



Administrative Processes Efficiency Measurement in Higher Education Institutions: A Scoping Review

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Abstract: Universities, like any organization, must attend to the needs of the environment to provide quality services. Among the various aspects related to educational quality, administrative efficiency management has gained interest in recent times. This is due to the need to optimize resources and streamline the daily operations of an educational institution. This scoping review examines how efficiency is being measured in Higher Education Institutions (HEIs). Taking as a reference the proposed methodology by Arksey and O'Malley and the PRISMA Scr (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guide, we performed a search of the literature in the Scopus database from 2017 to 2022. As a result, different ways to measure administrative process efficiency were found, such as formulated models, methods, and indicators that show quantitative benefits. A significant finding was Lean or Six Sigma practices to improve administrative efficiency, in addition to the consideration of the interest group opinion through the application of measurement instruments to measure the impact on the user satisfaction level.

Keywords: efficiency; quality; higher education; administrative processes



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1. Introduction

In recent years, the globalization of the markets and the advancement of science and technology have led to rapid changes in virtually all aspects of human life [1–3]. This scenario has required organizations, including Higher Education Institutions (HEIs), to embrace more innovative business practices and to improve their processes through the implementation of systems and methods of quality assurance to meet current and future demands [4–7]. Also, universities are vital in educating students for disciplinary knowledge, but also to develop the right skills that meet labor market needs [8]. In view of this, consequently, HEIs face the challenge of continuously improving educational quality and efficiency to meet the challenges of a globalized world that is constantly changing [9].

Efficiency has been gaining interest in recent times [10], being widely discussed among different actors in the education sector [11]. It is considered one of the evaluation indicators for vital processes to measure obtained results according to the resources invested [12]. In relation to this, a definition of the United Nations Educational, Scientific and Cultural Organization (UNESCO) indicates that in the international context, the efficiency of an educational system is the measure of the relation of investment concerning to the result of education [13].

We conducted a literature review of studies focused on higher education which analyzed the educational process efficiency from the perspective of transformation of inputs into products, taking into consideration three main input variables, human, financial, and material resources, to produce key output variables related to graduates, academic production, and employment placement, among others [10,11,14]. Agasisti's opinion points out that traditional methods for measuring efficiency in higher education consider only the

transformation of inputs into outputs without considering the internal production process of the educational institution [15].

In light of the varied interpretations of efficiency in higher education, one can roughly divide it into two categories: (1) the value-based approach, which focuses on the results achieved for end users, such students, employers, the local community, and society in general, for the cost of the product or service, and (2) the resource-oriented approach, an activity's contribution to achieving its goal while minimizing resource consumption [16]. In this sense, the present research focuses on the need to optimize resources and streamline processes. It includes a wide range of activities to ensure the efficient operation of day-to-day university operations, including facilities management, procurement, finance, human resources management, and student services [16], which are considered in this study as administrative processes.

Administrative processes play a crucial role in quality university services [17]. In this vein, Manatos et al. highlighted the significance of administrative processes, after teaching and learning, where quality management practices are applied in regard to students' service and advice as well as facilities and infrastructure [18]. Therefore, efficient internal management in daily activities allows for the providing of quality services [19] regarding students, facilities and infrastructure, evaluation, and so on [20]. In addition, student satisfaction is a very important factor that indicates how effective administrative services are [21].

In light of this, universities are expected to enhance their processes by determining what adds value or not, which is why many HEIs implement models originating in the industry, such as the Lean Six Sigma philosophy [22]. Lean is used to eliminate different forms of waste or non-value-added activities, which add a cost to the final customer [23,24]. In the context of HEIs, the most common lean applications are in the administrative process, known as lean office. This improves work and information flow and reduces waste [24–26]. On the other hand, Six Sigma practices focus on reducing variations, defects, and improve performance to minimize costs as well. The integration of both practices is called Lean Six Sigma, and this helps organizations to achieve superior improvements [23,24].

Different types of waste are in daily operations related to university core functions, such as over-production (producing more than what is currently needed), over-processing (repeat approval), waiting (IT system downtime), or transportation (the commonly required material is stored away from the point of use) to name a few [26]. All these wastes impact daily economic practices [24]. In addition, related to added value, the elimination of waste benefits students and employees by significantly reducing response times in the processes [25].

