SQELT PROJECT (https://www.evalag.de/en/research/sqelt/the-project/):
https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/b8a93e06-2000-4a82-9fac-90b3bcacadec

SUSTAINABLE QUALITY ENHANCEMENT IN HIGHER EDUCATION LEARNING AND TEACHING.
Integrative Core Dataset and Performance Data Analytics.

SQELT Multiplier Event (Euro-Region Training Workshops) at Danube University Krems (DUK):

Learning and Teaching (L&T) Indicators in Higher Education: Propositions and Outlook

Where & When: Virtual (Zoom-based) Meeting (in English) on **Monday, November 30 (2020), 2:00-4:00pm** in the afternoon (**CET**).

CET time zone link: https://www.timeanddate.com/time/zones/cet

Program:

1. Theodor Leiber (Evaluationsagentur Baden-Württemberg, evalag) & David F. J. Campbell (Danube University Krems, DUK): Welcome Address, Introduction to SQELT Project (2:00-2:19pm);

2. David F. J. Campbell (Danube University Krems, DUK): L&T Indicators, Overview and Typology, Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (2:20-2:49pm);

3. Theodor Leiber (Evaluationsagentur Baden-Württemberg, evalag): The SQELT Strategic Partnership as a Case Study: (General) Perspectives and Insights for Benchlearning (2:50-3:19);

4. General Discussion (3:20-3:59pm);

5. Closure of the Multiplier Event at 4:00pm.

Registration link (English): https://www.donau-uni.ac.at/en/university/faculties/education-arts-architecture/departments/higher-education-research/news/teaching-and-learning-indicators.html

Registration link (German): https://www.donau-uni.ac.at/de/universitaet/fakultaeten/bildung-kunst-architektur/departments/hochschulforschung/news-veranstaltungen/veranstaltungen/2020/teaching-and-learning-indicators.html

Abstract and Context of the SQELT Project:

"Quality assurance (QA) and quality enhancement in higher education institutions (HEIs), particularly in learning and teaching (L&T), is more important than ever because of the requirements of knowledge societies and socio-economic mobility in a globalized world. … Therefore the SQELT project aims at establishing a comprehensive set of performance indicators (PIs) and quality evaluation instruments for assessing HEIs' performance quality in L&T. … The SQELT project intends to contribute to the 'Research on Indicators of Teaching Quality', which recently was also recommended to the European Parliament. … The project has six Transnational Project Meetings and nine Multiplier Events, among them one International Evaluation Workshop, one International Conference and seven Euro-Region Dissemination Workshops. … The main target groups of the SQELT project are HEIs' actors in L&T and stakeholders interested in L&T quality enhancement, such as students, parents, employers, HE politics, QA agencies." (https://www.evalag.de/forschung/sqelt/the-project/?L=76%27)

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Introduction to the Erasmus+ Strategic Partnership SQELT

(Sustainable Quality Enhancement in Higher Education Learning and Teaching)

Motivation, Goals and Methodology

Theodor Leiber
evalag (Evaluation Agency Baden-Wuerttemberg),
Mannheim, Germany

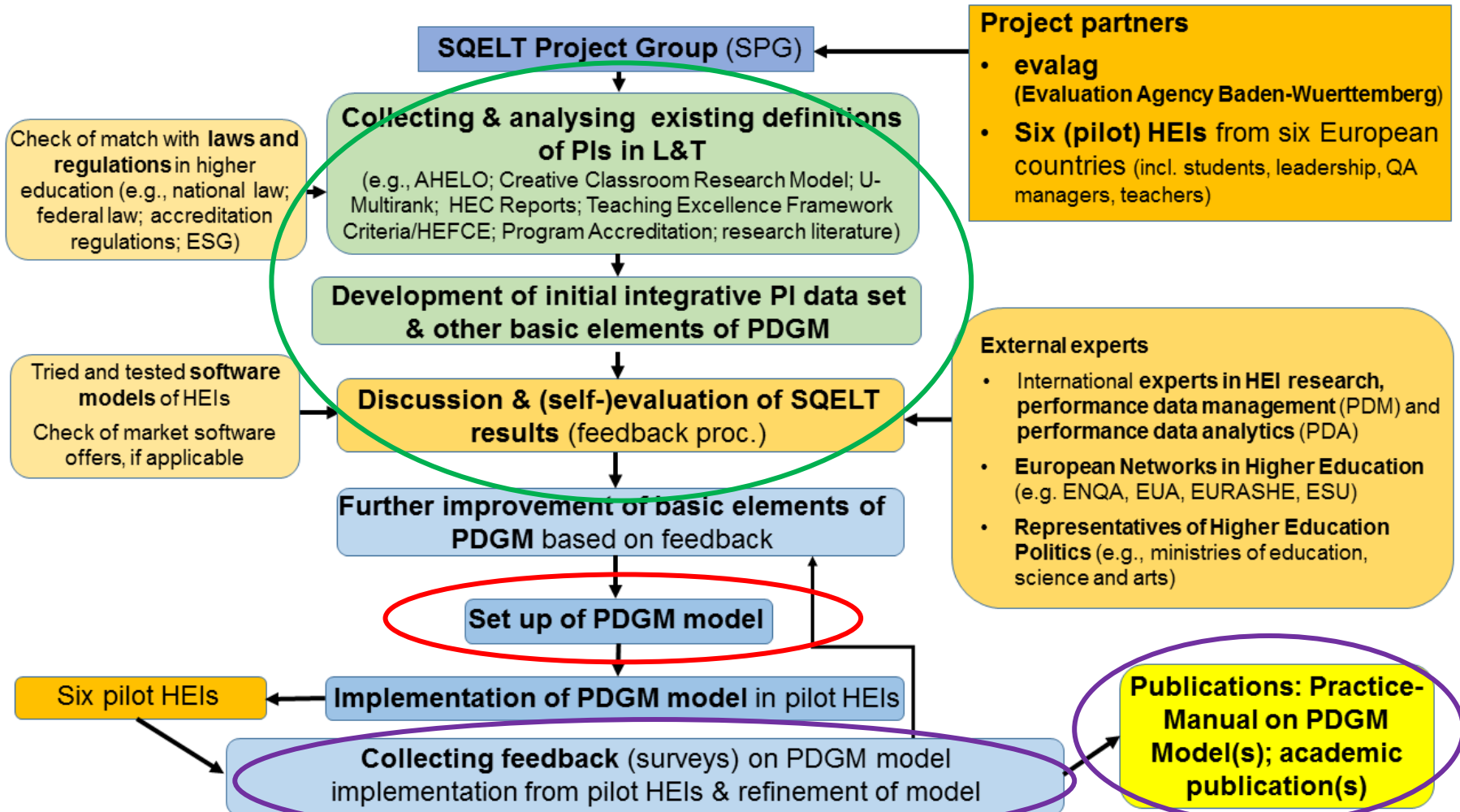### 3rd Multiplier Event – Euro-Region Workshop Austria
Danube University Krems, Austria, 30 November 2020

