

Performance data governance and management in learning and teaching: Basic elements and desiderata in the light of a European case study

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Abstract

The article investigates in performance data governance and management (PDGM) of learning and teaching in higher education institutions. The analysis is based on an Erasmus+ Strategic Partnership spreading out over nine European countries. An intensive case study is carried out including generic results about basic elements and desiderata of PDGM. Among other things, this case study is based on focus group interviews and strategic SWOT analyses. The study makes clear that two basic elements of PDGM are its systematic policy and a comprehensive performance indicator set. The main desiderata of PDGM emerging from the case study are: the ex-ante clarification of success prospects of PDGM; the leadership engagement; a reflected understanding and practice of PD(G)M; a reflected PDGM ethics; and an adequate financial climate.

Keywords: benchlearning; data ethics; performance data governance and management; performance indicators; strategic SWOT analysis

1 The case study, its goals and its methodology

The present case study about basic elements and desiderata of performance data¹ governance and management (PDGM) in learning and teaching of higher education institutions (HEIs) relies, as one source of empirical data and information, on a selected sample of six European universities: Danube University Krems, Austria; Ghent University, Belgium; University of Milan, Italy; Jagiellonian University Kraków, Poland; University of Aveiro, Portugal; and Birmingham City University, United Kingdom. These universities, together with four further institutional partners from Germany, the Netherlands, Norway and Portugal, constitute the strategic partnership of the SQELT project (cf. SQELT 2020) which is co-funded by the European Commission in the context of the Erasmus+ programme. In terms of student numbers, the partnership HEIs range from 9,000 to 63,000. The four other SQELT project partners are a German evaluation agency coordinating the project and three quasi-external experts not permanently involved in the project's development and in charge of giving critical feedback to the project's main partners and their project outcomes at certain developmental steps of the project.

The core goals and the main steps of the SQELT project can be identified from Figure 1 which depicts the project's workflow scheme and mainly involved stakeholders and participants. Accordingly, the basic idea is to develop a core set of elements required for PDGM in higher education learning and teaching. According to SQELT understanding, the most important two elements are a PDGM Policy and a performance indicator (PI) set for learning and teaching. Pursuing these core goals is embedded into and, at the same time, fertilised by individual and institutional benchlearning at the partner HEIs and an intensive case study including generic results, among them a SQELT Manual about the construction and implementation of PDGM systems as well as a comprehensive PI set for learning and teaching. In addition, the SQELT project attempts to consider the PDGM elements of software models, data ethics and higher education political context conditions.

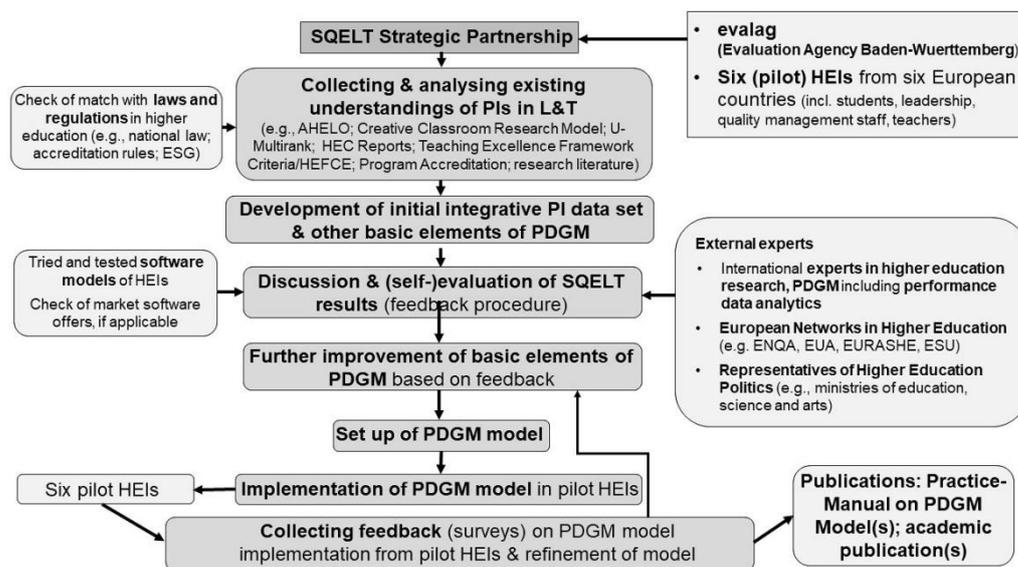


Figure 1. Workflow of the SQELT project (SQELT 2020)

¹ Throughout this article, if “data” and “information” are not explicitly distinguished, the notion of “data” is meant to comprise quantitative data as well as qualitative information.