Taking into account the fact that administrative processes are complex and their performance implies the considerable use of resources [27], it is pertinent to analyze the processes in order to measure efficiency, which makes this study relevant.

Therefore, this scoping review seeks to reflect a specific aspect of efficiency in higher education, reviewing in the literature how efficiency is measured limited to administrative processes in HEIs, which will make it easier for readers to identify various contexts of higher education through efficient evaluation processes, models, and indicators associated with these models where improvements in quality services are present.

The research question posed in this scoping review is how has the efficiency of administrative processes in Higher Education Institutions (HEIs) been measured? Consequently, this paper aims to identify the main methods of efficiency evaluation in HEIs administrative processes, models, as well as indicators associated with these models.

2. Materials and Methods

The purpose of a systematic literature review is to provide a comprehensive view of a field of research [28] to discover evidence, inform future research, and identify knowledge gaps [29]. This research was based on the methodological framework proposed by Arksey and O'Malley [30] and the PRISMA ScR reference guide [31] which established that five

steps should be followed: (1) research question; (2) search for relevant studies; (3) study selection; (4) data extraction; and (5) summary and report of results. The scoping review was registered in the Open Framework registry (<https://osf.io/mv45a>; registered on 22 June 2023).

2.1. Search for Relevant Studies

To identify relevant studies, we searched the Scopus database, one of the most extensive bibliometric data sources, used in high-impact research [32,33]. Our search strategy consisted of formulating query strings with terms in English and Spanish and related to “efficiency”, “administrative processes”, and “higher education”, as presented in Table 1; the terms were grouped using the OR and AND Boolean operators. Finally, each query string was adapted to meet to the specifications of the database Scopus’ user interface, which enable us to limit the search based on some of our inclusion criteria, such as publication date, type of publication (journal/magazines, book chapters, and conferences), and type of eligible language (See Appendix A).

Table 1. Main terms and generic strings of searching.

English	Spanish
efficiency OR improvement OR management OR administration OR “institutional management” OR “quality management” AND (“administrative process” OR “support process” OR “process efficiency”) AND (“higher education” OR university OR education))	eficiencia OR mejora OR gestión OR administración OR “gestión institucional” OR “gestión de calidad” AND (“procesos administrativos” OR “procesos de soporte” OR “eficiencia en procesos”) AND (“educación superior” OR universidad OR educación))

2.2. Inclusion and Exclusion Criteria

The following inclusions criteria were defined to select studies relevant to address our research question:

- Recent studies published in the last five years, i.e., from 2017 to 2022;
- Scientific publications written in English or Spanish;
- Studies published in journals, conferences, or book chapters;
- Studies reporting an efficiency evaluation of administrative processes of HEIs;
- Studies that yielded indicators to measure efficiency in the administrative processes of HEIs;
- Studies that include models that measure efficiency in the administrative processes of HEIs.

On the other hand, the exclusion criteria were:

- Studies that had not been conducted in a higher education setting;
- Studies that reported evaluations, indicators, and/or efficiency models that do not belong to the internal context of HEIs;
- Postgraduate dissertations, technical reports, and posters, among others, since most of them are presented as “working in progress” projects;
- Studies for which the full text is not available.

2.3. Studies Selection

We used the Mendeley online citation manager [34] to download the study references retrieved from the Scopus database. Later, they were exported in BibText format to Rayyan [35], a collaborative tool for the review and selection of documents. This tool was used to perform the following stages of this review.

First, we eliminated duplicate studies. Afterward, the studies’ titles and abstracts were analyzed (i.e., screening) to check if they addressed two eligibility questions: (1) is the study related to higher education? And (2) is the study related to administrative

processes efficiency? The study was discarded if any of the responses were negative. In the second stage, the full text of the selected documents was analyzed to assess if they met the inclusion criteria.

The first author carried out the study selection process, and the results obtained were validated through periodic discussions with the rest of the co-authors. A similar validation process was followed for extracting data from the included studies, which is explained next.

