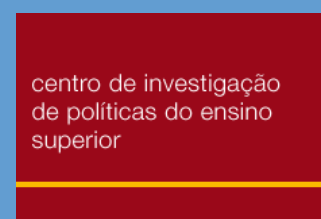




# PRINCIPLES OF DESIGN AND IMPLEMENTATION OF L&T SPACES: LESSONS LEARNT FROM GERMAN AND PORTUGUESE HIGHER EDUCATION

T. LEIBER, V. CARLOS, S. BRUCKMANN, M.J. ROSA



# Agenda

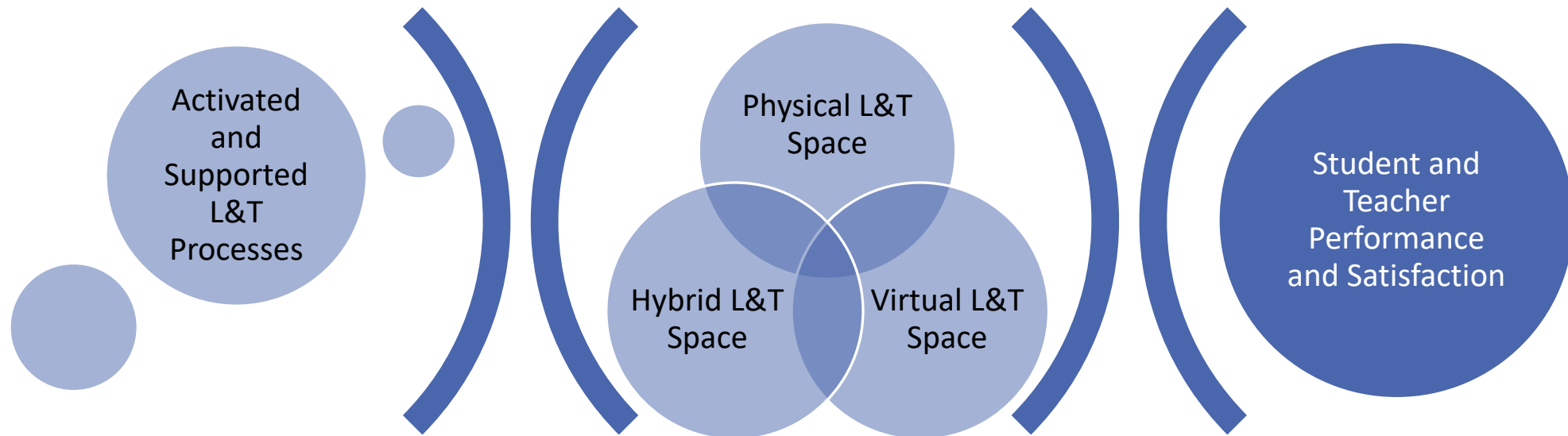
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- ✓ **Introduction**
- ✓ **Methodology**
- ✓ **Results:** a comparative SWOT analysis of policies and practice of the design and implementation of L&T spaces
  - ✓ The **HE system** and the **HEIs** in **Germany**
  - ✓ The **HE system** and the **HEIs** in **Portugal**
- ✓ **Conclusions:** recommendations and principles for the design and implementation of L&T spaces in HE

# Introduction

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The role and importance of L&T spaces in HEIs has long marked an under-researched topic (P. Temple, 2008)

# Introduction

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The **Education and Training 2020 framework** and the **EU agenda for HE**: priority to the support of effective and efficient HE systems, which includes bringing **pedagogical innovation into the classroom**



Strong scientific evidence shows the **efficacy of active learning strategies**



But ... active learning strategies implementation needs **flexible and technology-enriched new L&T spaces** supporting active, real world-centred and cross-disciplinary problem-solving L&T methodologies

# Introduction

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Space affects ingredients of L&T behaviour and learning success



Three **major trends** inform current L&T space design:

- 1) **Learning principles** to support social and active learning strategies
- 2) **Human-centred design**
- 3) **Digital devices** that enrich learning

# Introduction

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Against this backdrop and based on results of the Erasmus+ Strategic Partnership  
*Learning and teaching space in higher education (LTSHE 2021)*

Comparative analysis of the practice and policies of the design and  
implementation of L&T spaces

Scholarly literature analysis of principles  
for L&T space design and of criteria of  
theoretical frameworks for assessing  
L&T spaces

