Key Transformation Variables for the Lean Higher Education Success

Yasni Nurul Huda Mohd Yassin[1],
Mohd Sharial Bungsu[2],
Thahira Bibi TKM Thangal[3],
Mohd Norazmi Nordin[4],
Azianti Ismail[5],
Akmal Aini Othman[6]

Yasni Nurul Huda Mohd Yassin[1], Faculty of Business and Management, Universiti Teknologi MARA Shah Alam
Email: yasni@utm.my

Mohd Sharial Bungsu, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia
Email: mohdsharial@utm.my

Thahira Bibi TKM Thangal, Faculty of Business and Management, Universiti Teknologi MARA Johor, Pasir Gudang
Email: thahira@uitm.edu.my

Mohd Norazmi Nordin, Faculty of Education, Universiti Kebangsaan Malaysia
Email: drnorazmi.nordin@gmail.com

Azianti Ismail, Faculty of Mechanical Engineering, Universiti Teknologi MARA Johor, Pasir Gudang Email: azianti106@uitm.edu.my}

Akmal Aini Othman, Faculty of Business and Management, Universiti Teknologi MARA Johor, Segamat
Email: akmal123@uitm.edu.my

ABSTRACT

*The higher education sector faced increasingly tense to transform due to the digitization that reshapes the world in the 21st century to strengthen and improve the teaching and learning environment. The present critical success factors driven from global-profit-making reform institutions are affected by both external and internal issues. This systematic article review expounds on the instrumental transformation variables that influence higher education institutions globally. The exploration of these variables is not a new phenomenon in this research field and has long gained the attention of numerous scholars. However, most of these past inquiries overlooked the effects of cultural and contextual components, where the perspectives of the higher education landscape is often underrepresented. Hence, this study aims to fill this gap by critically reviewing a considerable amount of past studies on the changes in Asian educational institutions. The Systematic Review approach was adopted for data analysis, accessing main journal databases and search engines through Elsevier, ResearchGate, Google Scholar, ScienceDirect, Web of Science, Scopus, Emerald and EBSCO. The search efforts resulted in a corpus of **50 articles** were reviewed. As a result of the thematic analyses, thirteen main themes were formulated*

namely, Globalization, Income Generation and Financial Implication, Institutional Policies, Knowledge Management and, Learning Innovation, Governance in Institutional Restructuring, Synergy, Leadership, Research, ICT, Decision Making, Communication, Culture and Autonomy as variables for the higher education sector. Several recommendations were also presented for the reference of relevant parties and future scholars.

Introduction

Institutional transformation is seen as an approach to strengthen the independence and managing changes in both the governance and the management of institutionsWright and Ørberg [1]. The governance of an institution involves the structures and processes of decision-making, whereas the management of an institution entails the implementation of these decisions. The decision-making process and its implementation may require the creation of new structures, specific allocation resources criteria for activities, allotment of tasks to different groups, and effective evaluations of performance. In this case, structures often refer to offices, positions, and formal roles within an organization while criteria include the basis for distribution of responsibilities and resources to all lower-level units within an organization. According to[2], change management, leadership, support, and governance are pertinent factors in maintaining the sustainability of an institution. Studies by [3-6] presented consistent findings where leadership, staff buy-in, operations, incentives structure and empowerment are some key factors affecting transformational success in higher institutions. [7] also mentioned that transformation comes with designated institutional policies alongside financial investments. On the other hand, [8] listed globalization, internationalization, world-class rankings, government policies, corporatization and privatization, governance, academic career, and academic activities as catalysts of change in Malaysian higher institutions. It also focuses on refining the skills and capabilities of human capital in building capacity for economic and social expansion[9, 10]. These are the additional challenges that leaders need to address which are mass drivers of performance and sustainability.