In accordance with the analysis given by Harrison et al. (2017), the present case study is an in-depth study (e.g., comprising focus group interviews with several stakeholder groups – teachers, students, quality management staff, leadership; strategic SWOT analysis – strengths, weaknesses, opportunities, threats; analysis of research literature) that focuses the object of contextualised PDGM systems at six European HEIs (representing the bounded system case) and uses 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. This includes to approach learning and teaching performance quality indicators in interinstitutional and international perspective. In doing so, the SQELT strategic partnership is based, among other things, on available scholarly models of PDGM in learning and teaching, various PI models (cf. Leiber 2019a), research literature, benchlearning and focus group surveys with respect to PDGM models of the partnership sample HEIs, and external experts’ critical assessments.

The two above-mentioned main goals of the SQELT project also comprise the development of knowledge and tools to support the optimisation of documentation and monitoring processes of learning and teaching in HEIs (e.g., data integration, standardisation, reporting efficiency) in the service of different purposes such as reporting and evidence-informed decision-making. The project is also meant to contribute to the “research on indicators of teaching [and learning] quality” as it was recommended not so long ago to the European Parliament (Wächter et al. 2015, 78).

The SQELT project’s development and progress is structured into eleven Intellectual Outputs (Table 1). As of summer 2020, some of these outputs have been produced (O20, O1, O3-O9), while the others are still work in progress. A subset of project outputs is already available to the public, for example, a paper on learning and teaching theory and a related (preliminary) set of PIs for HEIs (Leiber 2019a) as well as the Benchlearning Reports (O1), Baseline Reports (O3), Ethical Code of Practice for (Performance) Data Management (O8) and various PPT presentations held at several public conferences (SQELT 2020). Further relevant outputs, particularly peer-reviewed publications, the final comprehensive SQELT PI set and the SQELT Manual will be published after finalisation of the project in late autumn 2020.

O20	Impact analysis questionnaire
O1	6 Benchlearning Reports
O3	6 Baseline Reports
O4/O5/O6	Comprehensive PI set I/II/III
O7	Evaluation Report
O8	PDGM Policy & Ethical Code of Practice for (Performance) Data Management
O9	Comprehensive PI set IV
O10	Partnership Report on Various Stakeholders’ Assessment of the SQELT PI Set including a Survey about Selected PIs
O11	SQELT Manual
O12	Peer-reviewed publications

Table 1. Outputs of SQELT project

Since systematic and substantial benchlearning is fundamental to the SQELT project, it is based on an elaborate benchlearning model which consists of 14 steps comprising an analysis phase (see Figure 2) which may be best realised by a strategic SWOT (strengths, weaknesses, opportunities, threats) analysis that is described below. Actually, what Figure 2 shows is that a benchlearning process can be subdivided into 14 interrelated steps which can be grouped under the following five main steps: Planning and preparation; Analysis; Integration; Action; and Maturity (cf. Camp 1994, 21; Freytag and Hollensen 2001).