Strategic partnership and case study

Country	University	Characteristics	No. students
Austria	**Danube University Krems**	Further education	9,000
Belgium	**Ghent University**	Comprehensive university	41,000
Italy	**University of Milan**	Comprehensive university	63,000
Poland	**Jagiellonian University Kraków**	Comprehensive university	44,000
Portugal	**University of Aveiro**	Natural, social, engineering, medical sciences; polytechnics profile; Public foundation under private law	15,000
United Kingdom	**Birmingham City University**	Health social, engineering sciences; business and law; art, media and design; Polytechnics roots	24,000
Germany	evalag	HE research, evaluations, accreditations, counseling	n/a
Netherlands	M. Beerkens, Uni Leiden	External expert	–
Norway	B. Stensaker, Uni Oslo	External expert	–
Portugal	C. Sarrico, CIPES	External expert	–

Goals and methodology

Workflow (schematic main steps) of SQELT project (updated)

SQELT Project Group (SPG)

Project partners
- **evalag**
  (Evaluation Agency Baden-Wuerttemberg)
- **Six (pilot) HEIs** from six European countries (incl. students, leadership, QA managers, teachers)

Check of match with **laws and regulations** in higher education (e.g., national law; federal law; accreditation regulations; ESG)

Collecting & analysing existing definitions of PIs in L&T
(e.g., AHELO; Creative Classroom Research Model; U-Multirank; HEC Reports; Teaching Excellence Framework Criteria/HEFCE; Program Accreditation; research literature)

Development of initial integrative PI data set & other basic elements of PDGM

Tried and tested **software models** of HEIs
Check of market software offers, if applicable

Discussion & (self-)evaluation of SQELT results (feedback proc.)

External experts
- International **experts in HEI research, performance data management** (PDM) and **performance data analytics** (PDA)
- **European Networks in Higher Education** (e.g. ENQA, EUA, EURASHE, ESU)
- **Representatives of Higher Education Politics** (e.g., ministries of education, science and arts)

Further improvement of basic elements of PDGM based on feedback

Set up of PDGM model

Six pilot HEIs

Implementation of PDGM model in pilot HEIs

Collecting feedback (surveys) on PDGM model implementation from pilot HEIs & refinement of model

Publications: Practice-Manual on PDGM Model(s); academic publication(s)

3

Goals and methodology

- **Literature analysis and review** (qualitative content analysis & material inference)

- **Document analysis** (qualitative content analysis & material inference)

- **Six European universities: in-depth qualitative case study**

- **Focus group discussions** (Structured interviews)

- **Online survey**

- **Addressed stakeholders**
  - **Students**
  - **Teachers**
  - **Leadership**
  - **QM staff**
  - **(HE politics)**

Goals and methodology

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- Two main goals: **individual benchlearning** at partner HEIs & **intensive case study** including **generic results** (e.g. SQELT Guideline; publications) (e.g. Leiber, 2019b; SI in QHE)

- Aims at **comprehensive set of performance indicators** (PIs) **for L&T** and their **PDGM framework** (comprehensive: of large scope; covering or involving much; inclusive; thorough; far-reaching; broad; widespread; detailed; cross-disciplinary; different from "perfect")

- Builds on **available scholarly models of PDGM** in L&T, **pertinent/esearch literature**, **benchlearning** and **surveys** with respect to PDGM models of **sample HEIs**, and **external experts**' knowledge

- Builds on **various PI models** (e.g. AHELO; Creative Classroom Research Model (Uni Leuven); **U Multirank**; HEC Reports; TEF/HEFCE; Program Accreditation; **NSSE Engagement Indicators**; **QILT** (Australian Quality Indicators for L&T); …)
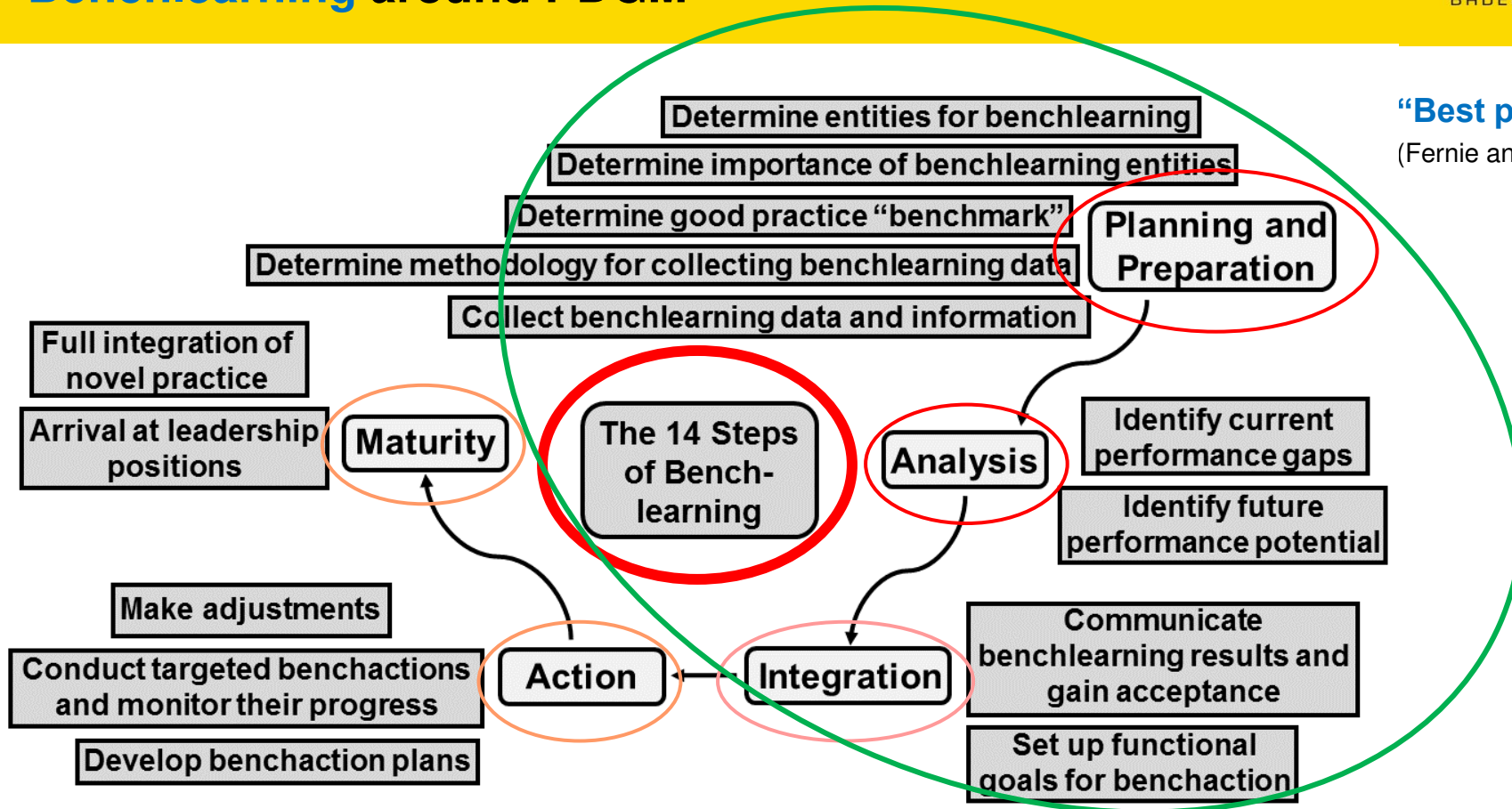
Outputs of SQELT project											
O20 Questio-nnaire	O1 6 Bench-learning Reports	O3 6 Baseline Reports	O4 Compre-hensive PI set	O5 Compre-hensive PI set	O6 Compre-hensive PI set	O7 Evaluation Report	O8 PDGM Policy	O9 Compre-hensive PI set	O10 Report on PI Assessment	O11 SQELT Guideline	O12 Publica-tions