2.4. Data Extraction

Information was extracted from the studies using a Microsoft Excel sheet designed to obtain the characteristics of the articles. These characteristics included title, author, year, country, and journal of publication. In addition, the study's data, such as its purpose, the method followed, and its conclusions. Other aspects of the study were included for analysis, such the abstract, approach, conclusions, and recommendations for future research.

2.5. Summary and Report of Results

In this last step, a descriptive summary of the studies was made to organize the information and present it through tables. This was done to show publications trends based on publication date, country, magazines/journals, and language, among others. In addition, the studies were classified according to the models, indicators, methodologies, and indicators used for the evaluation of efficiency.

3. Results

Literature searches were conducted in December 2022, resulting in 195 articles. Of these, two duplicate articles were eliminated. The remaining 193 articles were reviewed by title and abstract, excluding 151 studies because they were not related to higher education issues or administrative efficiency ($n = 123$), or because the topic was not relevant to research ($n = 28$). Considering this, 42 articles were submitted to a full-text reading process. During this process, 22 studies were discarded because the full-text was not available ($n = 5$), the evaluation did not present a quantitative measurement of the results ($n = 6$), or there was no focus on administrative processes ($n = 11$). Figure 1 shows the entire study selection process.

3.1. Studies Characteristic

The final number of articles included in this scoping review was 20 considering efficiency in administrative processes in the HEIs, according to the established criteria. The publication dates of these studies range between 2017 and 2022, with a focus primarily on 2018 and 2020. Regarding language, 90% of the publications were in the English language and there were only 10% in Spanish.

Based on the eligibility criteria, studies focused on areas such as administrative efficiency evaluation ($n = 14$, 70%), formulated models ($n = 4$, 20%), and finally publications related to indicators ($n = 2$, 10%), which demonstrate contributions to administrative efficiency. In a global context, Europe shows a higher quantity of articles with 45%, followed by America with 23%, Africa 18%, and Asia 14%. This suggests that our research topic is a relevant one in HEIs worldwide.

To illustrate the publication characteristics, Table 2 contains selected documents. These documents include the country where the study was carried out, the type of publication, and its source. As can be seen in this table, most of the studies ($n = 13$, 65%) are research articles, followed by conferences ($n = 4$, 20%) and book chapters ($n = 3$, 15%). Studies were carried out in different countries, without identifying a representative country, although Portugal was presented in more than one study ($n = 2$).

