Initial Ideas for Transition Action per Phase and Detailed by Transition Components: Progression of Education, Research, Operations, and Institutional Embedding

Sequence of phases	Transition Actions	Organizational structure: People, Roles, Responsibilities	Required capacities: Skills & knowledge	Required resources	Assets – existing opportunities and resources	Barriers Disciplines, silos,
Predevelopment (Disconnected projects; Start with one area (e.g., water)	3 test-projects; Stories of each project; Conversations about defining LLL (criteria); Identifying possible contacts for your network;	Self-identified TIM; Mini-network includes contact to Operations, academics, students; TIM creates projects ad-hoc: make happen;	Ability to formulate value proposition, develop pitch; Familiarize yourself with educational design of projects; Se opportunities re: projects, contacts, support, structure;	Time (e.g., 10 hours per week); Communication pieces to incentivize participation; No budget;	Identify connections to official documents, e.g., sustainability plan; Identify connection to student learning, research programs, operations plans => key values;	Restrictive conditions; Lack of knowledge about LLL and its opportunities; Lack of social capital in higher up administration;
Takeoff (Some rigor behind the projects, not connected) Topical area is used to leverage and expand to others	Develop in transparent way clear LLL criteria; List of projects examples for classes and researchers; Evaluation of projects (recurring)[i]; Use LLL criteria to design projects; Test different curricular models and pedagogies; Draft project MoU; Reach out to top admin	Self-identified TIM, hires an intern; Expand Mini-network by gaining more champions; Network meets regularly; TIM and team plan and recruit projects (strategic approach);	TIM and others understand TIM's role and use it; Learning from evaluation to adapt; Ability to articulate clear vision & how to get there; Understanding of multiple applied curriculum and research models;	Collect overview of courses and faculty open to LLL; Develop reward recognition letter & 'public' award; Simple website for communication; Budget provided by initial "sponsor" or grant (e.g., NSF);	Make connections to university policies explicit to admin; Explore grant opportunities and apply; Partner with development office to ensure that the vision for academic-operations integration is part of the story to funders;	Barriers of integrating academics and operations; Logistics pose difficulties and resistance; Manage expectations and schedules;
Acceleration (Rigorous projects, connected and building synergies) Topical areas are deepened & better connected	LLL criteria are widely accepted; Researchers receive incentives to do on-campus projects; LLL components written into new hires (operations); Best educational models	LLL has a home; has regularly an intern Network develops formal committee, advisory board; and informal metastasis Regular meetings of Advisory board; network members	Understanding how to make multiple projects at once: manage timeline & complexity of projects; Know about topical areas or know who to approach;	TIM: funded and institutionalized; Regular /weekly communications, Open House Event; Budget provided by Operations, w/ matching funds from edu-departments[ii];	Track-record of projects and testimonies by partners and news paper articles; Demonstrate impact on sustainability related to sustainability plan	More resources -> creates tensions and threat; Difficulties of traditional incentives structures – the exception is expected to become the norm without

	expand to faculty through faculty development; Prepare meetings with high-level Admin, buy-in; Projects build upon / relate to each other; Draft MOU around LLL goals (operations and sustainability), project MOU are formalized; Develop RFP process for projects.	TIM/team has set up a process for people to participate, test terms of collaboration	Ability to design and implement **robust** evaluation; Capacity and interest to do on-campus research;	Budget includes incentives/rewards for faculty & student participation; Money comes in through external and internal ways[iii] – reallocation of operations funds;	and learning outcomes through measurable aspects (statistics); Peer universities include LLL language & actions into university policies – sustainability/CC;	reward;
Stabilization (Cohesive program, support to grow & manage projects) Systemic integration of topical areas	P&T rules credit faculty teaching and researching the LLL; High level admins lead; Projects are complex and connected to other organizations (tier 3); Routine project contracts replace MOU.	LLL with staff and interns; Committee is more robust; TIM/team manage the interplay of "offer / demand", formalized terms of collaboration[iv].	Formalized processes & mechanisms (project selection, learning outcomes, research); Value proposition that allows acquisition of funds.	Money comes in through foundations and ROI of funding; Operations budget viewed as LLL & sustainability budget; Press is talking about it already.	Success stories become part of the culture of the university, LLL as part of culture; Formal standards and rules are being revised (e.g., P&T).	Maintain value-add and quality despite growth and speed.

[i] Evaluation of Impact and other important information: http://www.compact.org/wp-content/uploads/2013/04/Campus-Compact-2012-Statistics.pdf

[ii] Budget includes a cost-breakdown for LLL courses (c.f., Sustainable Cities Initiative, U of Oregon): Staff (TIM, graphic designer), Faculty, Final report costs (student workers, printing, distributing); course enhancement, travel expenses, event expenses, contingency, university F&A.

[iii] External sources: (1) Regional government and/or city contributions, e.g., Shattuck hall at PSU; (2) Private companies (UBC), e.g., UBC develops MOUs with the companies for them to test technologies on site. This usually involves support for the academic integration piece as well (not just the "thing" being installed. (3) Grants: e.g., NSF grants (Cal State): They were a part of a national grant about STEM education. This led to the LLL approach as being a way to enhance STEM learning. Getting that grant helped create legitimacy for acquiring internal funds to implement the concept. Helped garner significant interest from faculty. (4) Foundations. Foundations recognize the multiple benefits that can be achieved through these projects (learning and action); "building" is mean, not end. E.g., Rockefeller Philanthropy Advisors: Sustainable Endowment Institute: Billion Dollar Green Challenge.
Internal: (1) Operations budget. E.g.,: Cal State: Championed by the Vice Chancellor for capital planning, design and construction provides money for projects. ASU: SIRF – Sustainability Initiatives Revolving Fund, evolving from proof-of-concept projects to pilots to successful implementation. Strategic oversight committee includes senior administrators from: Facilities Development and Management; Financial Services; Planning and Budget; University Sustainability Practices; Business School, University Business Services. 3-tiered fund structure. (2) Operations and academic budget (UBC): High -evel support led to resources coming from operations and academics. The entire UBC budget is viewed as sustainability budget.

[iv] The Sustainable Cities Initiative has a process including the following elements: criteria, an RFP process, timelines for application/selection of projects, timelines of program, timelines are synchronized with academic year; Selection mechanism through TIM and committee review (or online) – selection criteria: Top-level support from cities, sustainability, financial support measured in real-impact, academic content and logistics, organizational support, faculty match; Roles and responsibilities of collaboration defined for TIM, city staff and city liaison, faculty.