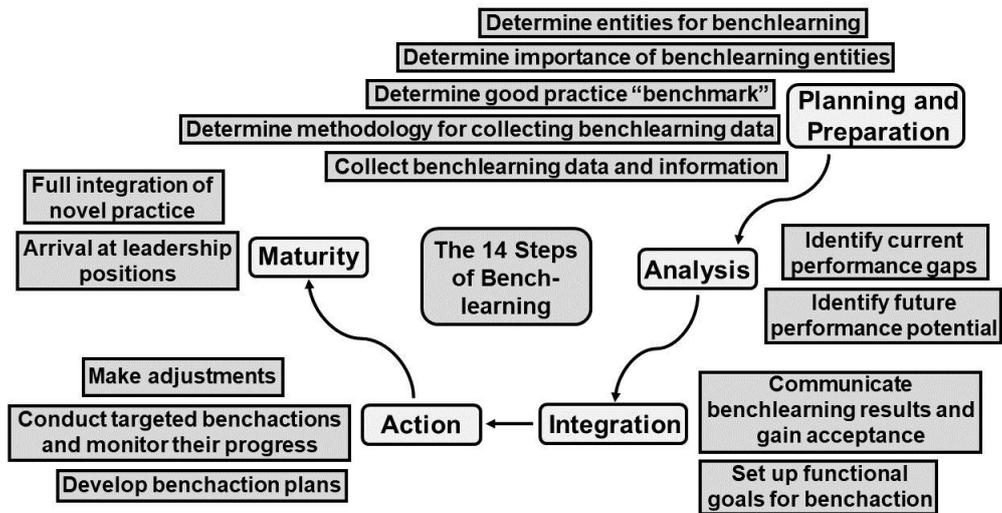


Figure 2. The 14 steps of benchlearning processes, adopted from (Camp 1994, 21) and further developed

For reasons of limited space and because of its importance for the present study, only the second main step of the benchlearning process is dealt with more explicitly here: This Analysis step comprises the benchlearning sub-steps 6 and 7 (see Figure 2) that should

- Identify current performance gaps, for example by means of a SWOT analysis;
- Identify future performance potential, i.e. learning options, for example by elaboration of a strategic SWOT analysis (core of benchlearning) including insights, assessments and recommendations (see below).

This concept of benchlearning relies on the understanding that it is a way of monitoring and assessing the strategies and performance of an institution or organization against comparable, good-practice² competitors, that includes an ongoing performance improvement strategy and change management process (see Figure 2).³

2 Areas of benchlearning in performance data governance and management (PDGM) and their strategic SWOT analyses

In the present context, the following entities or areas for benchlearning around PDGM in HEIs can be identified (pragmatic selection): 1) PDGM Policy; 2) Performance indicator (PI) set; 3)

² Relying on 'good practice', while 'best practice is a myth' (Fernie and Thorpe, 2007, 328).

³ For an embedding of such organisational development processes into a Seven-Step Action Research process Model (SSARPM) comprising the Deming (Plan-Do-Check-Act/PDCA) cycle, see (Leiber 2019b, 324ff.).

(Digital) PDM system; 4) Resources (e.g. IT resources and software solutions; human and financial resources)⁴; 5) Ethics of PDGM.

2.1 PDGM Policy

An actionable PDGM Policy is indispensable for HEIs as autonomous, multiple-hybrid organisations (cf. Leiber 2019b) because it regulates issues of governance and strategy as well as ethics and responsibility, including sustainability, quality, accessibility and usability of information and data about HEI performance as well as investments of human and financial resources. Accordingly, the core purposes of a generic PDGM policy are

- To define roles and responsibilities for different data creation and usage types, cases or situations, and to establish clear lines of accountability;
- To develop good quality practices for effective data management and protection;
- To protect the HEI's data against internal and external threats; particularly, to assure protection of privacy, academic freedom, intellectual property, information security and compliance;
- To ensure that the HEI's data handling complies with applicable laws, regulations and standards;
- To ensure that a data trail is effectively documented within the processes associated with accessing, retrieving, exchanging, reporting, managing and storing of data.

Against this background, a SWOT analysis of PDGM including iterative steps of reflective refinement has been carried out by the SQELT project partners and several SWOTs have been identified at certain sample HEIs (Table 2). These strengths, weaknesses, opportunities and threats are used below to implement a strategic SWOT analysis. To achieve this, the SWOT analysis must be supplemented by and integrated into a strategy matrix the general template form of which is given in Table 3. Such strategy matrix supports the analysis of how strengths can be used to overcome weaknesses, exploit opportunities and avoid threats (Leiber et al. 2018, 355).

Strengths		Weaknesses	
1)	Recognition on institutional level/by leadership of the importance of performance data, PIs and their analysis and interpretation, particularly in learning and teaching	1)	No (well-)developed PDGM at the institutional and/or faculty/department levels
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	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	3)	Performance data and information is mainly, if not exclusively, used for reporting (accountability towards higher education politics and the public), less for the enhancement of performance

⁴ This benchlearning area is not further pursued here since comparative SQELT case study data are not available so far.