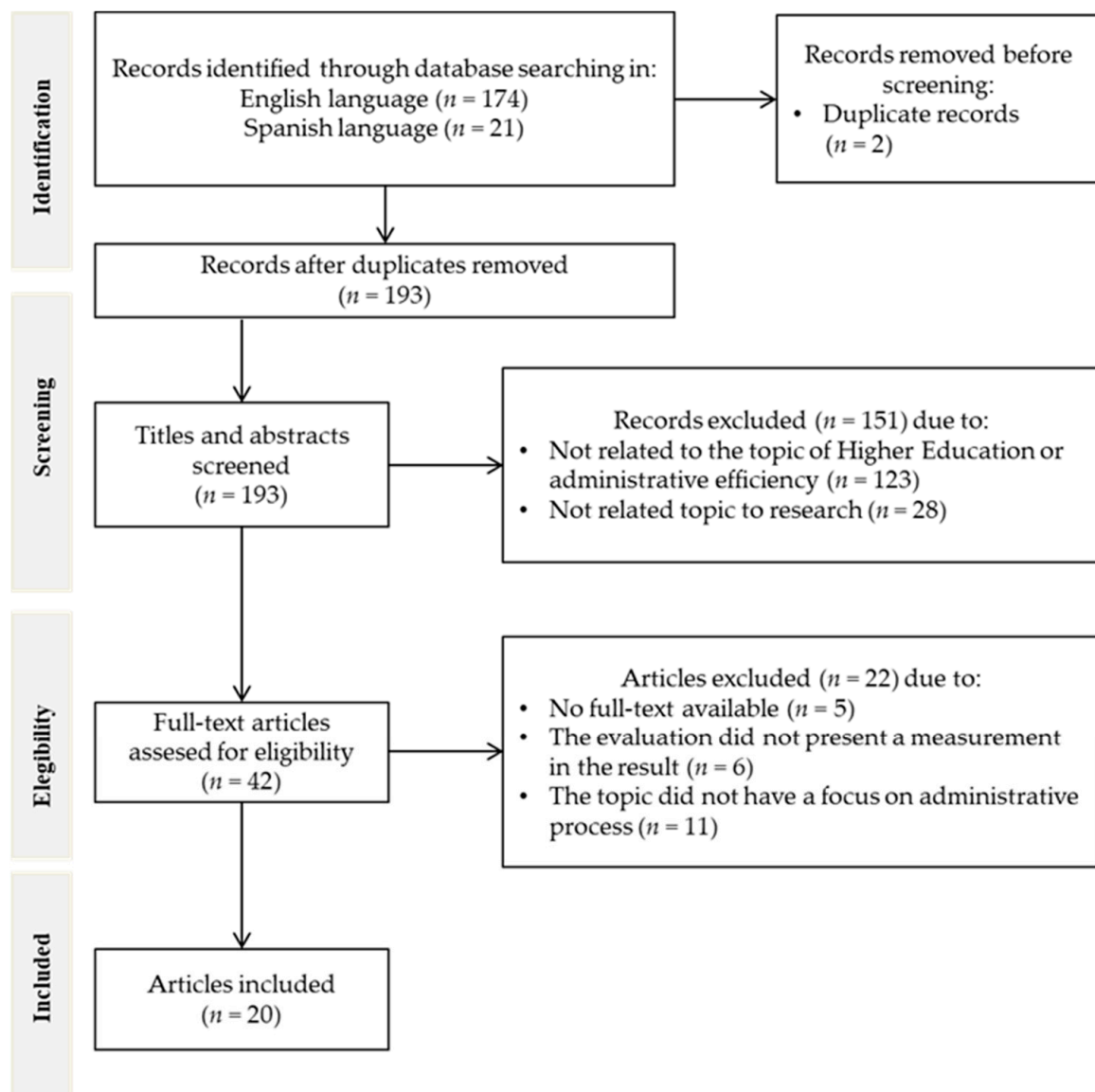


Figure 1. PRISMA flow diagram of selection process based on PRISMA ScR guide reference [31].

3.2. Efficiency Measurement

This research aims to know how administrative efficiency is measured in HEIs, so the analysis of studies is classified according to the inclusion criteria, where an evaluation of administrative efficiency in administrative processes in HEIs is reported or showing models or indicators associated with said models.

3.2.1. Evaluation of Administrative Efficiency

From the 14 publications related to the inclusion criteria where the evaluation of administrative efficiency is reported, 7 of them contain some questionnaire-type instrument in their methodologies applied to a group of interest in order to understand various aspects of the services of the institution, 5 are case studies, and 2 present another type of methodology.

Table 2. Selected studies with eligibility criteria.

Num.	Study	Country	Type of Publication	Source of Publication	Eligibility Criteria		
					Evaluation	Model	Indicators
1	[36]	Venezuela	Article	<i>Opcion</i>	X		
2	[37]	Russia	Article	<i>Espacios</i>			X
3	[38]	Morocco	Article	<i>Accreditation and Quality Assurance</i>	X		
4	[39]	Portugal	Chapter book	Advances in Intelligent Systems and Computing International Conference on Intellectual Capital, Knowledge Management and Organizational Learning, ICICKM	X		
5	[40]	South Africa	Conferences	MATEC Web of Conferences	X	X	
6	[41]	Romania	Conferences	IISE Annual Conference and Expo 2019	X		
7	[42]	United States	Conferences	<i>Business Process Management Journal</i>	X		
8	[43]	United Kingdom	Article	<i>International Journal for Quality Research</i>			X
9	[44]	Portugal	Article	<i>International Journal of Lean Six Sigma</i>	X		
10	[45]	Ireland	Article	Smart Education and e-Learning 2018		X	
11	[17]	Holland	Chapter book	<i>Formacion Universitaria</i>	X		
12	[46]	Colombia	Article	<i>International Journal on Advanced Science, Engineering and Information Technology</i>	X		
13	[47]	Bosnia and Herzegovina	Article	<i>PLoS ONE</i>		X	
14	[48]	Mexico	Article	<i>Quality Management Journal</i>	X		
15	[49]	India	Article	Advances in Intelligent Systems and Computing		X	
16	[50]	Kazakhstan	Chapter book	<i>Sustainability</i>	X		
17	[51]	Serbia	Article	International Conference on Industrial Engineering and Operations Management	X		
18	[52]	Peru	Conferences	<i>Cypriot Journal of Education Sciences</i>	X		
19	[53]	Nigeria	Article	<i>Applied Science</i>	X		
20	[54]	Spain, Italy and Turkey	Article				