The process of transformation has exerted a considerable impact on the overall institutional functions and various groups within the university's organization. Experts claimed that the restructuring process has, to a certain extent, altered the university's mission, whereas others feel that there the reformation of the system was a final resort. Strong instances of resistance to these changes and the restructuring process are common in many countries. The continuous process of bargaining and negotiating is significant in the restructuring effort where certain universities have been more successful than others in their implementation of change. Therefore, there is a need to investigate the key institutional factors in enabling successful transformations of the higher education landscape. Hence, this systematic review of articles focuses on these transformational factors from the perspectives of Asian educational institutions. This observation in literature collected from scientific research leads to the conclusion that higher institutions emphasize different factors that determined the success of the reform process. Therefore, this study is to explore potential indicators for a better understanding to address the question: What are the pertinent factors that enable effective and successful reform process in the higher education perspective?

Methodology

This research consists of a systematic literature review (SLR) process which approach is strengthened via a more transparent article retrieving process, a wider

area of prominent research with more significant objectives that can control research bias[11-15]. Apart from that, this approach also seemingly motivates the researcher to produce quality evidence with more significant results[13].

The response to the evolution and innovation in the pedagogy of academic research and knowledge-based economy has caused remarkable changes in the traits and functions of higher education institutions around the world. Higher education has become a prominent agenda in improving the global socio-economic status and the delivery of quality development.

Institutional transformation involves the process of an organization shifting its business model to a desired future state, and obviously is a long term and continuous process[16]. [17]mentioned that managing change is the collision of thoughtful development with unintended consequences where he puts forth – "Without productively engaging people, successful change is impossible". He also stated that if a change does not prompt better logical and emotional sense, perhaps the change should not be implemented. Propelled by the driving force of technology and globalization, the economic landscape continuously transforms in a way that undermines the relevance of how a firm should be managed and what underlies its success[18]. In this new millennium, it is more challenging for an organization to sustain its competency or even survive in a diverse market. When an organization is threatened by environmental changes such as crisis or competition, it is apparent that there is a need for effective communication as technology develops and higher customer demands are made. Institutional transformation is not an option as it is a fundamental necessity in succeeding within the new competitive landscape[19]. Institutions need to evaluate its performance by reviewing its business strategies, corporate structure, operational process, and human capital policies to identify areas that are in need of constant transformation. These changes have to be implemented accordingly to maintain its competitive advantages. While education has been regarded as the asset for improvising teaching and learning agenda[6], organizational culture assist institutions to transform and develop for the better[20].

Real transformation begins from the heart of the organizational team. The collaborative intent to focus on any shortcomings and to exceed organizational expectations, produce highly exceptional results. Previous literature from other industries including manufacturing and healthcare concluded that numerous factors can influence the transformational success in an organization. The **internal factors** affecting organizational transformation are identified as - the vision and mission of the institution, income generation/financial management, organizational culture, institutional governance and autonomy, networking and synergy, integrated system and technological development, research and innovation, leadership/talent management, decision making, and communication. On the other hand, the **external factors** that affect the strategic initiatives of an organization as a whole are comprised of economical changes, political changes, globalization/internationalization, knowledge management, and social culture. This comparison is vital to identify whether the internal or external factors have a more significant impact on higher education transformation, allowing institutions to implement effective measures in sustaining global competition. To date, investigations were focused on the transformational relationship involving the aforementioned factors. However, the best-referred practices concerning the major indicators in the Asian higher education perspective remain limited.

Materials and Methods

This section explains the methodology's three sub-sections: the systematic review process, the data abstraction process, and the data analysis process in the current research. This is a qualitative multiple case study approach highlighting

particularly higher education institutions around the world. Data were collected from many sources and analysed using Nvivo12.