Co-funded by the
Erasmus+ Programme
of the European Union

https://www.evalag.de/sqelt

Goals and methodology:
Benchlearning around PDGM

"Best practice is a myth"
(Fernie and Thorpe, 2007, p. 328)

Determine entities for benchlearning

Determine importance of benchlearning entities

Determine good practice "benchmark"

Determine methodology for collecting benchlearning data

Collect benchlearning data and information

Planning and Preparation

Full integration of novel practice

Arrival at leadership positions

Maturity

The 14 Steps of Bench-learning

Analysis

Identify current performance gaps

Identify future performance potential

Make adjustments

Conduct targeted benchactions and monitor their progress

Develop benchaction plans

Action

Integration

Communicate benchlearning results and gain acceptance

Set up functional goals for benchaction

Erfolgreiches Benchmarking
Lernen von den Besten
POCKET BUSINESS
Cornelsen

Benchlearning is a way of monitoring and assessing the strategies and performance of an organization against comparable, good-practice competitors; it includes an ongoing performance improvement strategy and change management process.

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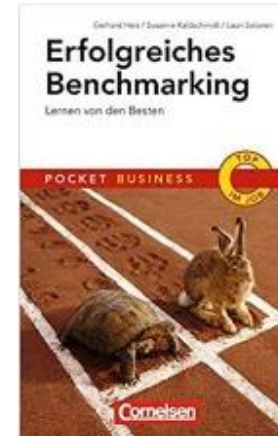
(Widespread) Anecdotal opinions & 'misunderstandings' around PIs in (L&T of) higher education (bring motivation)

- Unclear/vague/diverse concepts of: quality, performance, indicator, learning, teaching, etc.

- **Unclear** or even questionable **whether PIs are related to/grasp quality**/the degree to which quality performance objectives [can be or] are being met

- **Unclear how PIs are/can be measured**

- Related: "There are hundreds of L&T theories"

- (Tacit) Assumption that isolated PIs are sufficient for evidence-informed decision-making

- (Tacit) Assumption that a few core PIs suffice for decision-making and governance

- **No overview available in the form of a comprehensive PI set**

- **PIs are quantitative PIs only**

- Assumption that performance measurement issues can be communicated within 1:30 min

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Main results

- **SQELT Guideline** (open access document)

  - **Performance Data Governance and Management (PDGM) Policy**

  - **Comprehensive PI set**

  - **Ethical Code of Practice for (Performance) Data Management**

  - **…**

- **Peer-reviewed Publications**

Main results

- ## Publications

  - Leiber, T., 2019, **A general theory of learning and teaching and a related comprehensive set of performance indicators for higher education institutions**. *Quality in Higher Education* 25 (1), 76-97.

  - Leiber, T., 2020, **Performance data governance and management in learning and teaching: Basic elements and desiderata in the light of a European case study**. (accepted for publication; preprint)

  - Sarrico, C., 2021, **Quality Management and Performance Measurement in Higher Education: Main Challenges and Solution Approaches** (working title). (in preparation)

  - Beerkens, M., 2021, **Evidence-Informed Steering in Higher Education: From Performance Indicators to 'Big Data'** (working title). (in preparation)

  - Pohlenz, P., 2021, **Innovation, Professionalisation and Evaluation in Academic Teaching and Student Learning: Implications and Impact on Quality Management in Learning and Teaching** (working title). (in preparation)

  - Leiber, T., 2021, **Justifying and Contextualising Performance Indicators of Learning and Teaching: The Role of Theories of Learning and Teaching** (working title). (in preparation)

  - Bruckmann, S., Claeys, J., Costa, D., Kane, D., Rafael, J., Rosa, M., and Williams, J., 2021, **Learning Analytics and Data Ethics in Performance Data Management: A Benchlearning Exercise Involving Six EU Universities** (working title). (in preparation)

  - Barbato, G., Bugaj, J., Campbell, D., Cerbino, R., Ciesielski, P., Feliks, A., Milani, M., and Pausits, A., 2021, **Performance Indicators in Learning and Teaching Quality: Lessons from a European Research Project** (working title). (in preparation)

  - Huisman, J., and Stensaker, B., 2021, **Performance Governance and Management in Higher Education Revisited: International Developments and Perspectives** (working title). (in preparation)

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L&T Indicators, Overview and Typology, Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization

David F. J. Campbell

Department for Higher Education Research,

Danube University Krems (DUK), Krems, Austria

SQELT Multiplier Event 3 – Euro-Region Workshop Austria

30 November 2020
Danube University Krems, Austria

Table of Contents

- **What is Learning?**
- **Overview of L&T Indicators.**
- **Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization.**
- **References.**

What is Learning? (1)

- L&T is standing for: Learning and teaching.
- What is Learning, which is evidently the more difficult part to define.

