

# Living Smart Campus programme

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## 1 Introduction

On 11 January 2016, the preliminary document entitled ‘The Living Smart Campus’ was approved by the Executive Board. The Living Smart Campus (LSC) programme is a collection of campus development projects aimed at fulfilling the potential of the campus as a living lab. The LSC programme includes research projects, education projects, support projects and student initiatives,

all of which are geared towards utilizing the campus to achieve UT objectives. LSC projects illustrate the University of Twente’s goals: innovate - experiment - pioneer.

The campus embodies and combines the university’s core values: it is focused on society and driven by synergy, it is entrepreneurial and international, and reflects the community and experience at the university.

Over the years, a number of projects have been initiated in which the campus was used as a living lab, some of which continue to this day. However, as the initial exploratory report on establishing a campus services department (2015) also showed, there is a need for stronger coordination and connections in the field of campus development. Within the organization, there is a need to streamline the processes for Living Smart Campus projects more effectively with a view to enhancing the experimental potential of the campus. With this aim in mind, the Executive Board set up a steering committee to draw up a general outline of the Living Smart Campus programme (i.e. to translate Vision 2020 into campus development objectives) and to formulate an action plan for the organization and realization of objectives which could then be put to the Board for approval.

At the start of 2016, the steering committee invited the UT community to submit project proposals. This invitation met with an enthusiastic response. The steering committee and the project group received and reviewed about fifty proposals which have since been made available on the [Living Smart Campus](#) website. They were very impressed with the response and the standard of the submissions. All of them were appealing initiatives, ranging in scope from ‘a fun idea’ to complete long-term research proposals. It was fantastic to see the concept of the Living Smart Campus really come to life within the UT community. From all these proposals, six were selected for the purposes of implementation and monitoring. Monitoring the implementation of these projects in the pilot phase of Living Smart Campus

provided insights into the obstacles encountered and how these could have been prevented or removed as quickly as possible.

The appendix contains the outcomes (success factors and points for improvement) for the monitoring of the six projects. These outcomes provided the basis for developing a **Living Smart Campus programme**. The following sections explain the nature of the LSC programme, the need for an LSC programme, how the programme is organized by creating a Platform, the criteria set for the project proposals and how they are assessed by the Platform. The final section contains recommendations for setting up the organization.

## 2 The Living Smart Campus programme

### 2.1 What is the Living Smart Campus programme?

The Living Smart Campus programme provides an environment for working on complex social issues that call for scientific solutions. In the search for these solutions, the campus living environment becomes part of the experiments, offering a unique setting in which to prepare solutions before they are introduced into society. Students and scientists live and work close by, which makes the experiments easier to carry out while raising awareness of the work being conducted. This also strengthens the innovative capacity of the university: the greater awareness of LSC projects on campus enables various disciplines to respond rapidly where relevant (flywheel effect).

### 2.2 Why do we need a Living Smart Campus programme?

*External visibility and collaboration with business:* External parties have given us various indications that they lack awareness of on-campus projects which might be worth getting involved in. Projects from the Living Smart Campus programme have a higher profile, since they are projects in which the campus living environment is used as an experimental space. This makes it easier for companies to get involved.

*Internal connection and cooperation:* Another advantage of the LSC programme is the way in which it facilitates cooperation between groups within the university itself, since the Living Smart Campus brand also raises a project's profile within the UT community. Connections can be established and encouraged between projects that might not be perceived as connected without an umbrella programme. Several project proponents have already indicated their desire to be included in the LSC programme for this very reason.

*Faster implementation process and integrated approach:* The UT community is buzzing with ideas but putting them into practice is not always a quick and easy process. The LSC pilot phase revealed that facilitating implementation through an LSC programme speeds up the launch of a project: the flywheel effect definitely works. In addition, integrated collaboration is something that the UT should be promoting, organizing and facilitating: the LSC programme helps this process along.

