

Better Student Outcomes through Sustainability

Case studies and insight for sustainability
leaders on applied learning and research
and Living Labs

In partnership with NUS

May 2019

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Introduction

Foreword

While opportunities to apply learning and research on and off campus are not unique to sustainability, those of us leading next generation sustainability for next generation learning unashamedly embrace their promise. Often, but not exclusively referred to as a Living Lab, the opportunities comprise of collaborative working that has the potential to penetrate all aspects of operational, academic, student, staff and community development for social, environmental and economic benefit. This challenges traditional ways of working and aims to promote positive partnerships across disciplines and sectors.

It is our responsibility to the students, institutions and communities we serve to support the development of pedagogies and research opportunities that enhance employability skills, contribute towards graduate attainment and make societal progress for sustainability in an ever-changing world.

EAUC is delighted to partner with NUS and lead the creation of more opportunities for sustainability focussed applied research and learning. Universities and colleges in the UK and Ireland must be resources for an unknown future, and for us, co-created, cross-institution and cross-sector applied thinking can be at the heart of solutions to campus and societal problems.

Iain Patton

Meg Baker

EAUC

NUS

Background

It is important to acknowledge that there is no such thing as a one-size-fits-all approach in tertiary education. For this reason, rather than offer a prescriptive framework of 'best' practice, this document has been developed to highlight a wide range of approaches to developing and implementing opportunities for applied learning and research through partnership working – sometimes referred to as a Living Lab.

For ease, throughout this document, we will refer to this approach as a 'Living Lab' but we recognise that opportunities for applying student and staff learning and research are wide and varied. We are less concerned with the labelling of such approaches and practices, than we are with sharing implementation and development.

Based on sector demand¹, this guidance documents a brief overview of the Living Lab concept, building on the detailed work produced by EAUC led by Hassan Waheed (2017), to

¹ In 2018 EAUC and NUS ran a Sustainability in Education survey to better understand levels of engagement with and aspirations for development of applied teaching, learning and research in tertiary education. 41 institution staff responded from institutions across the UK.

provide a baseline understanding, as well as sharing case studies and learnings from a wide range of UK and Irish institutions who are at different stages of the journey for offering sustainability focussed applied learning and research or specifically Living Labs. With the aim of supporting institutional staff working in a variety of roles, this guidance also shares challenges and pitfalls encountered along the way whilst exploring possible solutions for overcoming them.

EAUC commissioned NUS and have collaborated to identify impactful and transformative Living Lab learning and research opportunities happening in UK and Irish tertiary education institutions. There are many examples of such approaches being developed, trialled and embedded. Whilst some refer to those specifically as Living Labs, there are a multitude of cases where applied learning and research pedagogies and methodologies are imprinted in the culture of an institution and we acknowledge that not all package this under a Living Lab label.

Who is this guide for and how should it be used?

This guidance is aimed at both supporting and sharing knowledge through case study examples with tertiary education staff across all areas of an institution. It provides guidance for those looking to understand, initiate or embed impactful applied real-world learning and research opportunities through transformative pedagogies and partnership working. It also offers a point of reference for those looking to draw on examples from others when developing their existing applied learning and research opportunities within their institution.

The practices shared in this document reflect the great breadth of approaches taken in tertiary education to offer Living Labs style teaching, learning and research opportunities. This guidance aims to share experiences and implementation methods used by others rather than provide a prescriptive framework to be replicated. Learnings and case studies shared have been informed by desk-based research and interviews with key individuals working to drive forward impactful applied learning and research opportunities. We are often told by colleagues in the sector that better understanding of challenges and the journey to try and overcome these would be useful learning. In this guidance document, we attempt to achieve this.

Supporting the Sector

This work aligns with EAUC priorities:

"The issues of social, environmental and economic sustainability are interlinked, so our approach to solving them must be too. Furthermore, education and research have a fundamental and unique role in creating a world with sustainability at its core. For this reason, we are focused on using our considerable convening power to drive innovative developments in the sustainability sector through post-16 education institutions. In order to facilitate, accelerate and help lead this movement, we will work at both an operational, academic and a strategic leadership level with these organisations and wider society. In recognition of this approach for EAUC as a catalyst for change."

And NUS' vision for sustainability that:

"Students are routinely provided with learning opportunities that are interdisciplinary and enquiry-based, exploring grand challenges and global citizenship perspectives, developing critical thinking skills and political agency."

To quote Jonathon Porritt, *"we need to be preparing students for the work of the world, not just the world of work"*. Through Living Labs we can see potential for driving forward enquiry-based learning and research that questions and critiques current practices to test, monitor and develop innovative new ones for the betterment of society and our planet.

It is our responsibility to the students, institutions and communities we serve to support the development of pedagogies and

research opportunities that enhance employability skills, contribute towards graduate attainment and make societal progress for sustainability in an ever-changing world.

"We need to be preparing students for the work of the world, not just the world of work".

This guidance provides a response to a Sustainability in Education survey led by NUS and EAUC, in 2018. A top response to how the sector could be best supported to implement Living Labs was through directed guidance and case studies, knowledge exchange opportunities and networking events to share practices.

Living Lab Lifecycle and Theory

Overview

This section intends to provide a brief overview of Living Lab lifecycles, the theory and pedagogies they capture. Detailed guidance on the theory and value of a Living Lab has been previously produced by [EAUC \(2017\)](#). This guidance aims to provide an entry point for understanding Living Labs and share examples through case studies of how this theory is being applied in a very practical way rather than replicate previous more theoretical articles.

How are we defining a Living Lab?

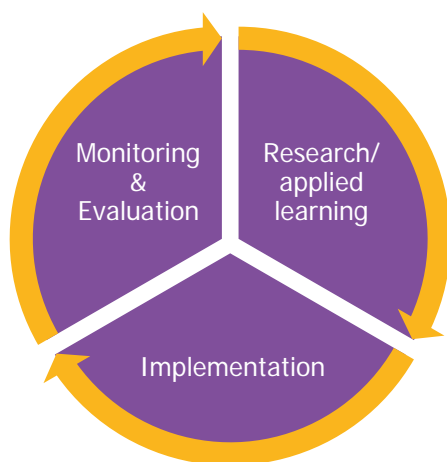
A Living Lab can be pedagogical where applied learning is promoted through utilisation of the campus or community as a test bed for innovation and progressing sustainable development. Where Living Labs take place within the research domain of an institution, this is both a concept and a process for research and innovation implementing potential solutions to the sustainability challenges.