The Systematic Review Process for Article Selection

Identification of Articles

The systematic review process in identifying relevant articles for the present study comprised of three main stages[21]. The first stage is where keywords are identified and through the process, the researcher managed to generate twelve themes and keywords related to the factors contributing to transformation success. This was then followed by the process of searching for related and similar terms based on thesaurus, dictionaries, encyclopaedia, and past researches. Accordingly, search strings on ResearchGate, Google Scholar, ScienceDirect, Web of Science, Scopus, Elsevier, Emerald, and EBSCO for the search engine and database search and Mendeley reference manager was included, and databases were developed (Refer to Table 1) after all keywords were determined. The search process managed to successfully retrieve a total of 428 articles from all databases based on similar keywords and themes. Hence, in total, 428 articles were retrieved in the first stage of the systematic review process.

Table 1

The Search String Database Search string

WoS	TS=("transformation" OR "change*management" OR "reformation" AND (higher education))
Scopus	TITLE-ABS-KEY(("transformation") OR ("change*management") OR ("reformation") AND (higher education))
Others (Scholar, Elsevier, Emerald)	(("transformation") OR ("change*management") OR ("reformation") AND (higher education) AND (factors) AND (Challenge)

Screening

The purpose of screening materials from the first stage was to remove duplicating and unrelated articles. In this case, a total of 318 articles from the first stage were excluded. It was decided that only journal (research articles) were to be analysed while book chapters and conference proceedings were excluded from the current research. It is crucial to note that a 10-year (2011 - 2021) timeline was chosen for the purpose of this study. Studies conducted globally were also selected as comparative bases as they are in line with the objective of this review. The journal articles were shortlisted based on the selection criteria (Refer to Table 2).
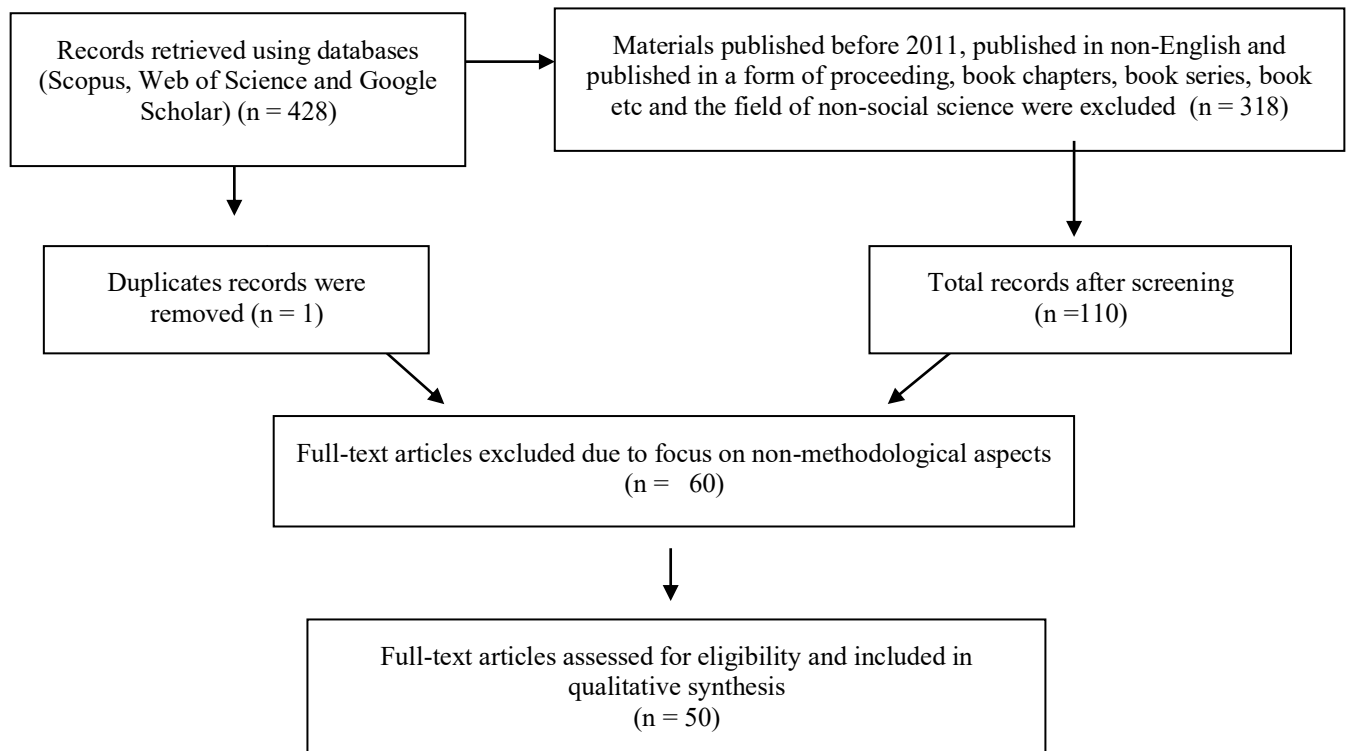
Table 2