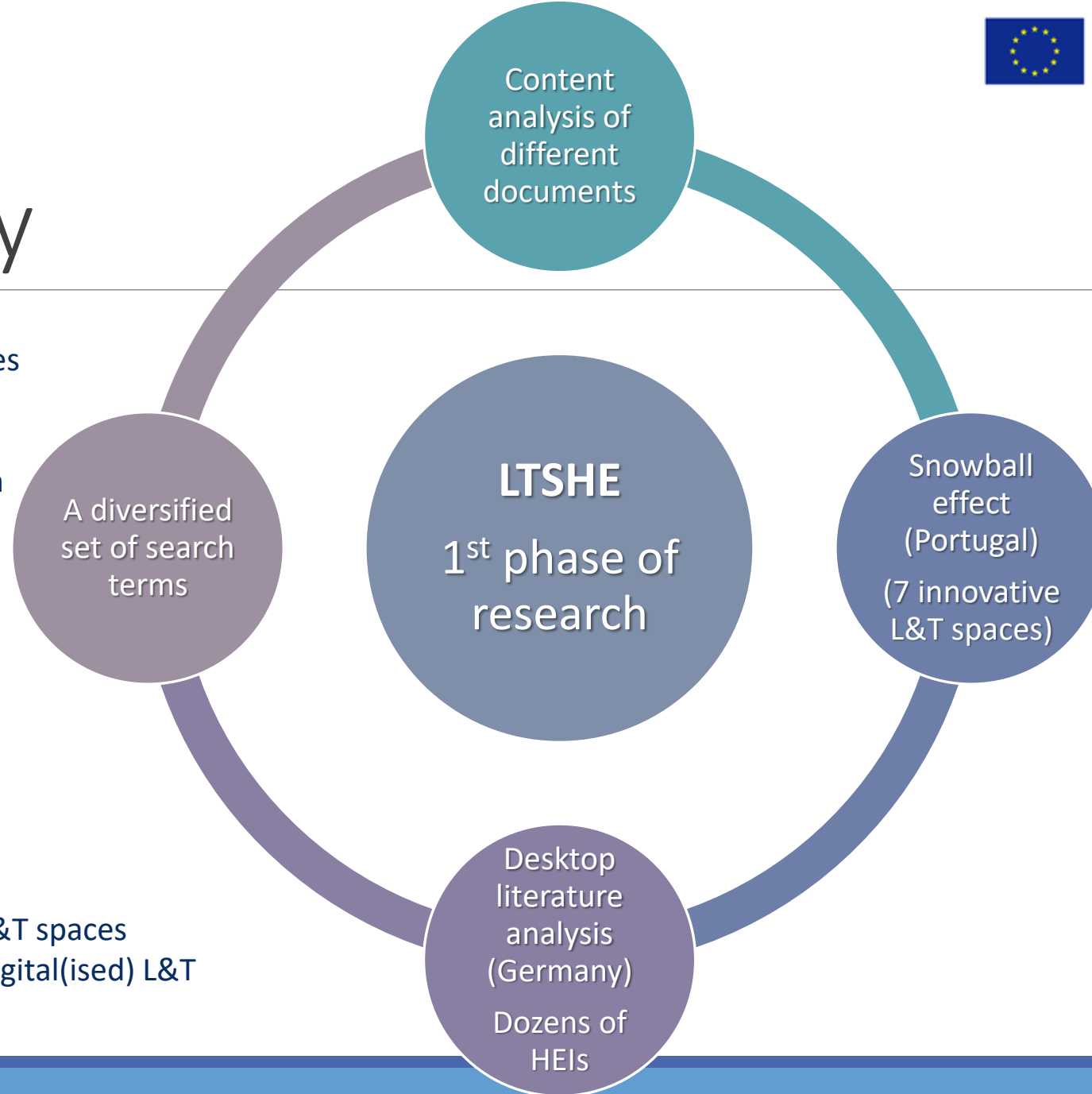
German HE system  
(national and institutional levels)

Portuguese HE system  
(national and institutional levels)

**Preliminary list of tentative principles  
of design and implementation of HE  
L&T space(s)**

# Methodology

Digitalisation in HE  
HE funding programmes  
HE law  
University didactics  
University organisation  
University strategy  
Structure  
Infrastructure  
Room  
Teaching  
Innovative  
Space  
Area  
L&T in HE  
L&T spaces  
Quality assurance of L&T spaces  
Quality assurance of digital(ised) L&T  
Pedagogic innovation



# Results – HE System and HEIs in Germany

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## Strengths

- Education and HE are exclusively in the responsibility of the individual federal states
- Many HEIs are active in designing and implementing innovative L&T spaces (even before the Corona pandemic)
- L&T spaces are a general concern in the accreditation of study programmes and institutions