The Living Lab Lifecycle

There is a vision for tertiary education to develop a full and holistic approach to learning and research that fulfils and maximises pedagogical and research potential. The aspiration is to achieve a continuously evolving Living Labs cycle. Figure 2 below provides a basic model for the Living Lab cycle; one that demonstrates applied learning and/or research with informed innovation implemented on the campus or in the community, highlighting the idea of a ‘test bed’. The impacts of such implementation should then be analysed through effective on-going monitoring and evaluation to offer future recommendations enabling the Living Lab to evolve and develop appropriately based on technological and informed developments, as well as changing environmental forces and social change.

The University of British Colombia (UBC), Canada, is an international example and world leader in creating a whole-institution multi-stakeholder Living Lab for continuous improvement towards sustainability. As owner-operators of their campus grounds, infrastructure, buildings and roads, UBC are able establish a fully integrated and cohesive approach to learning and teaching, research and innovation. Although a Living Lab of this scale may seem ambitious for some, there are learnings from this that can benefit staff in all tertiary education institutions. See <https://sustain.ubc.ca/our-commitment/campus-living-lab> for more information.

Figure 2: Living Lab Lifecycle



Implementation

Living Labs in UK & Ireland Tertiary Education

"I don't think students are aware of what they can do... although they live and breathe on the campus they don't think about their connection with it i.e. carrying out research on their own campus, in their own space... for some reason we remove ourselves from the environment we are so close to." – Valeria Vargas, Manchester Metropolitan University

In 2018 EAUC and NUS shared a survey with colleagues across the tertiary education sector giving individuals and institutions the opportunity to share their engagement with and aspirations for applied learning and research. Findings from this survey have informed the basis of this document demonstrating EAUC and NUS' roles as leaders in facilitating and contributing towards knowledge exchange and shared learning across the sector.

Living Lab Coordination

As engagement with Living Labs grows it is likely that implementation and coordination of them will also evolve. At this stage coordination of Living Labs is very varied with some institutions taking a formal approach to stakeholder engagement and project initiation, whilst other institutions take a far more informal approach. There is mixed consensus on whether one approach is better than the other, however key consideration needs to be resourcing and organisational culture.

2018 Living Lab Survey² feedback found that:

- 41% of respondents were aware of Living Labs being coordinated by a specific part of their institution.
- In most cases coordination was led by sustainability staff (31%), although some were teaching (17%) or estates (17%) led.
- 48% of survey respondents stated that there is no part of their institution that has overall responsibility for co-ordination or development of Living Labs.

Open answer responses to how Living Labs tend to be developed in institutions found approaches frequently happening in an ad-hoc, organic way (33% of responses) that is often led from the bottom-up or where individual staff members are particularly committed to such approaches (50% of responses).

Strategic Prioritisation

Survey respondents shared that in most cases, Living Labs do not currently feature in institutional strategies, however where they do this is most frequently in Academic Strategies (19% of respondents) or Community/ Public Engagement Strategies (17% of respondents).

Aspirations for Living Lab Approaches

Most survey respondents highlighted an institutional aspiration for the future to develop a whole institution approach for Living Labs (55%) and nearly half aspire to ensure Living Lab approaches are optional for all students.

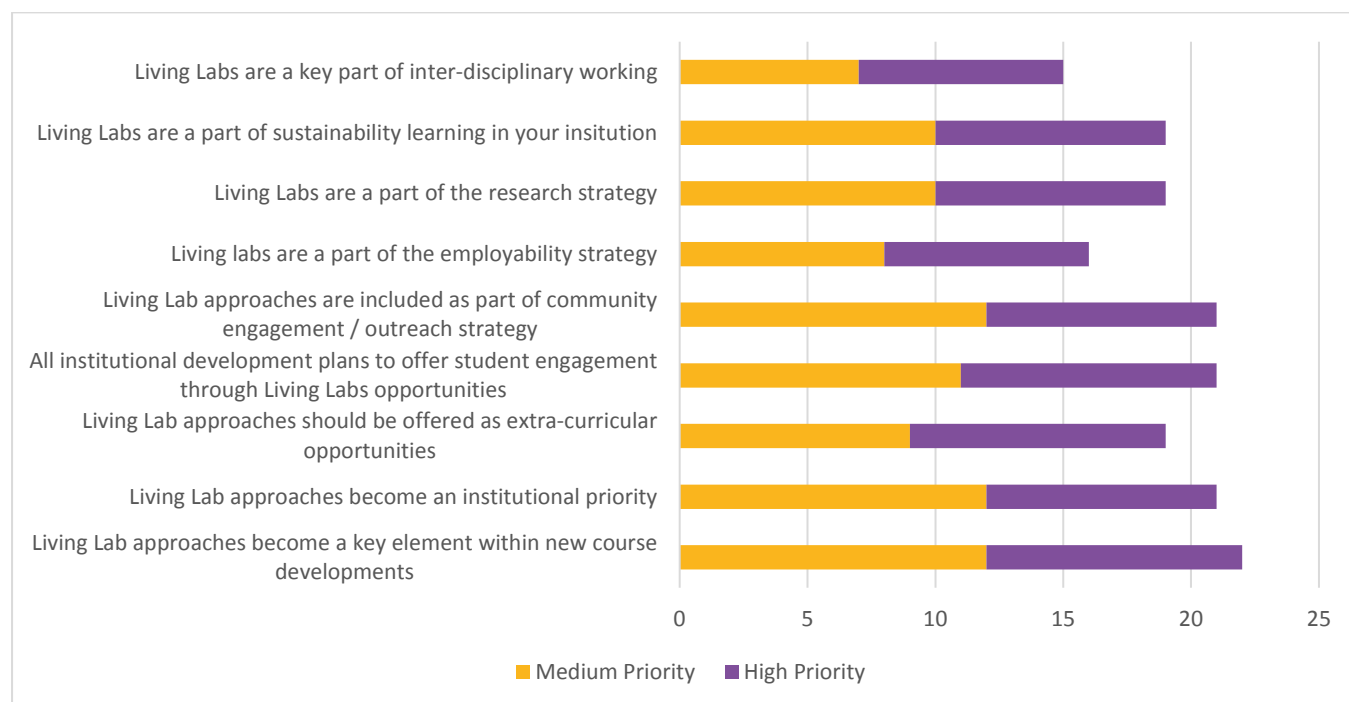
When asked on personal aspirations for Living Labs, the highest number (52%) of survey respondents stated that they would like to see them embedded as a key element to new course developments. Half of survey respondents saw it as a medium-high priority for Living Lab approaches (see figure 3 below):

- to become an institutional priority;

² 42 survey respondents from universities and colleges across the UK. Survey ran from April – June 2018 and was promoted through EAUC and NUS national networks and communications.

- included as part of their institution's community engagement/ outreach strategy;
- and to be included in student engagement opportunities for all institutional development plans.

Figure 3. What level of priority would you personally like to see given to Living Lab approaches within your institution?³



Living Lab Engagement

Further to our findings on coordination, it was interesting to realise that most Living Lab approaches focussed on sustainability and social responsibility are being used to solve campus problems (55%). Alongside this, Living Labs tend to sit within the realms of dissertation research (52%) and other course work for students (48%).