What is Learning? (2)

- In a definition attempt of learning, reference should be made to the following publication.
- Campbell, D.F.J. & Pantelić, I. (2020) Processes of learning and processes of innovation, 1-6, in: E.G. Carayannis (ed.) (2020) Encyclopedia of Creativity, Invention, Innovation and Entrepreneurship (Living Edition). New York, NY: Springer, pp. 1-6. Available at https://link.springer.com/referenceworkentry/10.1007/978-1-4614-6616-1_200098-1
- The idea in this conceptual approach was to draw a connection between learning and innovation, if these are to thought about as processes.
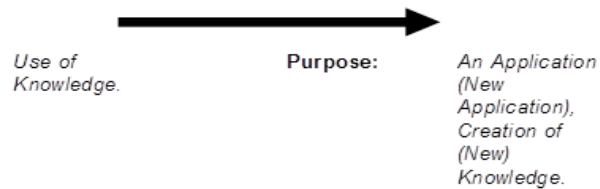
What is Learning? (3)

- Quotes from Campbell & Pantelić (2020).
- "Definition of the innovation process: **Innovation** = **is a process, where knowledge is being used for the purpose of a (new) application and where also (new) knowledge is being created**."
- "Definition of the learning process**: Learning** = is a process, where knowledge is being used for the purpose of a (new) application and where also (new) knowledge is being created, **and where an improvement, betterment, advancement, or a reform are being (or were) achieved**."

Figure 1: Learning and Learning Processes,
Innovation and Innovation Processes.

Innovation:
Innovation and Innovation Processes.

⟶

Use of   **Purpose:**   *An Application*
Knowledge.   *(New*
                                       Application),
                                       Creation of
                                       (New)
                                       Knowledge.

Learning:
Learning and Learning Processes.

⟶

Use of   **Purpose (1):**   *An Application*
Knowledge.   *(New*
                                          Application),
                                          Creation of
                                          (New)
                                          Knowledge.

                  Purpose (2):   *An*
                                          Improvement,
                                          Betterment,
                                          Advancement,
                                          or a Reform.
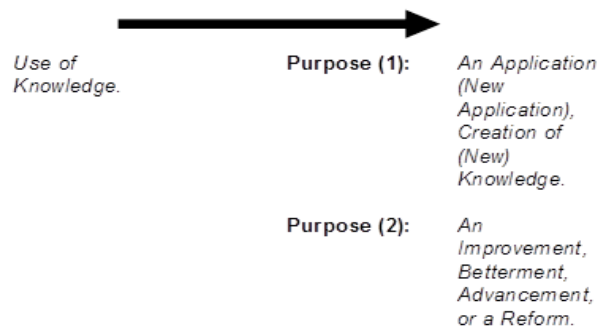
Source:
Authors' own conceptualization and visualization.

What is Learning? (5)

- Quotes from Campbell & Pantelić (2020).
- "Definition of the Learning Organization: **Learning Organization** = **is an organization that engages in innovation processes with a learning** ("learning innovation processes"), meaning that these are innovation processes that are leading to an improvement, betterment, advancement, or a reform."

Overview of L&T Indicators (1)

- **Type One: Performance Area of Teaching Competences and Processes.**
- **Examples:**
  - Teaching staff workload;
  - Quality of teaching staff, teaching and teaching staff engagement (teaching skills, teaching staff recruitment, teaching staff competences, overall quality of the student experience of teaching);
  - Contact with work environment (Internships/practical experience/work experience).

Overview of L&T Indicators (2)

- **Type Two: Performance Area of Learning Competences and Processes.**
- **Examples:**
  - Quality learning and student engagement (student workload, student interactions with learning content, student motivation, overall quality of learning experience).

Overview of L&T Indicators (3)

- **Type Three: Performance Area of Learning Outcomes and Learning Gain and Their Assessment.**
- **Examples:**
    - Student success (coursework and final examinations success, completion of study units, drop-out, prediction of success);
    - Contact with environment (internships, external teachers, theses with external cooperation);
    - Employability (employment situation after graduation, academic and career counselling for students, employer satisfaction with graduates)*;
    - Constructive alignment of study programmes / courses (learning outcomes);

    (*) In the Erasms+ project LaTFURE (Learning and Teaching Tools Fuelling University Relations with the Economy in Mozambique and South Africa), "employability" also defines a focus. See: https://www.latfure.eu/

Overview of L&T Indicators (4)

- **Type Three: Performance Area of Learning Outcomes and Learning Gain and Their Assessment – continued.**

- **Examples:**
  - Student learning gain with respect to general (higher) education competences and personality development (subject-matter competences, methodological competences, reflective competences, higher-order learning, action competences, learning strategies and self-learning competences, quantitative reasoning, digital skills, interdisciplinary competences, transdisciplinary competences, social competences, self-competences);
  - Assessment of learning outcomes (structure and form of assessments);
  - Study experience satisfaction.

Overview of L&T Indicators (5)

- **Type Four: Higher Education for Sustainable Development (HESD) Learning Goals and Competences.**

- **Examples:**
    - How do "cognitive", "socioemotional" and "behavioural" dimensions relate to different SDGs (Sustainable Development Goals).

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (1)

- PDM = Performance Data Management.
- PDGM = Performance Data Governance and Management.
- In the following, several considerations are to be reviewed.

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (2)

- **Teaching is easier than learning: "Teaching" appears to represent the easier task, in the sense that performance data on teaching already are more and better established.** There already are quality criteria and expectations for teaching, well elaborated, and being implemented for a longer period of time, so with routines to be assessed.

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (3)

- **Learning is more complicated than teaching: "Learning" obviously is the more complicated and less consensual aspect of L&T.** To begin with, it must be realized that learning is not restricted to teaching, but, of course, can also refer to other aspects and activities, such as research. L&T, i.e. that is learning in connection with teaching, emphasizes a learning with regard to teaching or a learning that is based on teaching. **So without teaching data a modeling of learning in teaching is not possible.** Different metaphors may apply for here. **Teaching can be regarded as a type of primary data (to a certain extent), and learning can be seen as meta-data (also to a certain extent).**

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (4)

- **A gradual conversion from teaching to learning:** In a certain sense, there is a gray area of overlap between complex performance data of teaching and the performance data of learning (based on teaching). **So performance data in connection with learning will try to create an over-look over time, want to assess, whether changes have occurred, and want to evaluate, whether such changes qualify to be valued as improvements (or not).** Because, phrased in terms of a simple formula: learning may be depicted as a process of innovation, which leads to (or results in) types of a betterment or improvement (Campbell and Pantelić, 2020).