4)	Willingness of leadership and staff to establish organisational structures and processes aimed at optimising the processing and presentation of the collected performance data and information (e.g. installation of de-bureaucracy team; consolidation of IT works)	4)	Lack of leadership commitment to PDGM
5)	Established and accepted educational strategy underpins PDGM	5)	A failing coordination between the goals of the HEI's management and the goals of the faculties with respect to PDGM
Opportunities		Threats	
–	–	–	–

Table 2. SWOT analysis of PDGM (source: focus group interviews and benchlearning reports of six sample HEIs from Aveiro, Birmingham, Ghent, Kraków, Krems, Milan)

Accordingly, the central step of the strategic SWOT analysis is that the empty cells in template Table 3 are filled by recommendations for taking action to utilise strength number i) [i = 1), 2), ...], to overcome weakness number j) [j = 1), 2), ...], to exploit opportunity number k) [k = 1), 2), ...], and to avoid threat number l) [l = 1), 2), ...]. In general, it may also turn out that some weaknesses, opportunities and threats cannot be adequately treated by any of the identified strengths. In such cases, other measures must be looked for (see Table 3, lower lines) thereby introducing an additional creative-strategic element into the process of a strategic SWOT analysis.

	Weaknesses (W)			Opportunities (O)			Threats (T)		
	1)	2)	...	1)	2)	...	1)	2)	...
Strengths (S)	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)									
...									

Table 3. Template of strategy matrix for SWOTs of a selected area of analysis or dimension of a benchlearning object (Leiber et al. 2018, 355, Table 3)

In the present case study, the filled-in strategy matrix of PDGM SWOTs is given in Table 4 thus presenting recommendations for action for evidence-informed organisational development (EIOD) relating to PDGM. The entries in Table 4 make it clear that it is often a desideratum to have a widely shared understanding of PDGM at leadership level and other relevant institutional levels. Particularly, there is a need to improve on the clarification of the multiple variety of purposes of PDGM, which are: evaluation; controlling; budgeting; motivating people; promoting issues; celebrating successes; learning from insights; and improving on performance-related issues. This must include linking these goals to the various stakeholder groups of teachers,

students, researchers, department heads/programme directors, deans, policy makers, donors, and administrators to mention a few. Another core issue is that PDGM policy should be made (more) explicit and introduced in HEIs’ strategic documents. Also, at some sample HEIs where PDGM is restricted to reporting and controlling it can be recommended to develop PDGM dimensions focusing on performance enhancement. Finally, deficits of working communication and coordination channels between HEI management and the faculties with respect to PDGM-related issues are a problem.⁵

	W					O	T
	1)	2)	3)	4)	5)	–	–
S	S/W					S/O	S/T
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)	Improve on leadership commitment to PDGM	–	Establish working communication and coordination channels between HEI management and the faculties with respect to PDGM-related issues	n/a
2)					–		
3)					–		
4)					–		
5)	–	–	–	–	–	–	–
M	M/W					M/O	M/T
–	–	–	–	–	–	–	–

Table 4. Strategy matrix of PDGM SWOTs and its recommendations for EIOD

It is worthwhile to note that for any SWOT analysis, particularly a strategic SWOT analysis, to become useful it is important that the strengths, weaknesses, opportunities and threats are clearly defined, characterised and prioritised. Only under this condition the SWOT analysis can provide reliable information and contribute to a plausible strategy development in the form of recommendations for action. Restrictions with regard to clearness of definitions and priorities stem, for example, from ambiguities and differentiation difficulties between strengths and opportunities on the one hand and weaknesses and threats on the other hand.⁶ It is also apparent from Tables 2 and 4 that a (strategic) SWOT analysis does not solve the problem at hand per se, but “merely” suggests recommendations for EIOD instructions and very first steps to go.