The courses found to be engaging with Living Labs most frequently were not only those typically associated with sustainability but came from a wider range of disciplines. These course groups were (in rank order):

1. Business, administration and law
2. Science and mathematics
3. Social sciences

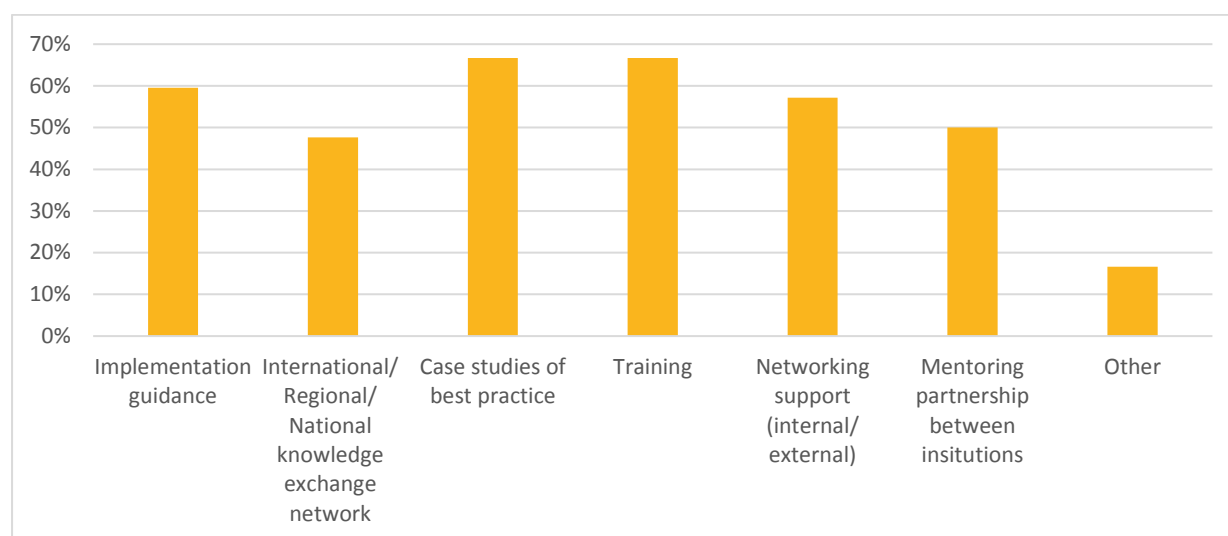
Learning From Others

When asked what the sector would like to see in terms of support to progress tertiary education institutions with implementing Living Labs (see figure 4 below) the following were identified in rank order of percentage respondents:

³ 42 survey respondents from universities and colleges across the UK. Survey ran from April – June 2018 and was promoted through EAUC and NUS national networks and communications.

1. Case studies of best practice (67%)
2. Training (67%)
3. Implementation guidance (60%)
4. Networking support (57%)

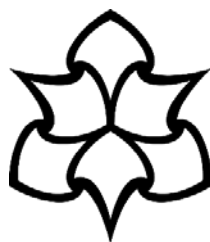
Figure 4. What support or resources would help you to achieve your aspirations for Living Lab approaches within your institution?



Case Studies

The case studies and examples provided in the following section demonstrate the versatility of Living Labs. For every individual initiating such approaches and in each institution the framing and starting point will differ. These examples have been provided as examples of varying practices, not 'best' practice as it is essential that in the context of developing and implementing learning and research opportunities and innovative pedagogies, organisational cultures, policies and practices will affect how this looks at an individual institution level.

The purpose of this series of case studies is to share learnings from across the breadth of this diverse sector. Each case study provides an overview of implementation methods, institutional prioritisation and key learnings. These aim to be honest accounts from individuals working in tertiary education institutions to support others in creating their own appropriate pathway for initiating and developing Living Lab style approaches within their institutions.



**Manchester
Metropolitan
University**



A research and enquiry-based learning approach to Living Labs that focusses on content and methods relevant to academic disciplines and the stakeholders involved.

What advice would you give an institution staff member keen to get this started?

“Avoid pressure on people to label it but think about the content and methods... Look at the components of the EAUC’s research on Living Labs - you can work with those stakeholders, do innovation and feedback to the partner organisations and the cycle can become bigger and bigger and grow.” – Valeria Vargas, Education for Sustainable Development Co-ordinator

The University [Environmental Sustainability strategy](#) explicitly identifies opportunities the campus offers as a Living Lab. This supports momentum with driving forward such approaches to teaching, learning and research at Manchester Metropolitan University (MMU), however it is also encouraged that they grow from the bottom up to encourage meaningful and organic development. Living Labs are taking place to varying degrees within a wide range of departments at MMU. Although there are great examples of applied learning and research and interdisciplinary/ partnership working occurring it can be difficult to capture this making it challenging to use examples to grow momentum. This is synergetic across the sector with many examples of strong Living Lab research partnerships, however few are engaged with the full Living Lab cycle due to missing stakeholders or a shortfall in continued evaluation and development of work.

Giving an open account of how this looks at the University, their Education for Sustainable Development Co-ordinator stated that “some are fully engaged in a Living Lab, most people don’t even know if they are”.

Most Living Labs at MMU tend to sit within research areas of either departments and schools, or research focussed assessment and enquiry. As a general trend they are led by academics and a result of student-generated ideas. To support the growth of Living Lab approaches, work has been done at MMU to identify good practice and share approaches to engagement with Living Labs across the institution. Coordination of Living Labs is within the remit of the Sustainability Engagement Team.

When it comes to engaging students with Living Labs, the need to communicate such opportunities at as many levels as possible has been emphasised. There is a sense that although the opportunities are available, many students look to carry out research in areas beyond the locality of their university. Wide ranging benefits could be had from engaging students with their campus and local communities for Living Labs style learning and research.

MMU had a key feature on their Living Labs in the December 2017 edition of Environmental Scientist. Guest edited by EAUC, the journal showcased Living Labs at several universities in the UK and across the globe.



UNIVERSITY OF **Research**
LEICESTER in **Action** →



Developing a coordinated approach to partnerships and collaborations for applied research and learning as a result of demonstrating the impact and value of student-engaged research

What advice would you give an institution staff member keen to progress Living Labs?