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (5)

- **Data inform, but do not govern: L&T performance data can inform the management of L&T data, and can inform decision-making and governance, but L&T performance data cannot (and for sure not automatically) generate "by-itself" the decision-making and governance as such.** Good governance and decision-making should refer to performance data in teaching and learning, **but it is not the data that are creating the decision.**

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (6)

- **"Epistemic Governance" within a "Learning Organization":** A HEI should self-regard itself as a **"Learning Organization"**. This also must be taken into account for a systems model of PDM. **So the implication is that data are not only being defined, but also that the "underlying understanding" (or conceptual understanding) of the data is being made explicit.** For example, **the governance approach of "Epistemic Governance" (Campbell and Carayannis, 2013) is requiring this explicitly**. Particularly **with regard to learning (and here even more so than for teaching) it must be demonstrated, why data on learning really qualify as performance data on learning**. But of course, also performance data on teaching need explanations (a conceptual explanation).

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (7)

- **Quality assurance and quality development (quality enhancement) of performance data management:** A systems model of management of performance data in teaching and learning will mean that there are structures and processes of quality assurance and quality development (in connection with organizational development) in place. **Quality assurance can reflect on the accuracy of the L&T data (and indicators). Quality development can reflect on how to improve L&T data (and indicators), in the sense of progressing toward next-stage or next-generation data with advanced requirement purposes.** The aspect of "learning" marks here the one great frontier.

Performance Data Governance and Management (PDM & PDGM), Outlook on the Learning Organization (8)

- **Management and governance of performance data:** "Epistemic governance" is also highlighting that there should be an explicit understanding of how a "systems model of PDM in L&T" (performance data management) is relating to a PDGM (performance data governance and management) based on L&T. In other words: **Are performance data of L&T being used for governance, and if so, in which way? "Good governance" requires here fair and transparent conditions (and which are not changed and altered in unfair ways). There is a need for data protection.** Well-balanced interactions of PDM and PDGM require good designs of an integrated quality assurance and quality development, **so that a governance of a PDM (performance data management) of L&T can really contribute to a further organizational development in HEIs.**

References

- Campbell, D.F.J. & Carayannis, E.G. (2013) Epistemic Governance in Higher Education. Quality Enhancement of Universities for Development. (SpringerBriefs in Business.). New York, NY: Springer. Available at http://www.springer.com/business+%26+management/organization/book/978-1-4614-4417-6

- Campbell, D.F.J. & Pantelić, I. (2020) Processes of learning and processes of innovation, 1-6, in: E.G. Carayannis (ed.) (2020) Encyclopedia of Creativity, Invention, Innovation and Entrepreneurship (Living Edition). New York, NY: Springer, pp. 1-6. Available at https://link.springer.com/referenceworkentry/10.1007/978-1-4614-6616-1_200098-1

The SQELT Strategic Partnership as a Case Study: (General) Perspectives and Insights for Benchlearning

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SQELT Multiplier Event 3 – Euro-Region Workshop Austria

30 November 2020
Danube University Krems, Austria

Content

- **The SQELT Strategic Partnership as a case study**
- **Benchlearning model**
- **Areas of Benchlearning in Performance Data Governance & Management (PDGM) and their strategic SWOT analyses**
  - **PDGM Policy**
  - **(Digital) PDM system**
  - **Performance indicator set**
  - **Ethics of PDGM**
- **Conclusions** (selection)
- Open questions and limitations of the SQELT case study (selection)

Keywords: benchlearning; ethics of performance data governance and management (PDGM); PDGM policy; performance indicators; strategic SWOT analysis

The SQELT Strategic Partnership as in-depth case study

https://www.evalag.de/sqelt/

- Focused the object of **contextualised PDGM systems in L&T at six European HEIs** (representing the bounded system case)

- Used **multiple sources of evidence** for a **descriptive**, **exploratory** and **evaluative case study design** (Harrison et al., 2017, Section 4) which should tend to produce generic results.

- **Sources of evidence**: *focus group interviews* with *several stakeholder* groups (teachers, students, quality management staff, leadership); an *online survey* with the same stakeholder groups that were approached on national and European levels; *expert feedback* on selected project outputs; a *strategic SWOT analysis*; a comprehensive reception of *research literature*; and *discussion groups* at several multiplier events.

"Path-breaking research is, by definition, exploratory" (Gerring, 2004, p. 349).

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Benchlearning of PDGM and its areas

Systematic benchlearning is fundamental to any development and implementation process of PDGM
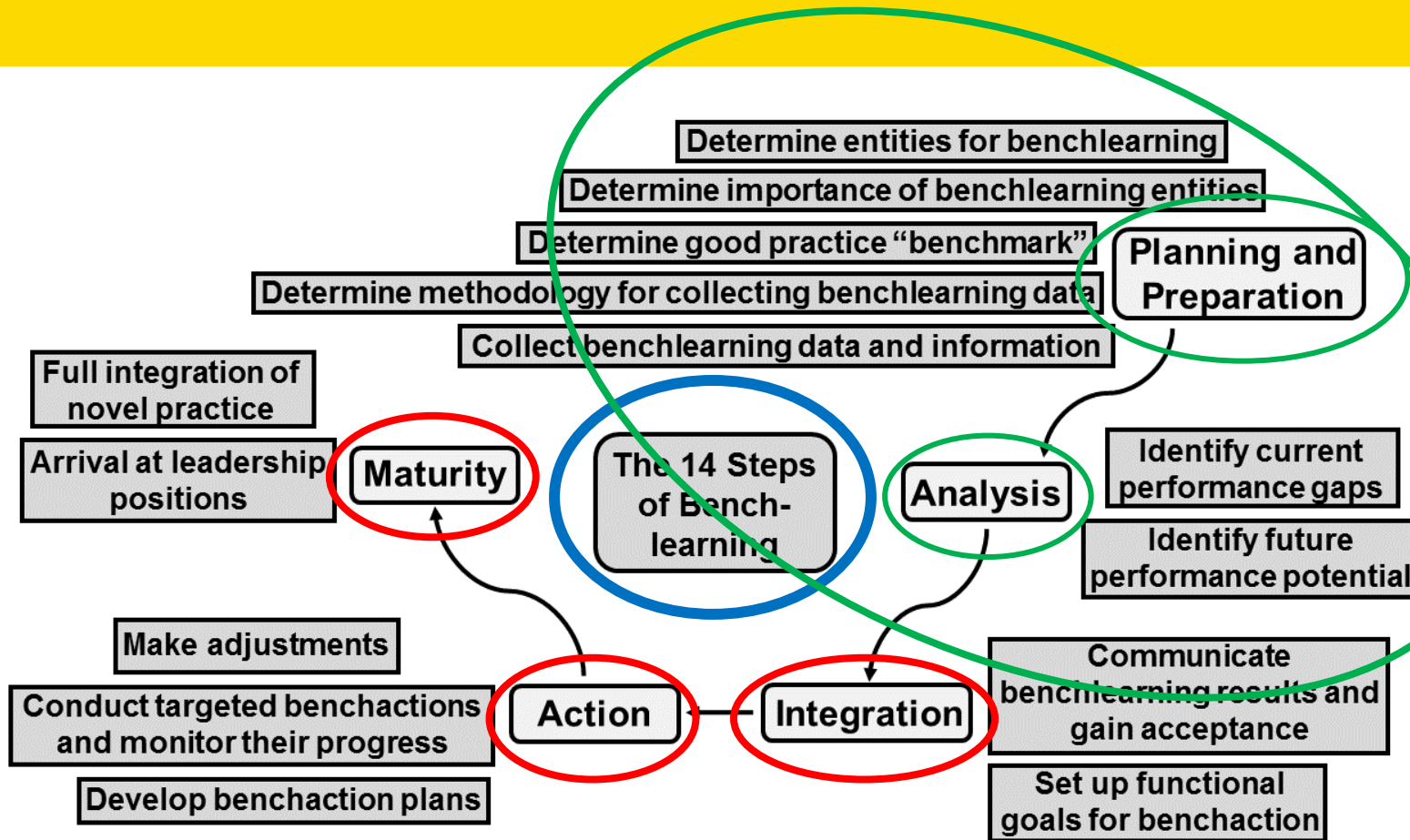
Dimensions of benchlearning object in SQELT case study