In addition to the above discussed SWOTs of PDGM Policy, the following weaknesses and threats have been identified at certain sample HEIs of the case study: 1) bottlenecks in communication as performance data and information are accessible only to a few people (weakness); 2) lack of integrated DPDM system (e.g. data warehouse) of all PIs, while parallel island solutions prevail, 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 (weakness); 3) dependence of performance data reporting on the commitment of individual persons such as programmes’ directors (weakness); 4) different subject areas of the HEI are under different ministerial authorities (e.g. medicine and other faculties) (threat); 5) imbalance towards policy-driven PIs (e.g. focus on economy PIs; available performance data is partly not analysed or analyses are not published “because of political decisions”) (threat); 6)

⁵ Based on these insights a broadly applicable template of a PDGM policy is currently developed by the SQELT project (SQELT 2020).

⁶ Experience with SWOT analysis shows that such semantic ambiguities occur more often than one might expect. For further limitations of SWOT analyses cf. (Leiber et al. 2018, 353-354).

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 (weakness); 7) low involvement of users in the design and validation processes of the PDM-suggested improvements to be implemented (weakness); 8) relevant PI data and information is not available to every relevant stakeholder (weakness); 9) ministry-driven PI sets which do not entirely fit the HEI's profile and needs (threat); 10) ministry-driven changes in PDM of higher education 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. (threat).⁷

2.2 Comprehensive performance indicator (PI) set

It can be considered virtually indisputable that quality assurance and quality development in higher education cannot be achieved without a powerful set of quantitative and qualitative PIs (Leiber 2019a). In other words, a suitable set of PIs to monitor, measure and report information and data related to learning and teaching is core of any PDGM in higher education.

Similar to the previous section, a strategic SWOT analysis was carried out within the European case study (SQELT 2020), again comprising a SWOT table and a related strategy matrix and its recommendations for EIOD to overcome weaknesses, exploit opportunities and encounter threats (Table 5 and 6). Like before, the identified SWOTs occur at certain sample HEIs but not necessarily at the majority or all of them.

In general, the situation with PIs at different sample HEIs is rather different and complicated as well. This is also reflected by the SWOT analysis shown in Table 5. A first aspect to note is that the view (among the interviewed stakeholders of the sample universities) is widespread that PIs are (purely) quantitative quantities. In fact, surprisingly, it seems that they find it often difficult to accept qualitative PIs as PIs and integrate them into their PI set.

Strengths		Weaknesses	
1)	Improvement-oriented conceptualisation of existing (quantitative) PIs of learning and teaching	1)	Not all (quantitative) PIs that could be relevant for learning and teaching quality improvement at the HEI are defined and/or collected and/or used
2)	High comparability degree of (quantitative) PIs in national higher education system because of Ministry-driven standardisation	2)	Existing small PI collection fails to adequately address current needs of the HEI (e.g. because PIs are driven by higher education politics)
3)	Close-to-complete HEI-specific set of quantitative PIs	3)	Reliability of PI data and information is often questionable
Opportunities		Threats	
1)	Introducing additional (quantitative) PIs in learning and teaching and completion towards close-to-complete, HEI-specific set (e.g. filling gaps; completing profile such as continuing education and Lifelong Learning)	1)	Development of (quantitative) PIs that do not adequately grasp a certain HEI performance
2)	Gaining more transparency with respect to organisational performance	2)	Danger of reducing PDM to only quantitative (under-complex) PIs

⁷ For reasons of limited space, these weaknesses and threats are not further analysed here as part of a strategic SWOT matrix.

	through use of internal (quantitative) PIs		
3)	Making more data and information available on social impact of HEI performance after integration on national students survey		

Table 5. SWOT analysis of PIs

As shown in Table 5, some of the sample universities have the strength that they have improvement-oriented PI sets in place, another one assesses the high comparability degree of PIs in the national higher education system as a strength (even though it is Ministry-driven) while a further HEI seems to have a close-to-complete HEI-specific set of (quantitative) PIs. Furthermore, three typical weaknesses of PI sets in HEIs are depicted in Table 5: 1) Not all PIs that could be relevant for learning and teaching quality improvement at the HEI are defined and/or collected and/or used, for example the following deficits can be identified: lack of teachers' view points in the PI sets; gap in the learning and teaching environment PIs; broad topic of student assessments of various issues is not looked at. 2) At some HEIs, existing small PI collections fail to adequately address the current needs of the HEIs (e.g. because PIs are driven by higher education politics instead of being HEI-designed). 3) It is a widespread problem (not only in the sample HEIs) that the reliability of PI data and information is often questionable, for example, because the data are collected through faculty or third-party data services but (has to be) processed by staff; or there exist various mechanisms for collecting data/information which are not harmonised.