***“Network - go out and meet people from different departments - once you start explaining what LLs are and the importance of them, people are so often keen to get involved.”** – Hannah Sellers, Academic Engagement Officer*

A successful student-Estates partnership for final year dissertations at the University of Leicester inspired the creation of a graduate internship coordinating Living Labs at a whole institution level, called Research in Action. In recognition of the value student research brings to institutions in tackling real-world sustainability challenges as well as the impactful experience this offers students, Leicester initially invested in a fixed-term role to employ one outstanding graduate to use her learning to coordinate applied learning and research partnerships between students, academics and professional staff that has now been made a permanent staff resource. The role sits within the Social Impact Team at the University allowing her to facilitate engagement and build partnerships between students, academics and professional (operational) staff, along with businesses through the Innovation for Good programme.

The Living Lab Coordinator at Leicester seeks potential opportunities for Living Labs within academic modules and for dissertation research. Communication and an active presence on campus has enabled students to realise the existence of such opportunities, meaning that students are now approaching the Social Impact Team directly with their own research proposals. The success of this role has proved the importance of having a role so now there is a permanent position (Academic Engagement Officer) that facilitates both Living Labs and Education for Sustainable Development at Leicester.

The creation of a role such as this is clearly incredibly useful for developing a coordinated approach.

***“... at the beginning it was happening in lots of different departments but there was nothing that tied it together. My role has been to meet with lots of academics from various departments to better link things together.”** – Hannah Sellers, Academic Engagement Officer, University of Leicester*

Living Labs at Leicester primarily happen within academic areas, through the formal curriculum. Projects are predominantly carried out through dissertations in science and geographical science disciplines. Some work is being done to create means of measuring the impact of such projects and continuing the Living Lab cycle, students are required to produce a 1-page report with significant findings and recommendations for the future. There is no obligation for applied research projects to be used as a basis for implementing change on the campus, however all research has the potential to be used therefore creating higher level Living Lab.



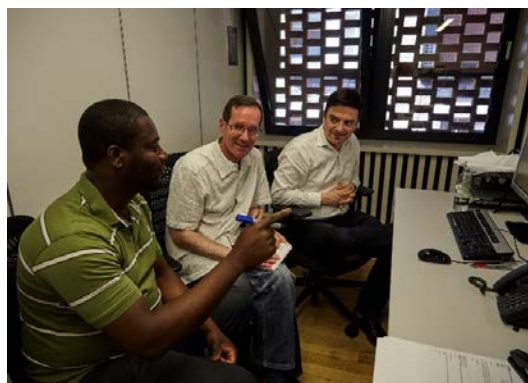
UNIVERSITY OF **Research** **LEICESTER** in **Action**



Through Research in Action, this year for the first time, students had the opportunity to work within a professional services department e.g. the Social Impact Team had three summer placement students researching and trialling sustainability projects about plastics use, sustainable food and creating an interactive, digital campus; these projects are all are currently being put into practice.



**QUEEN'S
UNIVERSITY
BELFAST**



A people-centric organic approach to applied learning and research that has gained high-level endorsement for a collaborative working to tackle institutional and community sustainability challenges

What advice would you give an institution staff member keen to progress Living Labs?

“Just go out and talk to people. You can write emails and read what other people have done/ draft a strategy but talking to people, making connections and understanding what they do is so important.” – Sara Lynch, Environmental Manager

As with many institutions, the Queen's Living Lab has been developing organically over a number of years. Pockets of fantastic practice are taking place, however it is very people-centric and therefore depends on individual staff to create stakeholder partnerships. There are likely to be many instances of Living Lab style work occurring yet individuals leading on or involved with this may not be aware of the Living Lab label.

A great example of partnership working between students, academics and estates staff is in the opening up of the University's Combined Heat Power (CHP) plant to students in the School of Chemistry. Going beyond the institutional walls of the University, Living Lab style partnerships are occurring through the Queen's Science Shop, sitting in the Careers and Employability Team. The Science Shop provides partnership working opportunities between students and local community groups, public sector organisations and NGOs who develop research projects with students and make use of the outputs and learnings from this. Although the scope of such projects can vary, some examples shared were explicitly sustainability focussed.

High-level endorsement of engaging students and researchers to support the institution in tackling sustainability challenges has been recognised as significant progress at Queen's. Senior Management have acknowledged the great benefit for not only the institution, but also student learning and therefore development of graduate competencies that can be made from utilising the estate as a test bed for live research.

Common challenges faced when working to develop and progress Living Lab opportunities at Queen's are similar to those identified in the EAUC-NUS Sustainability in Education survey on applied learning and research in tertiary education. Where estates staff want to progress Living Labs, time resource was highlighted as an on-going barrier for progressing this as there are no staff at Queen's working in sustainability who have a 100% engagement or policy focussed role. In addition to this, a history of staff roles and departments being perceived as significantly separated from teaching, learning and research can create challenges in forming partnership working. This is a common theme and it is often the case that staff informally leading on Living Labs feel that ideally a role will be allocated to bridge the gap between academics and professional departments to support the facilitation and coordination of research and applied learning partnerships.



**QUEEN'S
UNIVERSITY
BELFAST**



Although there is recognition of the importance of Living Lab opportunities in the University's Social Charter and a commitment within the University Corporate strategy, staff at Queen's are still keen to gain more momentum and whole-institution recognition of Living Labs.

"It needs to come from senior executive management level and there needs to be a coordinated strategy around it. The challenge at the moment is it is all in bits and no one is tying it all together." – Sara Lynch, Environmental Manager



University of
Salford
MANCHESTER



Demonstrating staff commitment to creating applied real-world learning and research opportunities for students in the University of Salford Business School

What advice would you give an institution staff member keen to get this started where they work?

"[When embedding Living Labs in taught modules it is important] ... to tap into what the students really care about by leaving the assignment really open. Additionally, by inviting industry experts and various interest groups of the University to share different perspectives and challenges for sustainability, students were able to demonstrate a better understanding of the complexity of the sustainability agenda at local and global levels" – Romas Malevicius, Lecturer in Sustainability and Ethics

The Living Lab shared by University of Salford is a good example of intrapreneurship, with an academic staff member striving to find opportunities to embed Living Labs within a specific level 6 module – Business Ethics and Sustainability. The module requires students to assess how their university is responding to or tackling a United Nations Sustainable Development Goals (UN SDGs) of their choosing and present recommendations. The intention is for the University to use these project plans, some have been put forward.

The development of this Business module has mobilised students to realise their potential to do a lot more at university beyond their degree. During the module, students hear from professional staff at the institution, most often from the Environmental Sustainability team, but more recently the Inclusion and Diversity team has also been involved to get students thinking more widely about sustainability through consideration of pay gaps, equality and diversity.

In developing applied learning and research at Salford, opportunities have also been facilitated for students to connect with local Small and Medium Enterprises. Still within the Business school, students provide recommendations and suggested action plans for real-life businesses to respond the UN SDGs.

The approach gets students thinking about global ideas, perspectives and priorities and how they can be applied to SMEs.