- **Performance Data Governance and Management** (PDGM) **Policy**

- (Digital) **Performance Data Management** (PDM) **System**

- **Performance Indicator** (PI) **Set**

- **Ethics** of PDGM

- **Resources**
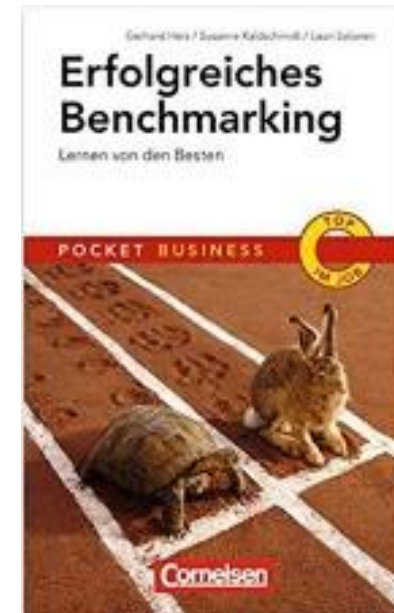
Focus on Analysis step of Benchlearning model

Benchlearning Model

Universally applicable
"best practice is a myth"
(Fernie & Thorpe, 2007, p. 328)

Determine entities for benchlearning
Determine importance of benchlearning entities
Determine good practice "benchmark"
Determine methodology for collecting benchlearning data
Collect benchlearning data and information

Full integration of novel practice

Arrival at leadership positions

Maturity

The 14 Steps of Bench-learning

Analysis

Planning and Preparation

Identify current performance gaps

Identify future performance potential

Make adjustments

Conduct targeted benchactions and monitor their progress

Develop benchaction plans

Action

Integration

Communicate benchlearning results and gain acceptance

Set up functional goals for benchaction

Cf. (Camp, 1994; Freytag & Hollensen, 2001; Leiber, 2020)

BENCHLEARNING is a way of monitoring and assessing the strategies and performance of an organisation against comparable, good-practice competitors; it includes an ongoing performance improvement strategy and change management process.

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5

Strategy matrix for SWOTs of a selected area of analysis/dimension of BL object

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	Weaknesses (W) (clearly defined; prioritised)				Opportunities (O) (clearly defined; prioritised)				Threats (T) (clearly defined; prioritised)			
	1.	2.	3.	...	1.	2.	3.	...	1.	2.	3.	...
Strengths (S) (clearly defined; prioritised)	**Strengths-based strategies to overcome weaknesses (S/W)**				**Strengths-based strategies to take advantage of opportunities (S/O)**				**Strengths-based strategies to avoid threats (S/T)**			
1.												
2.												
...												
Other measures	**Other measures to overcome weaknesses (M/W)**				**Other measures to take advantage of opportunities (M/O)**				**Other measures to avoid threats (M/T)**			
1.												
2.												
...												

Revised after (Leiber, Stensaker & Harvey, 2018, p. 355, Table 3)

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Strategy matrix "aims at **utilising strengths to overcome weaknesses, exploit opportunities and avoid threats**" (Leiber, Stensaker & Harvey, 2018, p. 355).

SWOTs of PDGM and its strategy matrix

Strengths	Weaknesses
1. **Recognition on institutional level/by leadership of the importance of performance data, PIs and their analysis and interpretation, particularly in L&T** (at certain sample HEIs)	1. **No (well-)developed PDGM at the institutional and/or faculty/department levels** (at certain sample HEIs)
2. **Recognition on institutional level/by leadership that staff and other stakeholders need to be able to access PDM data and information in appropriate and responsible ways** (at certain sample HEIs)	2. **No or poor representation of PDGM in mission statements** on various organisational levels
3. **Meta-strategic decision to build a HEI-wide PDM system that works for all relevant stakeholders in appropriate ways** (at certain sample HEIs)	3. **Performance data and information** is mainly, if not exclusively used for reporting (accountability towards HE politics and the public), **less for the enhancement** of **performance** (at certain sample HEIs)
4. **Willingness of leadership and staff to establish organisational structures and processes aimed at optimizing the processing and presentation of the collected performance data and information (e.g. installation of de-bureaucracy team; consolidation of IT works)** (at certain sample HEIs)	4. **Lack of leadership commitment** to PDGM
5. **Underpinning PDGM by established and accepted educational strategy** (at certain sample HEIs)	5. **A failing coordination between the goals of the HEI's management and the goals of the faculties** with respect to PDGM