The Inclusion and Exclusion Criteria

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles)	Journals (review), book series, book, chapter in a book, conference proceeding
Language	English	Non-English
Timeline	Between 2011 and 2021	< 2010

Eligibility

A total of 110 articles were prepared for the third stage of the review: the eligibility stage. At this stage, the titles, abstracts, and the main contents of all the articles were carefully examined to ensure that they fulfilled the inclusion criteria and are suitable in achieving the objectives of the current research. Consequently, a total of 50 remaining articles with empirical methodology were selected for analysis (See Figure 1).

Figure 1 Data Abstraction and Analysis

```
┌─────────────────────────────┐       ┌──────────────────────────────────────┐
│ Records retrieved using     │       │ Materials published before 2011,      │
│ databases                   │──────▶│ published in non-English and          │
│ (Scopus, Web of Science and │       │ published in a form of proceeding,    │
│ Google Scholar) (n = 428)   │       │ book chapters, book series, book      │
│                             │       │ etc and the field of non-social       │
│                             │       │ science were excluded (n = 318)       │
└─────────────────────────────┘       └──────────────────────────────────────┘
           │                                          │
           ▼                                          ▼
┌─────────────────────────────┐       ┌──────────────────────────────────────┐
│ Duplicates records were     │       │ Total records after screening         │
│ removed (n = 1)             │       │ (n =110)                              │
└─────────────────────────────┘       └──────────────────────────────────────┘
           │                                          │
           └──────────────┐          ┌────────────────┘
                          ▼          ▼
        ┌──────────────────────────────────────────────────────┐
        │ Full-text articles excluded due to focus on           │
        │ non-methodological aspects                            │
        │ (n = 60)                                             │
        └──────────────────────────────────────────────────────┘
                          │
                          ▼
        ┌──────────────────────────────────────────────────────┐
        │ Full-text articles assessed for eligibility and       │
        │ included in qualitative synthesis                     │
        │ (n = 50)                                             │
        └──────────────────────────────────────────────────────┘
```

Data abstraction and analysis

This study utilised the integrative review technique which analyses and synthesizes diverse research designs simultaneously (qualitative, quantitative and mixed methods), hence, reviews can be conducted systematically and rigorously [22].

The process involves tagging materials into appropriate themes based on thematic analysis. Forty-seven eligible articles were examined and after a thorough assessment, a total of thirteen (13) themes were derived for the analysis and will be further finalized as the most pertinent success factors for Malaysia's higher education. These themes were discussed and developed as the results of the study.

Results and Discussion

Thirteen themes related to the transformation elements that incorporate previous research points of view from several countries and other sectors such as manufacturing and healthcare between 2011 to 2021 appeared to be similar to the scenario of the Malaysian higher institution's landscape. The summaries of the significant findings are further elaborated in Table 3.