UNIVERSITY OF LEEDS



"The Leeds Living Lab drives the University's commitment to embedding sustainability through knowledge, engagement, collaboration and innovation. It brings together students, academic and operational staff to research and test sustainable solutions, enhance our curriculum and solve real-world challenges using the University as a test bed" [Leeds Living Lab 1 year on, 2018](#)

What advice would you give an institution staff member keen to get this started?

"Align the business case with the University's strategic themes and approach. Develop clear governance around the programme, including performance measures, to maintain support from senior management. Begin by focussing on a key area - for Leeds this has been developing internal collaborations between academic and operational roles, for others this might be community partnerships. Focus on building a network of interested colleagues and students, utilise their buy-in and enthusiasm to demonstrate the benefits to others." – Thom Cooper, Living Lab Coordinator, 2018

The University of Leeds have made Living Labs an institutional priority through policies, resourcing and funding. Living Labs at Leeds are recognised as formal collaborative partnerships for interdisciplinary research and learning in line with the University's Sustainability Strategy. A dedicated staff member, Thom Cooper, working in the Sustainability Service leads the Living Lab Programme at Coordinator level, facilitating partnership building, engaging staff and students to raise awareness of the opportunities, and maintaining momentum to embed the way of working into business as usual. A core benefit of Thom's role is support for staff and students in identifying and getting Living Labs off the ground and supporting projects or initiatives that aren't quite there to become 'true' Living Labs.

There seems to be a common theme of institutions struggling to identify a strong business case for a Living Lab coordinator role. At Leeds this role is recognised as both a key way to advance immersive and meaningful teaching and learning that develops student knowledge and skills and to facilitate collaborative, impactful research that breaks down institutional boundaries, generates funding and forwards the sustainability of the University and the city.

Where students are active participants in Living Lab projects, the opportunities contribute significantly to their employability skills, giving them real-world applied learning and research experience and, by engaging in the sustainable management of the University, stakeholders are provided with a greater sense of pride and connection to the institution.

All students and staff at Leeds are invited to apply for funding and support to develop and implement their Living Lab ideas. Successfully funded projects span from air quality modelling to shape and inform strategic approaches to projects that improve health and the environment on campus; to trialling Mixed Ability Sports through workshops and taster days to demonstrate a case for inclusion in University offerings.



Aligning student interest and institutional developments for environmental sustainability and infrastructure innovation

What advice would you give an institution staff member keen to get this started where they work?

***“Get the commitment for the data before offering a Living Lab... ensure that the resources and systems are actually in place for it to happen”** – Rosemary Horry, College Lead for Learning Enhancement/ Environmental Management/ Academic*

Living Labs have been happening to some extent at University of Derby for several years (around 13 years). The formula for these tends to be engagement and partnership working between student, academic and estates staff, giving a tendency to focus on environmental sustainability and infrastructure.

Leadership for the Derby Living Lab has happened organically with a passionate and committed academic driving engagement across the institution.

Many of the Living Labs projects or initiatives that have taken place at University of Derby have been a result of keen and engaged academics connecting with estates staff to use the campus as a test bed for trialling a new or innovative approach from this, motivated students have then been brought into the partnership as key components to developing and progressing the work. Given this Living Lab development process, finding and incorporating opportunities for students with aligned interests and enthusiasm is essential. To date, where students have been actively involved with Living Labs, it has been as a part of their Independent Study.

There is a good level of support for Living Labs from the University's Senior Leadership Team, which helps when working to develop new projects and bring in staff who are new to the concept. A common challenge can be ensuring opportunities are communicated in the right places to the right individuals. The academic leading on Living Labs at Derby, identified that a platform showcasing opportunities to students and staff would be highly beneficial when working to increase awareness and engagement.



Recognising the power of a Students' Union to influence the institution, drive forward student needs and support graduate attainment

What advice would you give an institution staff member keen to get this started?

"Find like-minded people and try to influence senior managers to get support - linking up with people with influence" – Dave Wheatley, Green Guild Project Manager

The driving force behind Living Labs at Liverpool comes from both the institution side and their Students' Union, Liverpool Guild. These learnings come from the Guild's perspective. Sitting on the institution's sustainability group helps Green Guild Project Manager, Dave Wheatley, to engage with colleagues to push Living Labs forward and ensure they remain on the University's agenda.

Dave has incorporated Living Labs into his role by facilitating partnerships between students, the wider community and academics. Within the Guild, student support to setup social enterprises provides some taste of a Living Lab-style learning through problem solving and applied real-world learning. Some fantastic projects have come out of the Guild's student-led social enterprises, including a group of students developing a solar thermal panel for water purification in disasters. This project also received support through the *Low Carbon Eco-Innovatory* unit based within the University. The system has recently successfully completed a testing programme with the World Health Organisation. Projects such as this create social, environmental and economic impact in the areas they reach out to, whilst also giving students fantastic employability skills supporting their potential graduate attainment.

Current progress has been mixed and in some areas this has been fairly challenging for the SU as it is not placed at the heart of the academic arena at the University. Some developments are being made on the side by interested post-graduate students or academics who are connecting with community organisations for sustainability projects.

Having a central unit with a cross-institutional approach to progressing and coordinating Living Labs has been identified as a high impact change that would support development of such learning and research partnerships at University of Liverpool.

It is believed that a cross-institutional approach would encourage buy-in from a greater range of stakeholders and raise Living Labs up the University's agenda and priorities. As well as a central coordinating role within the institution, it was also suggested that creation of an online platform to promote opportunities and provide a hub for Living Lab engagement would be a useful resource for the University.



Connecting theory with practice on campus and beyond to increase sustainability team engagement with Education for Sustainable Development as a means of tackling key sustainability challenges and enhancing student learning

What advice would you give an institution staff member keen to get this started?

"The model can work where you have a person who is comfortable working at different levels, able to work with academics and familiar with academia, able to switch between subjects - multidisciplinary background, you need public speaking and teaching skills... I did a teaching course and it transformed my role... These three strands are key:

- *Connecting people with the university*
- *Creating a strong push for civic engagement*
- *If possible self-selection - things you can do yourself"*

– Vicki Harris, sustainability engagement co-ordinator

The UWE Bristol Sustainability Team (based in Estates and Facilities) made a strategic decision to significantly increase their input into Education for Sustainable Development (ESD) in 2017. In doing so they aimed to build on their strength in linking theory and practice on campus and beyond, providing a Living Lab style approach to teaching and learning, as well as creating strategic partnership working between operational and academic staff.

The University's aspirations for ESD are explicitly included in their sustainability plan, namely that 100% of students be exposed to sustainability within the curriculum.

Additionally, UWE identified three connected key drivers for applied learning and research opportunities:

- A concern to maximise the range of subjects and numbers of students reached as quickly as possible by the Sustainability Team.
- A recognition that working through the curriculum is a more effective way of engaging students than through optional events and activities on campus.
- An understanding of the value of an eclectic and wide ranging approach which aimed to engage students at different stages of their student journey, from planting the seeds of future study and action at induction at Foundation level right through to in depth study at masters level.