Opportunities	Threats
–	–

Strategy matrix and its recommendations for organisational development

S \ W	1.	2.	3.	4.	5.
S/W					
1.	**Establish shared understanding of the various purposes** (evaluate; control; budget; motivate; promote; celebrate; learn; improve) **of PDGM at institutional leadership level and across the largely autonomous institutional (sub-) units**	**Introduce PDGM policy in HEI's strategy documents** (e.g. mission statements, structure and development plans) **on various organisational levels**	**Develop PDGM focus on performance enhancement (to supplement reporting and controlling)** (e.g. establish improvement-oriented QM)	**Improve on leadership commitment to PDGM** (e.g. define relevant leadership roles in PDGM)	–
2.					–
3.					**Establish working communication and coordination channels between HEI management and the faculties with respect to PDGM-related issues** (e.g. define the roles of leadership, management and academics)
4.					
5.	–				–
M **M/W**	…			…	…

(Leiber, 2020, Table 2)

Recommendations for PDGM Policy

PDGM Policy regulates issues of **PD strategy**, **governance**, **management**; **ethics** and **responsibility**, including **sustainability**, **quality**, **accessability** & **usability** of information & data about HEI performance; **investments** of human & financial resources

Core purposes of a **PDGM Policy** include (see „SQELT Guideline"; SQELT-MIO 2020)

- **Defining roles & responsibilities for different data creation & usage types, cases or situations, & establishing clear lines of accountability**;
- **Developing good quality practices for effective management & protection of (performance) data**;
- **Protecting the HEI's data against internal & external threats**; particularly, assuring protection of privacy, academic freedom, intellectual property, information security & compliance;
- Ensuring that the HEI handles (performance) data in **accordance with applicable laws, regulations & standards**;
- Ensuring that the HEI effectively **documents a (performance) data trail** within the processes associated with accessing, retrieving, exchanging, reporting, managing & storing of data.

(Leiber, 2020, Table 2)

8

Template[1]

Performance Data Governance and Management Policy (PDGMP)

of [insert name of higher education institution]

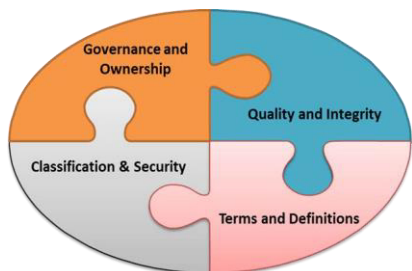With Focus on Performance Data of Learning and Teaching, including Learning Data Analytics, to be Accompanied by Supporting Documents

Governance Guidelines/PDGM Policy

Full version will be available after end of SQELT project (https://www.evalag.de/sqelt/)

Content

PDGM domains	Domain decisions	Potential roles or locus of responsibility
Data principles and responsibilities: clarifying the role of performance data (PD) as an asset and the responsibilities	What are the uses of performance data (PD) for the organisation (i.e. the university)? What are the mechanisms for communicating organisational uses of PD on an ongoing basis? What are the desirable behaviours for employing PD as assets? How are the opportunities for sharing and reuse of PD identified? How does the regulatory environment influence the organisational uses of PD?	PD owner, individual and organisational PD producer/supplier PD processor and dresser (e.g. ranker) PD steward PD custodian PD consumer Organisational PD committee/council
Data quality including data processes and technology: establishing the requirements of intended use of PD	What are the standards for PD quality with respect to accuracy, timeliness, completeness and credibility? What is the strategy for establishing and communicating PD quality? How will PD quality as well as the associated strategy be evaluated?	PD owner, individual and organisational PD subject matter expert PD quality manager PD quality analyst
Data interpretation: establishing the semantics of PD to make it interpretable	What is the program for documenting the semantics of PD? How will PD be consistently defined and modelled so that it is interpretable? What is the plan to keep different types of meta-PD up-to-date?	Organisation PD architect Organisation PD modeller PD modelling engineer PD architect Organisation architecture committee
Data access: specifying access requirements of PD	What is the organisational value of PD? How will risk assessment be conducted on an ongoing basis? How will assessment results be integrated with the overall compliance monitoring efforts? What are PD access standards and procedures? What is the program for periodic monitoring and audit for compliance? How is security awareness and education disseminated? What is the program for backup and recovery?	PD owner, individual and organisational PD beneficiary Chief information security officer PD security officer Technical security analyst Organisation architecture development committee
Data life cycle: determining the definition, production, retention and retirement of PD	How is PD inventoried? What is the program for PD definition, production, retention, and retirement for different types of PD? How do the compliance issues related to legislation affect PD retention and archiving?	Organisation PD architect Information chain manager

Framework issues for PDGM, adopted from (Kathri & Brown, 2010, p. 149) with revisions

SWOTs of PIs and its strategy matrix

Strengths	Weaknesses
1. **Availability of improvement-oriented conceptualisation of existing (quantitative) PIs of L&T** (at certain sample HEIs)	1. **Not all (quantitative) PIs that could be relevant for L&T quality improvement at the HEI are defined and/or collected and/or used** (at certain sample HEIs) (e.g. lack of teachers' view points in the PI sets; gap in the L&T environment PIs; broad topic of student assessment is not looked at)
2. **High comparability of (quantitative) PIs in national HE system because of Ministry-driven standardization** (at certain sample HEIs)	2. **Existing small PI collection fails to adequately address current needs of the HEI** (at certain sample HEIs) (e.g. because PIs are driven by HE politics)
3. **Availability of close-to-complete HEI-specific set of quantitative PIs** (at certain sample HEIs)	3. **Reliability of PI data and information is often questionable** (e.g. collection through faculty and processing by staff; various mechanisms for collecting data/information) (widespread; at certain sample HEIs)
	4. **Development of (quantitative) PIs that do not adequately grasp a certain HEI performance**
	5. **Danger of reducing PDGM to only quantitative (under-complex) PIs**

Opportunities	Threats
1. **Introducing additional (quantitative) PIs in L&T and completion towards close-to-complete, HEI-specific set** (e.g. filling gaps; completing profile such as continuing education and Lifelong Learning; Learning Analytics; Education for Sustainable Development)	1. **Expectation of the environment that HEIs can or will be characterized and qualified by a few simple (quantitative) PIs** (e.g. based on rankings)
2. **Gaining more transparency with respect to organisational performance** through use of internal (quantitative) PIs (at certain sample HEIs)	
3. **Enhancing the availability of data and information on social impact of HEI performance after integration on national students' survey** (at certain sample HEIs)	

Strategy matrix and its recommendations for organisational development

	W					O			T
	1.	2.	3.	4.	5.	1.	2.	3.	1.
S	S/W					S/O			S/T
1.	–	–	–	–	–	–	–	–	–
2.	–	–	–	–	–	–	–	–	–
3.	–	–	–	–	–	–	–	–	–
M	M/W					M/O			M/T
	Complete collected and used, HEI-specific PI set	Evaluate performance monitoring needs of HEI and revise existing (small) PI set accordingly	Implement QA of data acquisition and stratify methodology of PI collection and processing	Evaluate (existing) PI set for adequate representation / grasp of HEI performance	Complement set of quantitative PIs with set of qualitative (complex) PIs	Complete PI set towards close-to-complete HEI-specific set	Introduce internal organisational PIs	Foster the development of a national student survey	Education about the explanatory possibilities and limits of PIs and rankings etc.