In this sense, a study was related to the research process in which questionnaires were applied to research laboratory administrators to discover the level of implementation of quality practices related to material resource management processes and human and information resources [36]. Another study analyzed the possibility of applying Lean methodology concepts in university processes by administering a survey to students to determine the degree of satisfaction regarding the current situation of the university (obtaining 257 responses out of the 315 expected) and an analysis of efficiency in processes and general evaluation with part of the staff [47]. Mulay and Khanna's research conducted surveys of both students and administrative staff and process owners, with 725 responses. It was found that the "Admissions" administrative process has the greatest impact on quality services, followed by the "Exams" and "Student placement" processes [49]. On the other hand, Kuleto et al. obtained through an instrument the experiences of professors and associates (780 responses) on factors having an impact on the efficiency of services during the pandemic, among which they found the support factor of school management [51]. Finally, a survey was applied to measure students' opinions and compare them against indicators established in a quality management system under ISO 9001:2015 Standard [52]. It should be noted that some of the instruments in the studies were validated using the Cronbach Alpha index [38,52].

Furthermore, some authors presented case studies applied to different departments or administrative processes of the university under study [39,41,43,45]. For example, an internal document management system was developed with a digital signature to streamline process by reducing bureaucracy [39]. A measurable improvement in assessment processes between a physical and online university model was also demonstrated [43]. One aspect these authors highlight as future research is that a questionnaire should be implemented to find out the opinion of academics via online evaluation [43]. Another process improvement was carried out through a process analysis technique from the industrial sector applied to administrative processes in higher education with a focus on lean manufacturing principles [41]. Lastly, administrative processes were simplified using Lean Six Sigma methodologies [45].

Table 3 presents a summary of publications, descriptions of each study, the scope of the evaluation, and process or area of application, highlighting that the scope of the evaluation, a benefit in user satisfaction, specifically students, improves response times in procedures and reduces activities in the processes as well as in workloads for the personnel attending said processes.

Table 3. Summary that considers administrative efficiency evaluation studies.

Study	Description	Scope Evaluation	Area or Administrative Process Application	Method	Population and Sample
[36]	Evaluation of variable “quality management” from functional, political, and institutional dimensions. Evaluation of good practices related to material resources, human, and information management process.	Management	Research Centers in Venezuela.	Positive/systemic research with transactional and field design.	48 researchers of 6 research Centers in 6 universities. Response: Not indicated. Instrument application of 108 items. Validation: not indicate
[38]	Evaluation of implementation of good practices.	Users’ satisfaction to identify level of application of good quality management.	Laboratories in the Faculty of Science and Technics in Morocco.	Evaluation through a questionnaire.	Laboratory administrators of 6 Faculties. Response: 24 of 72 laboratory administrators (33%). Instrument validation: (1) review by certain number of administrators, (2) validated by scientific committee. (3) Cronbach Alpha of 0.96 N/A
[39]	Internal documental management system	Process improvement (information system)	Different processes in Trás-os-Montes e Alto Douro University in Portugal an example: recruitment, scholarships, and acquisition of goods and services.	Case study	N/A
[41]	ECRS (ECRS is a technique used in a production line to analyze processes, that uses this principles: E = eliminate unnecessary work, C = combine operations, R = rearrange sequence of operations, S = simplify the necessary operations) method implementation	Process improvement (process time, scrap, waste time, and transport routes)	“Output application form” to obtain temporary degree. “Lucian Blaga” University of Sibiu, Rumania.	Case study	N/A
[42]	Lean Six Sigma Improvement process tools	Process improvement (process time reduction)	Recruitment students’ process.	Case study	N/A

Table 3. Cont.