Increased partnership working between students, academics, operational staff and the wider community is well supported by, and receives regular collaboration from, UWE's Assistant Vice Chancellor for Environment and Sustainability Professor James Longhurst and Associate Professor in Education for Sustainable Development Georgina Gough, who coordinates the UWE Knowledge Exchange for Sustainable Education network (KESE).

Sustainability Team members make initial contact with academics for Living Lab style partnerships through various pathways: at the staff welcome fair, through KESE, through events such as the staff awards or the staff teacher training course, and finally through word of mouth and recommendation by colleagues.

Sustainability Team – Academic partnerships for curriculum input range from small interventions such as 10 minute inductions and campus tours to in depth lectures and seminars, practical projects and a growing number of work based learning opportunities for students. This type of engagement is taking place on courses ranging from Foundation level to PhD. As collaborative working grows and awareness of opportunities builds, the nature of the team's input is developing: e.g. in Journalism, last year they did a lecture for 3rd year students and this year they are also setting sustainability themed briefs.

Last academic year (2017 – 18) the Sustainability Team engaged with 20 subject areas across the University, (reaching over 520 students), this year that number has increased to 26 in a diverse range of subject areas - from Animation, Creative Music Technology, Engineering in the Community, Business and Entrepreneurship to Mental Health Nursing. Developing partnership working across a large institution takes time, however the high-level support achieved at UWE is a real advantage for gaining momentum. A broad based and flexible approach has supported UWE to initiate conversations with a wide range of audiences to encourage students to see the world through the prism of sustainability.

The next challenge is to find ways to use our resources, which are limited, to greatest effect. An example of this could be providing staff with materials themselves to do inductions.



THE UNIVERSITY of EDINBURGH



Formalising coordination and recognition of Living Labs through shared responsibility and development of a Living Lab toolkit

What advice would you give an institution staff member keen to get this started?

“... Developing networks and finding interested academics, operations staff, and community partners is key. Don’t worry if there are only a few projects at first – with increasing student interest in experiential learning, more collaborators are likely to come on board over time” – Liz Cooper, Research and Policy Manager

The University of Edinburgh’s Department for Social Responsibility and Sustainability (SRS) coordinates a Living Labs initiative, working with academics, professional services, students and the community. The SRS department was established in 2013 and now has around 20 staff. The team sits within Corporate Services Group at the University and collaborates closely with senior leaders across the University, including via the SRS Committee which reports directly to University Court.

Living Labs style projects and partnerships have been taking place at least to some extent for a long time, although it was only in the last few years that these have been formally coordinated and recognised as such. Whilst the SRS Living Lab initiative was originally internally focussed, there are now significant numbers of community integrated projects. An increase in community engagement for Living Labs comes as the department’s work and priorities have expanded, achieved through the appointment of a Community Engagement Manager.

Work has been done to embed Living Lab concept within the University Strategic Plan, as well as being a key part of the SRS department strategy.

Responsibility for coordinating Living Lab projects is distributed across the SRS team, this aims to ensure Living Labs become a joint responsibility and embedded across different thematic areas. A Living Lab project database can be found on the SRS website, featuring past, current and proposed projects. A Living Lab toolkit has been developed to encourage staff and students from across the University to develop their own collaborations, without requiring SRS Department coordination.

As the initiative has gained momentum, the team has increasingly seen academics, professional services staff and community organisations approach them to ask for support with project initiation, identifying funding opportunities, identifying researchers and facilitating meetings. There are a few great examples of courses at the University that have formally embedded Living Labs opportunities into the curriculum e.g. the masters level Case studies and Sustainable Development course.



EMBEDDING
SUSTAINABILITY
IN ALL THAT WE DO



Optimising the impact of education and research by utilising the campus as a test bed for real-world teaching, learning and research

What advice would you give an institution staff member keen to get this started?

"Talk to people - everything comes down to relationships, it is the most valuable time, time you put into people is the time best spent." - Zoe Robinson, Director of Education for Sustainability

The University's unique self-contained campus location with over 600 acres of grounds provides an ideal setting to establish itself as a test bed for real-world teaching, learning and research opportunities. Keele University have a number of Living Lab examples and case studies. Each example is different by nature demonstrating the diversity in approaches but with that comes variation in impact, outcomes, outputs and degrees of alignment with a 'true Living Lab'.

Initiation of Living Lab style partnerships for teaching, learning, research, and business and community engagement happen in a range of ways at Keele. There is a model of distributed leadership around living labs, with no single member of staff who coordinates or facilitates Living Labs, and with different parts of the university using the term in slightly different ways. There are examples of leadership from academics working in partnership with estates and other professional services, and students themselves suggesting innovative approaches to tackling sustainability challenges by using the campus as a test-bed. Estates and Research and Partnership Development staff also lead on 'living lab' projects, for example Keele's Smart Energy Network Demonstrator, Europe's largest test-bed for sustainable energy research, was developed in collaboration with industry, and drives smart energy innovation in local business and through research.

This project also has significant potential for developing educational outcomes from the individual student, to the whole campus community scale.

An example of a more educationally focussed 'living lab' approach is the elective module, 'Greening Business: Employability and Sustainability' which has run for over 10 years and is open to all foundation and first-year students in the university. The University's professional sustainability staff contribute to teaching on the module and drive the projects that students carry out. Students work in groups, meet with sustainability staff, and present recommendations to the University about ways to enhance sustainability at the university based on exploration of what is happening at other institutions as well as research at Keele. Staff take on board learnings from these student projects and the module acts as a catalyst to empower students as change makers.

"In my view the power in the Living Lab approach is in the potential to maximise the impact across both the education and research missions of a university, as well as in the benefits of working with the business and wider community - but to do this effectively we need to ensure that all these stakeholders are represented in discussions from the outset" - Zoe Robinson, Director of Education for Sustainability



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Strategically embedding Living Labs in the institution's sustainability strategy to support progress towards carbon reduction targets

What advice would you give an institution staff member keen to get this started?

"You need the right engagement from the get go - being really clear on what it is and roles of individuals/ stakeholders. Everyone had different expectations, so it is important to be clear on the direction to take it in." – Rebecca Ford, Researcher in Energy and Environmental Change.

An overview of Living Labs at Oxford came from a colleague previously allocated responsibility for Living Lab coordination, however this role has since changed.

The focus of the Living Lab at Oxford has been to assist in achieving the University's carbon emission reduction targets.

Although Estates Services staff have a dominant role in implementing projects and programmes to reduce emissions, Living Labs were incorporated into the strategy to create and support a research plan that embeds sustainability deeply across the university.