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Conclusions

- Benchlearning and strategic SWOT analyses exhibit the need of several **EIOD initiatives to further develop, improve & refine the PDGM models** of the case study universities
  - **Procedures of data processing & communication, software platforms & responsible organisational bodies** for collecting & interpreting PIs must be (further) developed to improve quality as well as usability & accessibility of data & information; particularly: need of **better organizing PDGM systems** that **avoid multiple island solutions** & **unnecessary resources' consumption**.
  - The **organisational performance monitoring needs of HEIs** must be balanced with demands from education politics & traditional disciplinary attitudes.
  - Processes, organisational bodies & human resources for **fostering participative responsibility for PDGM** including **more efficient decision-making of collegial bodies** must be established.
  - **Educational strategies** (mission, values, vision) must be established, including the **prospects** & **ambiguities of PDGM** & **Learning Data Analytics**.

Critical success factors of PDGM (may be supportive to guidance for other HEIs that engage in developing their PDGM) (based on the stocktaking & benchlearning insights of the SQELT project including stakeholder focus group surveys & discussions):

- **Provide justifiable belief in success promises of PDGM** – surveyed stakeholders are often unsure about the possibility to fulfil all promises of PDGM, particularly Learning Data Analytics.

- **Leadership engagement is a core driver** of PDGM development & implementation – some stakeholders diagnose insufficient engagement of leaders in PDGM.

- **Reflected understanding and practice of PD(G)M** based on adequate/sufficient & self-determined, **HEI adequate PI sets** is also of basic importance – surveyed stakeholders see various deficits in their HEIs' PI sets.

- **Reflected and applied PDGM ethics** is indispensable – this is **seen as a very important issue** by most surveyed stakeholders (while the **willingness to practice** this theoretical insight does not always seem to keep pace with the claimed importance).

- **An adequate financial climate** is necessary – underfinanced & project-driven L&T is often experienced as one of the obstacles to implement appealing PDGM solutions.

Some limitations of the case study

Limitations of SQELT project

- SQELT project **limited in time** (36 months) and **funding**
- **Time window too short for** PDGM-related **EIOD:** the BL steps Integration, Action, Maturity can only be addressed after the project's lifetime
- Impact analysis explorative (instead of strict before-after comparison)
- Fluid stakeholder participation in HEIs (particularly students)
- ...

Limitations of Benchlearning

- Danger of **viewing BL as a one-time project**; **focusing on quantitative output data**; self-mirroring; emulating, mimicking competitors; fostering rat race
- **Organisations' inability** of readiness and flexibility **to implement change; inability of transparency and communication**; fear of detecting and exposing weaknesses (and threats)
- Problem of **complexity** and costs
-

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Some limitations of the case study

Limitations of SWOT analysis

- SWOT analysis **may lack links to an implementation phase**
- SWOT analysis **may use unclear and ambigious words and phrases**
- Can inform strategic decisions but does not necessarily automatically offer solutions
- Though it is relatively cheap and focuses on the most important factors, **SWOT analysis cannot replace more in-depth research**
- SWOT execution becomes complicated if factors are uncertain or many-sided with respect to the four factor types of strengths, weaknesses, opportunities and threats
- SWOT analysis does not prioritise issues
- …

- **Complicatedness of decision-making processes** because of institutionalised understanding of open-ended knowledge-based deliberative decision-making and acting in the collegial university of academics *(cannot be completely overcome)*) [W-PDGM]

- **Little joined-up working in PDGM within the HEI** (at certain sample HEIs) [W-PDGM]

- Low involvement of users in the design and validation processes of the PDM-suggested improvements to be implemented (at certain sample HEIs)) [W-PDGM]

- **Relevant PI data and information is not available to every relevant stakeholder** (at certain sample HEIs) [W-PDGM]

- There is a **bottleneck in communication** as performance data and information are accessible only to a few people (at certain sample HEIs) [W-PDGM]

- **Lack of integrated PDM system** (e.g. data warehouse) of all PIs, instead **parallel island solutions**, i.e. numerous performance data and information is stored locally and in unstructured forms which makes it difficult to use it systematically and on an operational level (at certain sample HEIs) [W-PDGM]

- **Dependence of performance data reporting on the commitment of programmes' directors** (at certain sample HEIs) [W-PDGM]

Addendum:
Other most prominent/frequent weaknesses and threats

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- **Learning Analytics is in its very early infancy** (at most sample HEIs) [W-PIs]

- **Various uncoordinated and/or incompatible software solutions in DPDM are used in the HEI** (at certain sample HEIs) [W-(D)PDM]

- **Resources allocated for the implementation and sustainability of the DPDM model are not enough** (at certain sample HEIs) [W-RES]

- **Implement and develop DPDM system in spite of limited resources and underfinancing** (at certain sample HEIs) [T-RES]

- **Raise third-party funding and/or research projects for DPDM implementation and development** [T-RES]

Smarter University

Addendum:
Other most prominent/frequent weaknesses and threats

- **Privacy concerns related to PDM models are not recognized** ("no sensibility for ethical issues") (at certain sample HEIs) [W-ETH]

- **Privacy concerns** (e.g. teacher evaluations; students' satisfaction; students' study success) **limit accessibility of performance data and information** *(cannot be avoided)* [T-ETH]

- **Different subject areas of the HEI are under different ministerial authorities** (e.g. medicine and other faculties) (at certain sample HEIs) [W-PDGM/POL]

- **Available performance data and information is partly not analysed or analyses not published "because of policy decisions"** (at certain sample HEIs) [W-PDGM/POL]

- **Imbalance towards policy-driven PIs** (at certain sample HEIs) [W-PDGM/POL]

- **Ministry-driven PI sets which do not entirely fit the HEI's profile and needs** (at certain sample HEIs) [T-PDGM/POL]

- **Ministry-driven changes in PDM of HE could restrict the autonomy of HEIs and faculties, e.g. in the context of PDM relating to debates about student fees, value for money etc.** (at certain sample HEIs) [T-PDGM/POL]

- **"Hidden agendas" of HE politics for PDM** (e.g. policy-driven sets of PIs) (at certain sample HEIs) [T-PDGM/POL]

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