*Easier identification of projects:* It will be some time before the campus will actually be used as an experimental space. Thanks to the programme, projects will be identified more readily. After two years, a review will take place to decide whether the programme is still needed for this purpose or whether projects can be initiated and set up independently and then embedded in the existing organization.

### 2.3 Initiative or LSC project; realization through existing channels or via the Living Smart Campus Platform

At the University of Twente, we actively encourage the development of yet more LSC projects. However, this does not mean that other kinds of initiatives or projects should not be supported or rolled out.

We distinguish two categories, each of which should be supported and implemented by the organization in their own way.

1. There are general initiatives which involve making use of the campus living environment. These initiatives (e.g. events, student projects) deserve thorough and high-quality support through the existing channels.
2. The second category focuses on the use of the campus as both living environment and space for experimentation. Anyone with an idea that:
  - a. fits the description given in the Living Smart Campus programme (§ 2.1)
  - b. meets the criteria set out in the section below, and
  - c. is part of the UT communitycan submit a project proposal to the **Living Smart Campus Platform**.

For this category of ideas, the LSC Platform is the first port of call.

Members of the Platform (see § 4.2 for composition) have three tasks:

- To assess whether the idea is relevant to the Living Smart Campus programme. If so, the Platform accepts the proposal. If not, the proponent is referred to a setting that will allow them to proceed with their idea.
- Providing follow-up and connection: The Platform enables proponents to connect with the relevant people inside (and outside) the organization to move the project along and ensure follow-up.
- Monitoring: To enable people to learn and make adjustments where necessary, one Platform member (i.e. the portfolio holder for an LSC project) will keep track of what works and what doesn't in the implementation of the project. This helps to remove unnecessary obstacles where possible and gives the organization more opportunity to learn.

This all means that, from the beginning, a member of the Platform is assigned to each project submitted, in the role of portfolio holder. He or she keeps a watchful eye on the process. Given the expected diversity of projects, the Platform is staffed by people from various parts of the university: academic staff, support staff and students. The aim is to recruit pioneers who have a wide-ranging perspective and the ability to bring people together.

The Platform's members and working method will be discussed in greater detail later in this document.

## 2.4 Criteria for LSC projects in the future

Every LSC project should ideally meet all of the requirements outlined below.

- Scientifically challenging or something that is typical of the academic community
- Focused on society
- Could spark debate
- External involvement (of non-UT parties) is strongly preferred
- Interdisciplinary or multidisciplinary
- Should involve scientific as well support staff (this may be different for student initiatives)
- Short-term (total duration max. 2 years)
- Already funded or likely to obtain own funding

## 2.5 Added value of participation in the LSC programme

The following aspects make participation in the LSC programme an attractive proposition:

- Platform for experimentation
- Executive commitment
- Access to support services can be implemented more easily
- Greater potential for possible connections with other parts of UT
- Direct access to financial advice for obtaining funding and developing business models thanks to involvement of Kennispark
- Greater exposure for the project

## 3 What is needed to set up the LSC programme

During the experimental phase of the Living Smart Campus programme in early 2016, six projects were monitored. Particular attention was paid to the following points:

- Rolling out new equipment (who do I need to contact?)
- Privacy/ethical issues (who can I talk to about this?), including data storage
- Which members of the academic or support staff do I need to consult?
- Permission issues (who is responsible?)
- Obtaining funds (who can help?)
- Reinforcing commitment/connection to UT organization
- Arranging location on campus
- Communication (internal/external)
- How to find/involve external partners
- Coordination

The results (see appendix) have led to the organization of the following elements within a Living Smart Campus programme:

- An ongoing call for proposals, facilitated by modern and innovative communications channels, combined with LSC workshops to encourage connections and personal encounters and to spark mutual inspiration.
- A single recognizable point for campus activities: it is clear where proposals can be submitted (Living Smart Campus Platform).
- Assigning a person from the organization to a project, someone who thinks constructively and proactively, and who has a broad orientation and the ability to bring people together (member of the Living Smart Campus Platform).
- Ownership remains with the project proponent, who shares responsibility for follow-up support with the member of the Platform assigned to the project.
- Online LSC community platform: a digital representation of initiatives, providing visibility for successes and good practices, combined with effective internal and external PR.  
For this purpose, develop a visible and accessible platform for internal and external parties (an online community along the lines of [Amsterdam Smart City](#)), in which everyone can take part. External visibility is particularly useful in terms of attracting companies that want to work with our academic staff and students to carry out an experiment on campus. This requires setting up a back office to maintain the online platform and ensure active, 24/7 accessibility.
- Organized communication with stakeholders about the workings of the project (how the programme selects, monitors and evaluates the projects submitted)
- A 'yes we can' and 'can do' mentality in the organization: getting things done together

## 4 Working method for Living Smart Campus programme

We anticipate that proposals will be submitted to the LSC programme on a very regular basis. It is envisaged that all projects for which the campus living environment serves as the experimental setting will come under the banner of the LSC programme. Any exceptions must be explicitly assigned.

To a greater or lesser extent, the project proposals follow an iterative process of submission, review, and final acceptance/rejection.

Accepted projects will be monitored throughout their lifetime, if only to see if they still meet the original conditions for acceptance. If they no longer meet these conditions, then the Platform will advise to end their status as an LSC project. In any event, LSC projects are subject to a two-year maximum, after which time its LSC status will end and it can continue under a different name if necessary or desirable.

Assessment of project proposals, follow-up support and monitoring of projects is carried out by the members of the **Living Smart Campus Platform**.

### 4.1 Process for submitting new proposals and monitoring existing projects

Every campus resident can submit a project proposal to the **Living Smart Campus Platform**. Any proposal should at least meet the criteria specified in § 2.4.

The members of the Platform are responsible for assessing a proposal. That can be done by the

members themselves but, where necessary, advice is sought from third parties.

Assessment of project proposals is a transparent process carried out by experts using objective criteria. After a proposal is submitted, there are three possible assessment outcomes:

- Inclusion in the LSC programme
- Request for modification followed by inclusion in the LSC programme\*
- No inclusion in the LSC programme, but possible continuation of the initiative outside the programme.  
*\* When modification of the proposal is requested, the proponent is given a list of points for improvement and is invited to resubmit once these have been made.*

Ongoing projects are regularly monitored by members of the **Living Smart Campus Platform** as regards their progress and compliance with the LSC criteria.

## 4.2 Composition of the Living Smart Campus Platform

### **Conditions:**

- The Platform works effectively and efficiently and is therefore accountable for how it functions (transparency).
- The Platform has a clear point of contact (coordinator and the online platform).
- The members serve on the Platform for a set term.
- The Platform is open at all times to questions regarding the status of the programme's projects.
- The Platform is diverse in composition, reflecting the expected diversity of the LSC projects.
- The collective expertise available within the Platform should, in principle, be sufficient for assessing proposals and ongoing projects. Where this is not the case, the Platform will involve external experts in the assessment of a proposal.

### **Proposed composition of the Living Smart Campus Platform:**

- Members of the Living Smart Campus Platform:
  - Academic staff (max. 5), who jointly reflect the breadth of UT research
  - Support staff (max. 3), jointly covering relevant campus facilities and with a broad perspective on the range of services provided
  - Students (max. 2)
  - A Platform coordinator who functions as a catalyst and a connector (a hands-on type of person)
  - A communication coordinator, focusing on internal, external and online communications
- The Platform will appoint a chairperson from among its members.
- Members are appointed by and accountable to the Executive Board.
- Members should be capable of deputizing for one other and bear joint responsibility.
- Staff members of the Platform are appointed for a period of three years, student members for one year.

Each member of the LSC Platform is linked to a project and acts as a point of contact for that project, connects with other parts of the organization, monitors project processes and helps remove obstacles where necessary.

Monitoring the process of LSC projects from submission to completion takes place within the Platform.