Rather than establishing a project and then bringing different stakeholders together to deliver on it as is often seen in tertiary education, Oxford took a slightly different approach to build on the strength of the existing research, as well as the opportunities presented in the delivery of carbon reduction projects. One to one interviews were conducted with both research and operations staff, following which a workshop was held to bring different stakeholders together to explore and share their work priorities and the challenges they face, and identify opportunities for partnership.

A number of projects have emerged, though they have taken time to come to fruition given challenges around securing funding for the research. Another challenge has been in delivering student projects. While this has worked well in other institutions, Oxford has struggled to get these off the ground, largely due to limited opportunities to integrate such projects into existing department curricula.



Working with the University Internal Communications Team to maximise communication of Living Lab opportunities to students and staff

What advice would you give an institution staff member keen to get this started?

"Identify the work being done by academics and find ways of connecting them and their students with that work and developments or challenges being faced on the campus. Identify existing practice and enable new projects. Showcase these to help others realise wide benefits of working with the campus. Work with internal comms teams too...!" – Simon Goldsmith, Head of Sustainability

The Greenwich Living Lab has been in development over the past 3 – 4 years, being led by the University's Sustainability Team who sit within the Estates and Facilities Directorate. Through focussing resources and communications on Living Lab opportunities and by using the campus as a test bed, the Sustainability Team have been reaching out to students and academics with the aim of encouraging and stimulating more engagement with applied learning and research. This supports the institution in moving forward for sustainability and gives students something experiential to put on their CV's. We realise the importance of working closely with the University's Internal Communications Team to increase the profile and reach of these opportunities.

With a coordinated approach coming from the Sustainability Team it has been possible to make students and academic staff aware of sustainability challenges that can be researched using Living Lab approaches by students at all levels of study.

This has also led to academics and students approaching the Sustainability Team with suggestions and requests to trial and test initiatives on campus. Through focussed efforts to stimulate partnership working between these different stakeholders, it has been possible to harness the insight and knowledge of academics at the institution to resolve some of the campus problems faced by estates.



Institutional prioritisation of Living Labs through creation of resource and inclusion in the University's Environmental Sustainability Vision, Policy and Strategy

What advice would you give an institution staff member keen to get this started?

"The main thing would be identifying where there are synergies of this already taking place, i.e. where there is research and an appetite from operations to have research to help them make sustainable change. The Living Lab is such a fluid concept you could do it at so many different levels." – Amy Munro-Faure, Living Laboratory for Sustainability Coordinator

Formal coordination of the Living Laboratory at Cambridge has been taking place for the past 6 years.

This coordinated approach came out of the successful execution of a project in the Cambridge Engineering Department, where the benefits and impacts of putting research into practice demonstrated potential for future projects.

The University has highlighted its recognition of the value of Living Labs through the inclusion of this work in the University's Environmental Sustainability Vision, Policy and Strategy as well as creating the role for a Living Lab Coordinator within the Estates Management division. This has provided a driving force to create collaborations and develop and communicate living lab opportunities. Within the University, the Living Lab Coordinator works within the Environment and Energy section but is tied closely to work related to education for sustainability and biodiversity. The role bridges the gap between operational staff and academics at the university whilst also reaching out and connecting with the wider community in search of mutually impactful partnerships.

"The Cambridge Living Lab is very much about taking research and linking it with practice, and then engaging with students and taking the outcomes from it." – Amy Munro-Faure, Living Laboratory for Sustainability Coordinator,

Living lab projects at Cambridge are initiated in a variety of ways:

- **Academic Projects:** Students and academic staff can contact the Living Lab Coordinator who will connect them with relevant estates staff to initialise projects. PhD students also generate a lot of momentum around Living Labs.
- **Voluntary Projects:** The Living Lab coordinates a number of voluntary projects, for example, working with Cambridge Hub, a community organisation, where opportunities are created for students to engage with environmental change through their lives and courses.



THE CAMBRIDGE *green* CHALLENGE

• LIVING LABORATORY •



- **Internship Programme:** The Environment and Energy section take on 3 interns annually to develop and delivery specific projects (internships take place over the summer and are paid).
- **Awards:** Students are invited to participate in idea generation competitions based around specific themes, ideas from these are then implemented where feasible. This year the theme is likely to be plastics, last years was travel.

In many instances, Living Lab project successes tend to occur where synergies already exist between research interest and operational staff or community groups' priorities. For example, sustainable food –operational interest already existed, looking at organic farming, practices and accreditation, and there was an institutional interest in developing a food policy to support this. The Living Lab Coordinator was able to connect the relevant academics and operational staff and support them to ensure the research continued to build, which has resulted in a new food policy for the University. Projects such as this help to demonstrate the value of a Living Lab.

Key Learnings – A Trouble Shooting Guide to Challenges and Solutions

Common Themes

This section draws out key learnings, common challenges and advice from staff working in UK tertiary education institutions. The basis of these were derived from the sector survey on applied learning and research practices and aspiration in UK tertiary education married with interviews with key staff members who provided the documented case studies of approaches to applied teaching, learning and research.

Given that in many instances Living Labs are often being led by staff who have a personal commitment to such applied teaching, learning and research approaches⁴, it has been identified that gaining institutional buy-in and support is critical to ensuring a long-term commitment to developing these opportunities.

Challenges:

- Measuring impact
- Time
 - To facilitate partnerships
 - To support students
 - To engage with teaching staff
- Implementation: Going beyond campus and community being ‘test beds’
- Resourcing: staff and funding
- Gaining high level executive support – influencing institutional priorities
- Engagement: Reaching stakeholders
- Creating a culture of partnership working: breaking down silos

Top Tips:

- Communication
- Networking
- Relationship building
- Work with key influencers internally and externally
- Development of Living Labs often happens organically, and this should be celebrated
- Finding seeds of existing engagement with Living Labs happening organically to share institutional examples

Developing such whole-institution engagement to tackle sustainability challenges takes time and on-going work. Increasing awareness and working

The common challenges and solutions below provide a brief trouble shooting guide based on the experiences of institutional staff in the sector. Each ‘solution’ has a relevant case study connected with it – please see previous section of case studies for more information.

⁴ Based on survey findings from Education in Sustainability survey 2018 – see page 8

Common Challenges and Solutions

The Challenge

Timing

Students, academics, operational staff and external stakeholders often have differing timelines for developing and delivering work.

The Solutions

- Prior planning and agreement of timelines, wherever possible, at the initiation stage of a collaborative applied learning or research opportunity helps all parties establish a work plan that fits
- Student engagement with projects needs to be taken into consideration with regard to academic term/semester times and other academic commitments
- Where projects are likely to span a significant timeline, it is worth exploring opportunities to engage students with specific aspects of projects

The Case Study



UWE Sustainability Team members have been increasing their collaborative working with academics to embed applied learning and research opportunities in existing modules and relevant areas of the curriculum. This enables projects to be implemented in a timely manner that fits with other programme timelines.

