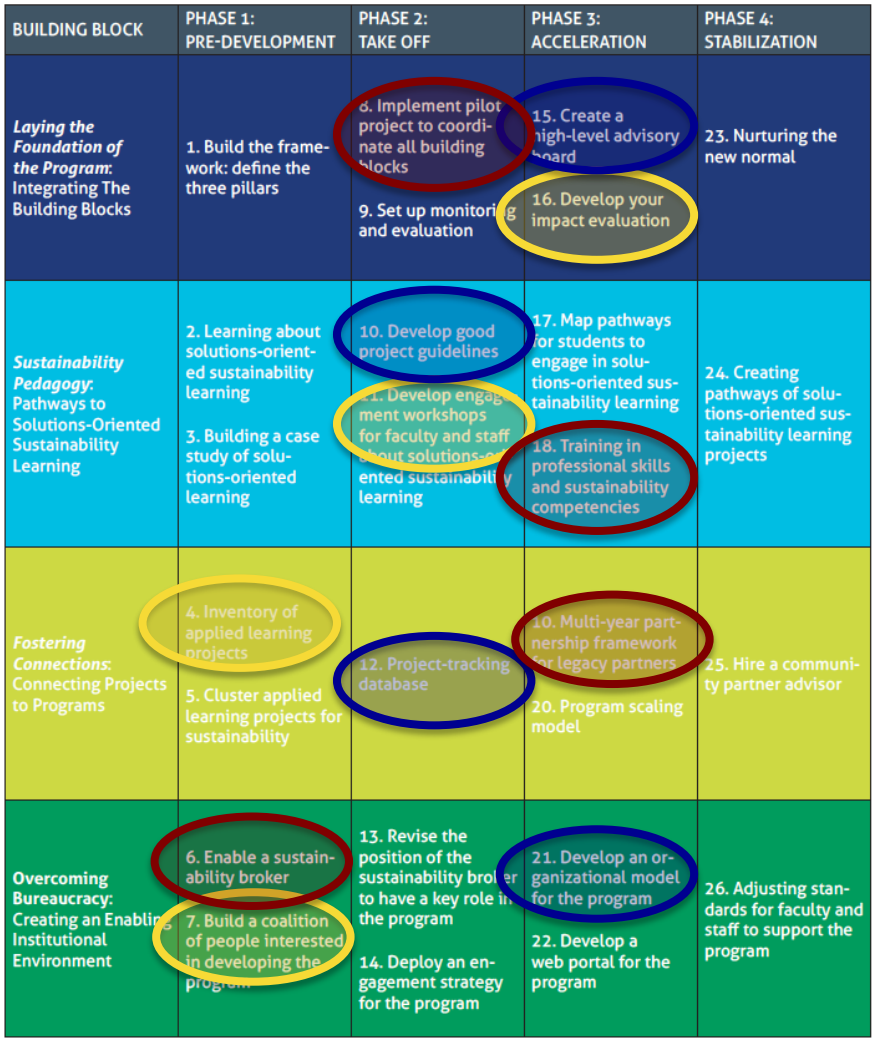
Time for Discussion

Growing a Program Over Time



Summary

Bringing It All Together



- ETHZ – seed sustainability
- PSU – Institute of Sustainable Solutions
- ASU – School of Sustainability

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References

Beaudoin, F.D., Brundiers, K. (2016) A Guide for Applied Sustainability Learning Projects: Advancing sustainability outcomes on campus and in the community. Philadelphia: Association for the Advancement of Sustainability in Higher Education (AASHE).

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Thank you!

Contact Us:

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