## 5 Recommendations for organization

### 5.1 One-stop-shop support for LSC projects and mainstream initiatives

The pilot phase of the LSC programme has clearly shown that solid support is essential, not only for LSC projects but also for initiatives that do not fit within the LSC programme but make use of the campus as a living environment. Students in particular but also a number of employees and external parties have pointed out areas for improvement with regard to implementation, responsibilities and powers. This concerns support from various service departments or parts thereof. While the six-project pilot phase of the LSC programme has given no evidence that support for LSC or other projects should be incorporated into a single service, it has shown that the programme should be more effectively coordinated and fully accessible within a one-stop-shop structure (probably online).

### 5.2 Support aims for the Living Smart Campus programme

The pilot phase of the Living Smart Campus programme has highlighted the need to set up a programme organization to efficiently and effectively utilize the campus living environment as part of experiments. That is the aim of the present proposal.

Project proposals are submitted to the LSC programme throughout the year. The members of the Platform assess the proposals at regular intervals. A number of these proposals will generate 'ad hoc' and customer-oriented support work. This requires a degree of organizational flexibility and the scope to deploy time and manpower, from the service departments in particular. This should also be reflected in the service departments' annual cycle and annual plan. The regularity with which the Platform assesses project proposals will at least ensure transparency as to the periods during which the service departments can expect demands to be made of them. This can be planned to a limited extent.

### 5.3 Consistent policy on and implementation of privacy policy, data storage and ethical review

Various projects in the pilot phase of LSC have revealed the need to formulate clearer and more consistent policies on privacy issues, data storage and ethical review. Much of the infrastructure is already in place (e.g. ethics committees in some faculties, policy documents, working groups and relevant officials) but a consistent approach is lacking. In addition, there is a need for comprehensive and readily accessible certified data storage for anonymous data, personal data and sensitive data. A more uniform approach to ethical review is also needed. The University of Twente is at risk if these aspects are not properly secured and if its academic staff fail to comply with legal guidelines. It is

therefore essential within the LSC programme that a clear and consistent policy exists in these areas and that it is properly applied by academic and support staff in practice.

## APPENDIX

The following main points were considered with regard to monitoring. The results have been reported to the LSC project group and served as input for the present document.

- Rolling out new equipment (who do I need to contact?)
- Privacy/ethical issues (who can I talk to about this?), including data storage
- Which members of the academic or support staff do I need to consult?
- Permission issues (who is responsible?)
- Obtaining funds (who can help?)
- Reinforcing commitment/connection to UT organization
- Arranging location on campus
- Communication (internal/external)
- How to find/involve external partners
- Coordination

During the pilot phase of the LSC programme, the following findings were reported to the LSC project and steering committees.

### Success factors

<b>Rolling out new equipment (who do I need to contact?)</b>	Assistance from account manager (i.e. connector) is a prerequisite for success (one-stop shop)
<b>Privacy/ethical issues (who can I talk to about this?)</b>	Someone involved in the primary process submits study to ethics committee; this is a standard requirement for behavioural research.
<b>Which members of the academic or support staff do I need to consult?</b>	Workshop concept extremely well suited to encouraging connection
	Easy to find linchpin due to good connections
	Enough academic staff willing to be considered for Healthy Heroes
<b>Permission issues (who is responsible?)</b>	It is assumed that these matters will be settled quickly due to participation in LSC
<b>Obtaining funds (who can help?)</b>	Escape Room (ER) receives sponsorship funding from Marketing & Communications (M&C) in exchange for marketing/promotion