Now, to complete the strategic SWOT analysis the question arises how the identified strengths of PI models can be used to overcome the weaknesses, to exploit the opportunities and to encounter the threats described in Table 5, insofar the strengths are useful at all for these purposes. Actually, in the present case the identified strengths cannot be used. Therefore, other intervention measures must be applied which immediately follow from the idea to fix the deficiencies and desires which are implicitly contained in the weaknesses, opportunities and threats mentioned in Table 5. These measures are depicted in the last line of Table 6.

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

Table 6. Strategy matrix of PI SWOTs and its recommendations for EIOD

2.3 (Digital) Performance Data Management (PDM) system

A digital PDM (DPDM hereafter) system is required at any contemporary HEI that makes performance data and information operational and coherent. It operationalises stakeholders' usage of valid and reliable performance data and information by regulating the collection, processing, categorising, aggregating of performance data and information. Another practical

task often to be solved by a PDM system is to match different performance data (management) systems and data bases.

In the SQELT project, the following weaknesses and threats of PDM systems have been identified so far at certain sample HEIs: 1) resources allocated for the implementation and sustainability of the DPDM model are not adequate (weakness), particularly against the backdrop of structural underfinancing in learning and teaching (threat); 2) various uncoordinated and/or incompatible software solutions in DPDM are used in certain HEIs (weakness); 3) learning analytics, while being an integral part of a digital PDM system, is in its early infancy (weakness, at most sample HEIs) (also cf. HEC 2016).⁸

2.4 Ethics of PDGM

The core issue of an ethics of PDGM is the protection of performance data collected about individuals and institutions against misuse by third parties. Such data include, for example, data from higher education analytics such as learning analytics, academic analytics, student analytics etc. In the European Union (EU) in general and in the European Higher Education Area (EHEA) in particular, the EU General Data Protection Regulation (GDPR 2016) on the protection of natural persons with regard to the processing of personal data and on the free movement of such data was passed a few years ago and set into action in 2018.

According to the GDPR, data collected must be justified under one of the lawful bases for processing provided by GDPR, for example, meeting a legal obligation (e.g. date of birth); collecting data which are in the HEI's legitimate interests (e.g. prior qualifications); or fulfilling contractual obligations with the student (e.g. modules studied, grades and use of IT facilities). In consequence, for much of the data associated with learning analytics students' and other stakeholders' consent is not needed because the data are already regularly and justifiably collected. However, consent by stakeholders/students must be obtained where special category data is used (e.g. ethnic origin; time spent for studying, physical and virtual activities at the HEI), and when interventions are to be undertaken with individual stakeholders/students based on their data analytics.

If obtaining consent is necessary, the following requirements of the GDPR must be met (GDPR 2016): Consent requests must be kept separate from other terms and conditions; clear and specific information must be given to stakeholders about what they are consenting to; stakeholders must be informed of any third-party data controllers who will rely on their consent; the consequences of either providing or withholding their consent must be made clear to the stakeholders; clear, affirmative action by the stakeholder must be required (e.g. the use of pre-ticked boxes is not acceptable).

In the SQELT project, the following weaknesses and threats of PDM systems have been identified at certain sample HEIs: 1) data protection and privacy concerns related to PDM models are not (adequately) recognized (e.g., stakeholders report that, currently, there is "low or no sensibility for ethical issues") (weakness); 2) however, at other places, some stakeholders see data protection and privacy concerns (e.g. teacher evaluations; students' satisfaction; students' study success) as undesirable limitations to the accessibility of performance data and information (threat). These two perspectives present in a nutshell the ubiquitous tension between the possible benefits of (performance) data analytics on the one hand and its possible dangers for (individual) self-determination on the other hand.

⁸ Within the SQELT case study (SQELT 2020), the benchlearning area of PDM systems needs further analysis.

Without going into further detail here⁹, a reliable ethical framework as well as the systematic and ongoing reflection of ethical issues of PDGM is essential to establish a vivid PDGM culture which is based on a sufficiently widespread understanding of PDGM ownership and related interpretation capabilities and evidence-informed decision-making.