## Weaknesses

- Education and HE are exclusively in the responsibility of the individual federal states
- Activities are frequently based on time-limited project funding
- Activities are often carried out solely at individual HEIs
- Monitoring and stocktaking of the availability of L&T spaces, physical, hybrid and virtual, seems to be underdeveloped at individual HEIs
- Overarching strategies for renovation, modernisation and enhancement of L&T spaces are largely missing
- Lack of digital competencies of teachers (and students)



# Results – HE System and HEIs in Germany

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## Opportunities

- Provisions and requirements from HE politics are scarce (reflecting the freedom of L&T guaranteed by the German constitution)
- Individual organisational units of HEIs are provided with great scope for decision-making and action with respect to L&T spaces design and implementation

## Threats

- The institutional responsibilities and financing models for the realisation of spatial conversions and new HEI buildings are largely unclear
- Equipping public HEIs with room and space is notoriously underfunded, including L&T spaces

# Results – HE System and HEIs in Portugal

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## Strengths

- L&T spaces are a concern in the accreditation of study programmes and institutions
- Public universities' strategic and activities plans evidence the importance given to L&T spaces for the L&T process
- Specific cases of innovative L&T spaces

## Weaknesses

- Lack of references to L&T spaces in Portuguese national policy laws and regulations
- Digitalisation, didactics, pedagogy and curriculum design and the importance and status of physical L&T spaces almost absent from national laws
- Lack of specific information on L&T spaces that enhance innovative L&T in the universities' official documents
- Absence of themes such as demands of sustainability, internationalisation, diversity, inclusivity and quality assurance of design and implementation of L&T spaces in the universities' strategic documents

# Results – HE System and HEIs in Portugal

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## Opportunities

- Recent presence in the agendas of HEIs of concerns with L&T pedagogic innovation and improvement
- Decisions on L&T spaces left to institutions under their autonomy status regarding pedagogy
- Specific cases of innovative L&T spaces
- COVID19 pandemic crisis which brought the need for pedagogic innovation and digitalisation in HE – *Skills 4 pós-COVID – Competências para o Futuro* (Competences for the Future) initiative

## Threats

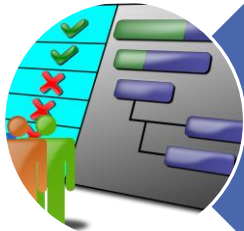
- Lack of funds for equipping HEIs with room and space, in particular innovative L&T spaces
- Decisions on L&T spaces left to institutions under their autonomy status regarding pedagogy

# Conclusions

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There are very scarce legal requirements, administrative regulations or strategic objectives concerning the design and implementation of L&T spaces in both Germany and Portugal



L&T space activities usually are HEI-specific, temporally limited projects with restricted options for interinstitutional and system-wide comparison and benchlearning



However, the results obtained can be related with sets of principles for the design and implementation of L&T spaces in HE available in the literature which helped to identify some principles for action

# Conclusions

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## Tentative principles of design and implementation of HE L&T space(s)

If L&T space metaphorically is considered the “third pedagogue” in addition to teachers and students, then the **design and implementation of L&T spaces in HE should be seen as a strategic core area**

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To **meet the diverse requirements** of all **different HEI stakeholders** the design and implementation of HE L&T spaces requires a **multi-perspective, inter- and transdisciplinary access**

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To **meet pedagogical requirements**, the HEIs’ strategies for the design and implementation of L&T architecture must be informed by **contemporary scientific knowledge about L&T processes**

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To meet the diverse requirements for L&T space design and implementation, **digital infrastructures are needed** to guarantee the necessary flexibility and modularity of L&T spaces

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# Conclusions

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## Tentative principles of design and implementation of HE L&T space(s)

Future-oriented Learning Worlds must be conceived according to “**User Centred Design**”, so that **users** can intuitively **understand** the **L&T spaces**, **use** them, and **experience** them in multi-sensory ways

**Innovative L&T spaces**, or future-oriented Learning Worlds, should not be conceived as either physical or virtual but as **integrative**

**Training** should be provided to the **teachers (and students)** that are going to develop their activities in the new L&T spaces

The design and implementation of L&T spaces must be **enduringly supported on organisational levels, financed**, and subjected to **continuous quality enhancement**

# Conclusions

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The analysis made has some **limitations**, mainly due to the **scarcity of information available**



In the future it would be interesting to **investigate more deeply more institutions where L&T innovative spaces have already been designed and/or implemented** to analyse **how far the proposed principles are in fact applied**



It would also be interesting to discuss the **implementation of innovative L&T spaces at different levels**: strategic, epistemological and operational. An **impact analysis** of the spaces on L&T improvement should also be undertaken

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