Study	Description	Scope Evaluation	Area or Administrative Process Application	Method	Population and Sample
[43]	Traditional and online process analysis	Process improvement (activities reduction, minimized human intervention)	N/A	Case study	N/A
[45]	Processes simplification in three administrative areas	Process improvement (task time reeducation, cost reduction, users and employee's satisfaction and rework and errors reduction)	IT Services, Financial Office, and Register Office.	Case study	N/A
[46]	Six Sigma Tools	Performance evaluation and analysis of efficiency through Six Sigma metrics.	Service management Center of a HEI.	Evaluative and rational research.	Population: specialized personnel related to service management process.
[47]	Lean Office Tools	Satisfaction degree of students and process analysis with personnel in order to see the possibility of applying Lean concepts.	Student Affairs office in Bosnia University.	Quality and Lean Six Sigma tools. Student's survey/satisfaction degree and interviews to office personnel.	Population: students and employees related to Office. Sample: 257 respond of 315 (students) and 30 h of employee's interviews.
[49]	Quality impact analysis from user expectation	Surveys application on students and administrative personnel as an owner process.	Admission process, exams, and practices in private engineering and management institutions.	Empirical case, supported by surveys.	Population: students and administrative personnel as an owner's processes. Validation: Experts evaluation. Pilot survey with 150 responders. Four institutions in the city of Mumbai. Sample: 725 (around 86%) surveyed of 12 institutions of engineering and 8 of management.
[51]	Professors and associated experience evaluation for educational services providing during COVID-19 pandemic.	Four aspects valued: management support, family conflict, home infrastructure, and technology selection.	School Management of Institutions in Serbia.	Content analysis, participatory observation, and surveys application.	Professors and associates. Sample: 780

Table 3. *Cont.*

Study	Description	Scope Evaluation	Area or Administrative Process Application	Method	Population and Sample
[52]	Academic and administrative process quality evaluation through ISO 9001:2015 Standard.	Kick-off and finish results comparison in seven dimensions for administrative processes, by student perspective.	Academic-administrative process offer to students in an Engineering Faculty in a Public University.	ISO 9001:2015 Standard to process modeling, fuzzy logic to clarify uncertainty, and survey method based on ServQual model design by experts to know student's perception.	Population: Systems Engineering and Software Engineering students. Sample: 308 students (170 Systems Engineering and 138 Software Engineering). Cronbach's Alpha index of 93%
[53]	Leadership impact analysis and the mediator role of quality administrative process were examined.	Evidence of relationship between distributed leadership and management efficiency system.	Professor's opinion in public universities of Nigeria.	Quantitative focus survey type (3 instruments)	Population: Professors of 79 universities in Nigeria Sample: 305
[54]	Quantitative evaluation of revenues in efficiency through digital process transformation course in Erasmus+ field.	Savings in workloads activities, paper, and time.	Transformation course by Erasmus+	Data collection, estimations, and statistical analysis.	N/A

Note: N/A = not available.

3.2.2. Administrative Efficiency Evaluation Models

Regarding efficiency evaluation models, four studies were analyzed (see Table 4). All approaches in the models are strategic for decision making and service excellence in an HEI.

Table 4. A summary of administrative efficiency evaluation models' studies.

Study	Application Field	Model Focus
[40] [17]	Information system Control and Planning	Information systems quality from user satisfaction perspective. Governance through control levels in process areas to integrate and align decision making.
[47] [49]	Continuous improvement Management university process	Improvement projects based in the Baldrige Excellence Program. Management process, primary, and support in difference areas of organization.

The model proposed by Watungwa et al. contains a value proposition, taking into consideration the users' opinions, since when dealing with information systems, it is the user himself who plays a relevant role, according to the authors [40].

On the other hand, the model proposed by Vrielink et al. has a planning and control approach in primary processes, management processes, and support processes, ensuring that each area has its own strategic, tactical, and operational plan to adapt to new challenges [17]. On their behalf, Maciel-Monteon proposes a model for project improvement in order to maintain excellence in academic and administrative processes based on the Baldrige Excellence and Performance program [48]. Baldrige is a globally recognized model that emphasizes the strengths and weaknesses of processes, allowing for improvement at organizational and at process levels. It should be noted that in this study, a survey was developed, implemented, and validated, obtaining more than 700 responses [48]. Finally, Satybaldiyeva et al. discussed the approach to improving management processes in a university-type business, where automation and information systems play a relevant role in management processes [50].