The Challenge

Implementation: Going beyond test beds

How to ensure students' Living Labs work is impactful and useful for the university/ community?

Students want to see the impacts of their work, but institutions'/ large-scale projects and initiatives take time to implement.

The Solutions

- Manage student expectations from the outset of the Living Lab partnership with clear communications
- Work with academics to embed practical applied learning opportunities into existing areas of the curriculum, e.g. Leeds Environmental Science 1st year Undergraduate students carry out sampling and surveys during 1st semester to support Estates and develop surveying skills
- Set output requirements for projects through student-staff discourse when initiating Living Lab work, e.g. Dissertation research - agree upon useful outputs such as short report/ presentation/ posters/ video/ workshop etc.
- If there are potential project/research findings will result in unviable implementation, communicate the valuable learning experience for both the student and institution/ community or organisation, i.e. this is the nature of research and it is still useful

The Case Study



UNIVERSITY OF
LEICESTER

Living Labs at University of Leicester involve a clear planning phase between students/ academics and operational staff to agree on timelines of work, proposed outputs and intentions for how projects will or may be implemented.

The Challenge

Measuring Impact

Applied teaching, learning and research needs to be impactful for all stakeholders

Aligning impacts with institutional priorities

The Solutions

- Impacts of a Living Lab need to be understood, demonstrated and measurable for all stakeholders
- Ensuring at the point of project initiation the aims and outputs for opportunities are identified and agreed supports the journey towards the end goal
- Impact can be in the form of research outcomes and impact, student learning and development outcomes, re-evaluation of institutional priorities, increased recognition of applied learning and research

- Using case studies and examples of organisational and potential positive financial or sustainability impacts of Living Lab projects can generate greater resourcing for such opportunities in the future

The Case Study



UNIVERSITY OF LEEDS



University of Leicester, Leeds and Cambridge have all been developing methodologies for measuring, evaluating and reporting the impact of their Living Labs. Other institutions showcased in this document have been demonstrating impact by aligning Living Labs with academic assessment requirements, identifying the implementation of Living Labs (going beyond test beds) and quantifying the number of Living Labs projects completed.

The Challenge

Gaining high level 'Executive' support

How do you do this for a whole-institution approach?

Working to influence institutional priorities

The Solutions

- This can be achieved where departmental leaders have strong voices and influence to gain buy-in from Senior Leadership for a whole-institutional embedded strategic approach
- Top down approaches won't necessarily work/ be achievable in all institutions, but it doesn't need to be a barrier. Middle-out and bottom-up approaches can be equally successful
- Some institutions have found 'nudging' senior management teams and the wider community a useful mode of generation greater engagement and recognition
- Mid-level staff working with academics with a coordinated approach can create a system for achieving similar outcomes in terms of teaching, learning, student experience and individual project outcomes
- Student demand for applied research opportunities can drive need for Living Labs approaches, e.g. [NUS student skills and sustainability research](https://sustainability.nus.org.uk/our-research/our-research/skills-and-sustainable-development)⁵

⁵ 8 years of cumulative research led by NUS can be used to demonstrate both national and institution specific perceptions and demands from student regarding skills and sustainable development. <https://sustainability.nus.org.uk/our-research/our-research/skills-and-sustainable-development>

The Case Study



Keele University's Smart Energy Project and VC endorsement for campus as a Living Lab



UWE Living Labs and ESD work supported and engaged with by AVC.



Queen's University Belfast identified the need for high level support wider engagement.

The Challenge

Resourcing: staff and funding

How can institutions drive this work forward effectively for student and institution/community benefit?

The Solutions

- Institutional staff involved with Living Labs have the potential to go beyond brokering and towards curating for high quality support and ensuring follow-through to meet all stakeholder's demands and expectations:
 - For some institutions this may be a dedicated role
 - For other institutions, clear communications institution-wide or responsibility to support Living Labs across different staff roles would support academics and professional departments to know who their key contacts are to establish opportunities
- Engaging with academics to identify courses, modules and assessments for which Living Labs could be embedded can support an organisational shift to developing a culture for applied learning and research:
 - This could be done through collaborative mapping processes to identify opportunities across curricular, research, operational, campus and community priorities.
 - For some organisations/ institutions, creating a funding pot to support initiation of applied research projects and to create part-funded opportunities can raise the profile and generate more interest from both stakeholder participants and high-level decision makers. This can help gain recognition for further resource support in the future.

The Case Study



University of Leeds – Sustainability team annual fund for Living Labs projects and match funding of other departmental projects. Equipment and materials purchased for Living Lab projects provide long term benefit to the departments involved. University of Leicester employed a graduate intern to identify the need for a Living Lab coordinator – this role is now a permanent Academic Engagement Officer.

The Challenge

Engagement: Reaching stakeholders

How to find the right students for the project/opportunity?

How to engage more academic or more operational staff/community in utilising Living Labs?

The Solutions

- Communication is key – to engage all stakeholder groups effectively it is necessary to use appropriate and diverse modes of communication
- Working closely with your institutions teams/ departments or staff who play a key role in communicating with different stakeholder groups and across the whole institution will help with the reach of communications
- Identifying the right people and obvious advocates for Living Labs can be challenging, it is important to recognise the appropriate language for the audience, i.e. arts focussed staff and students can find the 'lab' concept a barrier for engagement
- For some institutions there may be specific areas of study that engage and take up Living Labs organically, these can then be used as case studies to raise awareness, share good practice and encourage peer-to-peer learning.

The Case Study



THE UNIVERSITY of EDINBURGH

University of Edinburgh – Creation of public engagement role.



UWE sustainability team collaboration and networking with academic staff.

The Challenge

Creating a culture of partnership working: breaking down silos

How can you break out of a historic culture of siloed working with lack of collaborations at an interdisciplinary level and between academics/operational staff?

The Solutions

- It is likely there are colleagues within most institutions who are already offering some level of applied teaching, learning and research either through internal collaborative projects between operational staff and academics or academics working independently with their students. Identify who these individuals are through networking and relationship building and use these in-house examples to create some momentum and communications across the institution:
 - A large part of this work requires time, relationship building and networking.
 - A common theme throughout the case studies in this document and survey findings from our state of the sector survey found that in many instances Living Labs are happening organically in an ad-hoc way. Identifying these pockets of existing engagement can support the growth of a whole institution, coordinated approach to Living Labs.

The Case Study



University of
Salford
MANCHESTER

University of Salford – Business School academic promoting Living Labs approaches within their course and engaging with operational teams. University of Greenwich take a coordinated approach between academics and operational staff to raise awareness of opportunities and projects.

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