3 Summary and conclusions

First of all, it is worthwhile to notice that the ubiquitous and, at the same time, notorious success factors of quality management and EIOD in HEIs are non-trivially (also) relevant for a successful implementation and further development of PDGM (in HEIs and any complex social organisation). These success factors are corroborated by the above-discussed strategic SWOT analyses and comprise but are not limited to the following issues (also cf. Leiber 2019b, 332ff.): to foster and disseminate personal characteristics for ethical behavior, including self-competences and social competences (cf. Leiber 2016); to oblige leadership; to assure data and reporting quality including appropriate design, tested validity, reliability and communicated purposes of data collection and use; to involve relevant stakeholders in all PDGM development and application phases; to close the quality (Deming) cycles thereby ensuring adequate quality enhancement and organisational development of PDGM; to invest sufficient resources (time, money, competences, human workforce).

In the light of these success factors, benchlearning and strategic SWOT analyses related to the SQELT university project partners' actual PDGM systems or approaches exhibit the need of several EIOD initiatives to further develop, improve and refine their PDGM models. Particularly, the sample PDGM models have the following organisational transformation needs: 1) Procedures of data processing and communication, software platforms and responsible bodies for collecting and interpreting PIs must be (further) developed to improve quality as well as usability and accessibility of data and information. Particularly, there is a need for better organizing PDGM systems that avoid multiple island solutions and unnecessary resources' consumption. 2) The empirical performance monitoring needs of HEIs must be balanced with various opposing policy demands originating from traditional disciplinary attitudes (e.g. rejection on PIs, particularly quantitative PIs) as well as from ministerial education politics (e.g. focus on quantitative and economic indicators). 3) Processes, bodies and human resources for fostering participative responsibility for PDGM including more efficient decision-making of collegial bodies must be established. 4) Educational strategies (mission, values, vision) must be established, including the prospects and ambiguities of PDGM and data analytics (e.g. learning analytics).

Furthermore, based on the stocktaking and benchlearning insights of the SQELT project partners (SQELT 2020) including stakeholder focus group surveys and discussions, at present the following critical success factors of PDGM can be identified:

- Justifiable belief in success promises of PDGM – surveyed stakeholders are often unsure about the possibility to fulfil all promises of PDGM, particularly learning analytics;
- Leadership engagement – surveyed stakeholders sometimes diagnose insufficient engagement of leaders in PDGM;

⁹ Within the SQELT case study (SQELT 2020), the benchlearning area of ethics of PDGM is currently subjected to deeper investigation. For example, it will be interesting to analyze how different European countries and national higher education systems interpret the GDPR.

- Reflected understanding and practice of PD(G)M based on adequate/sufficient and self-determined, HEI adequate PI sets – surveyed stakeholders see various deficits in the used PI sets;
- Reflected PDGM ethics – 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);
- Adequate financial climate – underfinanced learning and teaching is often experienced as one of the obstacles to implement appealing PDGM solutions.

4 Open questions and limitations of the case study

As usual, there are project-specific limitations: the SQELT project is limited in time (duration of 36 months) and money (Erasmus+ co-funding); particularly, the project's time window is too narrow for PDGM-related EIOD to effectively trace intervention effects. Accordingly, due to these time restrictions in combination with the complexity of the intended outcomes (see Table 1), the SQELT impact analysis is more explorative than a methodologically strict before-after comparison should be. Another limitation is set by the fluid stakeholder participation in HEIs, particularly students.

In addition, there are well-known limitations of SWOT analysis (cf. Leiber et al. 2018, 353-354) and limitations of benchlearning which must be accounted for. As for the latter, for example, there are dangers of viewing benchlearning as a one-time project; focusing on quantitative output data; misunderstanding it as self-mirroring; emulating or mimicking competitors; fostering a rat race. Further restrictions to effective benchlearning are an organisations' inability of readiness and flexibility to implement change; inability of transparency and communication; fear of detecting and exposing weaknesses (and threats). Whether these limitations occur in the context of the SQELT case study project can only be determined later (after the end of the project), since the entire benchlearning process (including its 14 steps, see Figure 2) is not completed yet.

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