3.2.3. Administrative Efficiency Indicators

The number of studies reporting indicators was only two. One of these studies focuses on university facilities management and the other on student care. The objective of the first study by Loseva et al. was to propose indicators for the evaluation of facilities and their performance, associated with a management model of university properties [37]. This article highlights the efficient use of areas for academic purposes to ensure the quality of academic process. It also highlights common spaces within the campus, considering functional, economic, and social aspects [37].

Finally, the Lean Office methodology was applied at the University of Minho within the undergraduate and graduate office of the Department of Production and Systems (DPSs), where a substantial improvement is made in administrative processes through the use of the Lean Office tool established through indicators and developing a monitoring table as a value proposition [44]. The term Lean Office comes from the lean philosophy aimed at eliminating waste in the use of resources for the production and provision of services [23]. The fields of application are offices and administrative activities to help control processes and waste variability [44]. Table 5 contains the studies and their proposed indicators.

Table 5. A summary of administrative efficiency evaluation indicators studies.

Study	Application Field	Indicators
[37]	University facility installation.	<p>Functional (Facilities performance)</p> <ul style="list-style-type: none"> - Performance area index - Implementation program of areas development as part of specific facility complex index. <p>Economic</p> <ul style="list-style-type: none"> - Fundraising Index extra-budgetary per surface unit, rubles/m² - Profitability index of the social areas used. - Index of conformity to modern social requirements of trainees and staff
[44]	Students Affaires Office	<p>Attention in Lean Office Project</p> <ul style="list-style-type: none"> - Absence level in team members in weekly projects. <p>Dissertation classification of projects.</p> <ul style="list-style-type: none"> - % of students that qualifies “excellent”, “very good”, “good”, “sufficient”, or “not sufficient” in educational projects. <p>Lean Office Project in department</p> <ul style="list-style-type: none"> - Number of projects in progress or completed by the team. <p>Critical situations</p> <ul style="list-style-type: none"> - Activities or skills developed by one person in the department. <p>Requests and interruptions</p> <ul style="list-style-type: none"> - % of interruptions requests in the department and type of interruption (face-to-face, phone, or email).

4. Discussion

This article aimed to gain a better understanding of the administrative processes measured in HEIs. This was according to the question posed at the beginning: how has the efficiency of administrative processes in Higher Education Institutions (HEIs) been measured? For this, an analysis of publications between 2017 and 2022 in Scopus databases was carried out as a primary source of information. This was obtained from a bibliographic mapping following the PRISMA-Scr guide [31]. This made it possible to identify 20 scientific articles, conferences, and chapters of books, where most of them (65%) present and discuss general aspects of how administrative efficiency is evaluated in different university settings, followed by studies proposing models of evaluation (20%) and finally publications where measurement indicators are presented (10%). It should be noticed that 90% of the publications were in the English language.

The largest body of literature was found in studies measuring administrative efficiency. The areas of application were diverse and there was a demonstrated interest in understanding the needs of those intervening in administrative processes. In some cases, the efficiency of the process was evaluated through a diagnosis of quality perception [47,52,54]. Moreover, assessing the impact of administrative processes such as Kuleto et al. [51] identified the admissions process as having the greatest impact on quality from the perspective of students.

In terms of case studies, two propose improvements involving process systematization. The other two use industrial tools applied to education with a focus on lean manufacturing principles. In Pereira et al.’s study, a document management system with digital signature was implemented [39] and a comparative analysis was carried out between a physical model and an online one in evaluation processes to propose their systematization [43]. It should be noted that in this last study, the author’s proposal appears as future research, the application of a survey to find out the opinion of academics, since they are involved in the process. Another case study implemented the ECRS method of analysis and improvement of administrative processes in higher education with the industrial approach [41], and

finally, the case study which implemented Lean Six Sigma methodologies for processes improvements [42].