	Sponsor has a considerable interest in project results
	De Veste keen to intensify partnership with UT
	MIRA shoulders costs for Healthy Heroes case study
<b>Reinforcing commitment/connection to UT organization</b>	Library, IT Services and Archive (LISA) and Facility Service Centre (FSC) assist in organizing infrastructure
<b>Arranging location on campus</b>	Coming up with own solutions to find a place on O&O Square
<b>Communication (internal/external)</b>	Rapid, effective communication through deployment of partner's communications department
	After the fact, project owners want to write a piece about ER for LSC
	Through FSC, a screen for scores has been made available within LSC
	M&C will cover costs for use of LED screens. Currently scouting for a cut-rate location.
<b>How to find/involve external partners</b>	Interest in LoRa network from Province of Overijssel, Water Board, Saxion
	Reports on LSC have led to companies (most notably SMEs) seeking cooperation
<b>Coordination</b>	Ensure good feedback with reasons why projects can or cannot proceed
	Support of Executive Board is important for motivation
	Important to have first point of contact at UT: someone with broad orientation
	Coordinating discussions with other ongoing projects PPCM/IoT/SAB. Survey in the works to collect and better coordinate information on existing and planned sensing/communication infrastructure initiatives

### Points for improvement

<b>Rolling out new equipment (who do I need to contact?)</b>	There are many parties involved in installing antennas. Meeting with six people is a time-consuming process. First of all we need to know who is in charge.
<i>Action to be taken by LSC connector</i>	Students do not have access to the necessary tools
	No power available for jobs or during the challenge. FSC has arranged an external company.
	Project group unfamiliar with pathways for installing systems for Healthy Heroes
<b>Privacy/ethical issues (who can I talk to about this?)</b>	Privacy issue; knowledge of VSNU code is not present at UT
<i>Living Smart Campus Office to provide information</i>	While participants are in the containers, the organization maintains camera surveillance. Should the participants be informed? Not clear who is responsible.
	Applied Physics knows a great deal about legislation on storage of medical data, but lacks knowledge about the groups affected by these issues. There is no UT-wide policy. And if there were, how could it be enforced?
<b>Which members of the academic or support staff do I need to consult?</b>	Employees involved in the primary process need to declare the time they devote to these projects
<b>Permission issues (who is responsible?)</b>	Who decides where scanners should be installed? Who is in charge of what?
<i>Action to be taken by LSC connector</i>	Who decides where antennas should be installed? Who is in charge of what?
<i>Draw up solid permission guidelines</i>	Permission issues; the progress of a process can depend on whether you 'happen to know someone'. FSC's culture is not proactive: decisions motivated by fear of setting a precedent.
<i>Living Smart Campus Office to provide information</i>	Who is familiar with the Events Office (or its work)?
	Who is responsible for placing banners? Approval from the director of M&C is not sufficient. Once again permission will have to be asked for each building separately.
	Handover within FSC was not clear.
	For the continuation of the Battle, it is important that contacts remain intact.

<b>Obtaining funds – who can help?</b>	Sponsorship difficult / lengthy SU application process; unfamiliar with conditions
<i>Criteria: involvement of external party</i>	Sponsorship has been arranged this time around, but how should it be arranged in future?
	Sponsorship funds are only paid after the fact. The people behind the project have to provide their own funding in advance.
	De Veste is keen to intensify partnership with UT – where should this be discussed?
<b>Reinforcing commitment/connection to UT organization</b>	
<b>Arranging location on campus</b>	Availability of O&O Square is a problem due to other activities
<i>Action to be taken by LSC connector</i>	Create a single platform to arrange locations for events on campus
<b>Communication (internal/external)</b>	It is unclear how campus residents are informed and by whom
<i>LSC digital portal</i>	Use of electronic billboard must be reimbursed. Will UT pay for this?
	Accessibility of staff portal is too limited
	Website is 'separate' from UT and LSC, which restricts its profile. UT/LSC should feature in all forms of communication within projects
	Communicating initiatives and results – high profile attracts more interest (flywheel effect) on many fronts
<b>How to find/involve external partners</b>	
<b>Coordination</b>	
<b>Other issues / support needs</b>	Initiatives (and their progress) are vulnerable due to students' terms of office
	It needs to be made clear that the campus can be seen as a comparable target group.
	The Battle will generate a large quantity of data. The question is: what can UT do with it in terms of teaching and research? It is important to make connections in this regard.