Studies related to the managerial approach to decision making were found which evaluated models or measured indicators. Regarding the models, authors presented models of information systems for decision making, where they took into consideration user opinion [40], management (planning and control) at all levels of the institution [17,47], as well as internationally recognized continuous improvement models [50], which facilitate the fulfillment of its institutional objectives, mission, and vision.

Finally, the studies that presented the measurement of indicators also involved the presence of industry methodologies, in this case Lean Office in administrative processes aimed at students. This allows for the establishment of a series of measurement indicators to control the improvement in the processes, with the value proposition, in this case from a monitoring table [44]. On the other hand, it offers a functional and process approach for university facilities evaluation through performance indices. This is conducted for the improvement in quality management [37], which affects resource efficiency, and the satisfaction of the community using university facilities.

Notably, this research found that 30% (6) of the 20 studies applied Lean or Six Sigma practices [41,42,44–47], which are high-power business improvement methodologies used in the manufacturing and service sectors [23]. The recent literature indicates that HEIs are implementing innovative business practices to improve efficiency in their processes [5,6]. This shows a trend for the use of Lean and Six Sigma manufacturing innovative practices in university administrative efficiency so HEIs can face the challenges of increasing efficiency through these methodologies.

5. Conclusions

As a final point, the literature presented in this research through the analysis of 20 studies seeks to improve efficiency in the administrative processes provided by the university to its different clients and users.

The results of this review showed how efficiency in university administrative processes is measured in a variety of university contexts. This occurs through different methods applied to specific processes or areas that support different user groups, either by implementing solutions with technologies or with methods used in industry adapted to the university environment. Also, efficiency evaluation models were found and applied at a strategic level that seeks higher levels of efficiency. They establish indicators that facilitate the monitoring of the process's performance. The indicators were also presented in facility and office contexts.

Universities are increasing efforts to implement lean practices to improve administrative processes' efficiency [25,41,42,44–47] because the educational sector has become more complex in its operations and demands resources [25,27]. Through the review of administrative processes and information flows, Lean Six Sigma can be an extremely powerful methodology for addressing process inefficiencies. In this manner, activities that do not add value will be minimized or eliminated [25]. That is why Lean application is closely linked to efficiency.

As a result of constant changes around the world and globalization challenges, HEIs have to adapt smart tools such as Lean Six Sigma to improve processes, reduce waste, and increase satisfaction and profit within the higher education environment to meet contemporary challenges to guarantee education quality [3,22,41].

There is an opportunity for further research into the administrative processes of HEIs. This is not only through measurement but also in terms of its impact on educational quality, including the challenges towards the sustainability approach and industry 4.0 [24–26,55].

Finally, it is pertinent to mention that this article had some limitations due to the fact that information was extracted from only one database (Scopus), only English and Spanish languages were considered, and it was limited to articles which were available in full.

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Appendix A. Search Strategy

The search queries adapted to the Scopus database are presented in Table A1. They included the metadata that Scopus added to the query string to limit the search to the following criteria:

TITLE-ABS-KEY	Title, abstract, and keywords.
PUBYEAR	Year of publication.
SRCTYPE	Source type: b—book; w—newspaper.
DOCTYPE	Document type: ar—article; cp—conference paper; ch—book chapter.

Table A1. Adapted search strings by Scopus.

English	Spanish
TITLE-ABS-KEY (efficiency OR improvement OR management OR administration OR “institutional management” OR “quality management” AND (“administrative process” OR “support process” OR “process efficiency”) AND (“higher education” OR university OR education) AND PUBYEAR > 2016 AND (EXCLUDE (SRCTYPE, “b”) OR EXCLUDE (SRCTYPE, “w”)) AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “cp”) OR LIMIT-TO (DOCTYPE, “ch”)) AND (LIMIT-TO (LANGUAGE, “English”) OR LIMIT-TO (LANGUAGE, “Spanish”))	TITLE-ABS-KEY (eficiencia AND educación) AND PUBYEAR > 2016 AND (EXCLUDE (SRCTYPE, “b”) OR EXCLUDE (SRCTYPE, “w”)) AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “cp”) OR LIMIT-TO (DOCTYPE, “ch”)) AND (LIMIT-TO (LANGUAGE, “English”) OR LIMIT-TO (LANGUAGE, “Spanish”))

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