## LSC Feedback Workshop, 12 May 2016

Input from the Living Smart Campus workshop held on 12 May 2016, where the six projects presented their main concerns during the pilot phase of the LSC programme. This has also been used as input for the present document

LSC project groups	Two main concerns
Privacy-preserving crowd monitoring	<ul style="list-style-type: none"> <li>- Privacy issue, regulation, ethical aspects etc. of collection of data. An FAQ has now been drawn up by CTIT. Opt Out option: what to do if you do not want to introduce this (difficult issues vs what the rules say is acceptable). More thought needs to be given to these issues within UT to arrive at regulations and keep them up to date.</li> <li>- Project leader is very busy (lack of time)</li> </ul>
IoT Twente; the Internet of Things	<ul style="list-style-type: none"> <li>- Overview and better coordination of other initiatives.</li> <li>- Lack of transparency for some implementation processes: post when ordering/delivering equipment.</li> <li>- Outdated IT records.</li> <li>- No clear decision-making process: several people able to decide on the same topic independently.</li> <li>- Lack of coordination for research projects and experimental activities, no combined use of technology and facilities, infrastructure, laboratories, data sources.</li> <li>- The same applies to coordination within educational initiatives and between research and education projects – more needs to be shared. Coordination should be centralized: one-stop shop.</li> <li>- Greater support expected from communication and support/implementation of internal projects instead of external initiatives.</li> </ul>
A Smart European TechMed centre - Healthy Heroes	<ul style="list-style-type: none"> <li>- Medical-ethical/data privacy: those involved not always able to connect with one another, no coordination, no clear organization, various rules are applied. No policy implementation: UT-wide scheme for data storage; accessible, certified and safeguarded by the ethics committee(s). Policy documents with no practical implementation. Policy drafters should be more in touch with the primary process.</li> </ul>
Green Office Twente (GO Twente)	<ul style="list-style-type: none"> <li>- Hard to find direct point of contact: one person needs to fulfil this role.</li> <li>- Communication within the working group difficult.</li> <li>- Time is also a factor.</li> </ul>
Escape Room	<ul style="list-style-type: none"> <li>- We shouldn't have to rely on LSC programme to open doors.</li> <li>- A central place needed to link projects to research.</li> </ul>
Sustainabattle	<ul style="list-style-type: none"> <li>- Sharing information and knowledge: there was a smart meter for Witbreuksweg. There was therefore no need to purchase watches for that part of the project: the data was already available.</li> <li>- Project management, target specification, making things</li> </ul>

	<p>measurable and ‘selling’ them, generating commitment is a time-consuming process. As is involving external partners. Project can grow and there can be more collaboration with others.</p> <ul style="list-style-type: none"> <li>- More PR needs to be generated for LSC projects.</li> </ul>
<b>Benefits/added value of participation in the LSC programme</b>	<ul style="list-style-type: none"> <li>- Possible connections with other projects during workshops / cross-pollination, creates a network.</li> <li>- Doors can suddenly open which enable matters to be settled.</li> <li>- Cooperation with research made possible through connection created by LSC.</li> <li>- No perceived bureaucracy.</li> <li>- Active approach by academic staff, geared towards creating high-profile work to which fellow academics can respond.</li> </ul>

**Other sources used as input for present document:**

Experiences of a former FSC director (prior to October 2015) and projects such as Outdoor Fitness - UT Boot Camp were also referred to in creating this document.

The former FSC director’s experiences show among other things that the need to develop a one-stop shop for certain services has existed for some time, not only to provide effective support but also to present a clear and accessible profile to the UT community. Other important preconditions for utilizing the campus as an experimental space include scope for investment, staff capacity and giving exposure to academic staff.

The experience gained from the Outdoor Fitness – UT Boot Camp project shows that the success of a particular project on campus is mainly determined by:

- 1) healthy cooperation and enthusiasm among the parties involved and
- 2) setting a tight deadline.