Table 3

Identification of theme sources

#	THEMES	SOURCES
1	Globalization	[10, 13, 23-29]
2	Income Generation and Financial Implication	[1, 8, 18, 20, 29-37]
3	Institutional Policies	[8, 15, 22, 28, 29, 36-39]
4	Knowledge Management and Learning Innovation	[8, 39, 40]
5	Governance in Institutional Restructuring	[2, 8, 14, 18, 22, 25, 29, 38-43]
6	Synergy	[4, 30, 31, 40, 44-47]
7	Leadership	[5, 18, 20, 27, 31, 37, 46, 48, 49]
8	Research	[8, 15, 22, 28, 29, 36-39]
9	Information and Communication Technology	[5, 18, 20, 27, 31, 37, 46, 48, 49]
10	Decision Making	[5, 17, 40, 50, 51]
11	Communication	[5, 6, 15, 39]
12	Culture	[3, 4, 9, 17, 18, 42, 44, 45, 52]
13	Autonomy	[51, 53]

The thematic analysis found 22 out of 50 studies (44%) on institutional policies, 18 out of 50 studies (36%) leadership, 17 of 22 on Income Generation and Financial Implication and Governance in Institutional Restructuring (34%) each and Continuous Research Innovation in ICT and Knowledge Management for Learning Innovation contributing from 14 of 22 studies (28%), thus, indicated the utmost contributor are the internal factors in the transformation success for most higher education institutions. The emergence of articles related to the transformation of HEIs published were relatively less researched, which is highly required to be studied by researchers. Consequently, the higher education system has undergone multiple rounds of transformations- embarked on a structural transformation of its economy with the agenda of human capital development taking center stage in the transformation agendas.

Using cognitive mapping analysis developed from NVIVO, these five (5) most pertinent factors from fifty (50) studies are considered viable to determine the transformation success in the higher education sector, as highlighted by most authors in most continents. Figure 2 summaries the major findings of the variables.

Figure 2 **Cognitive Mapping Analysis developed using NVIVO**
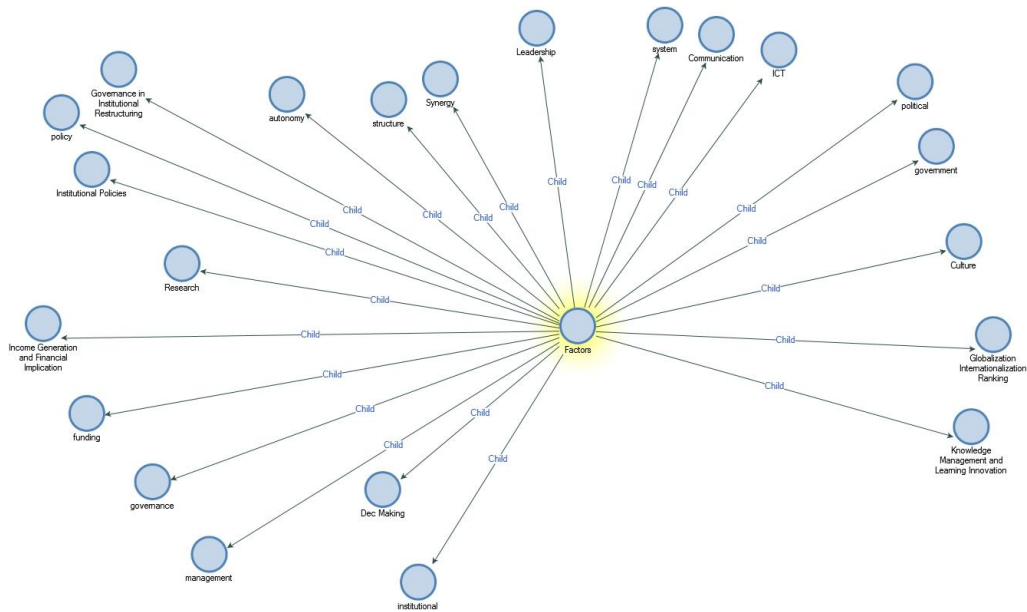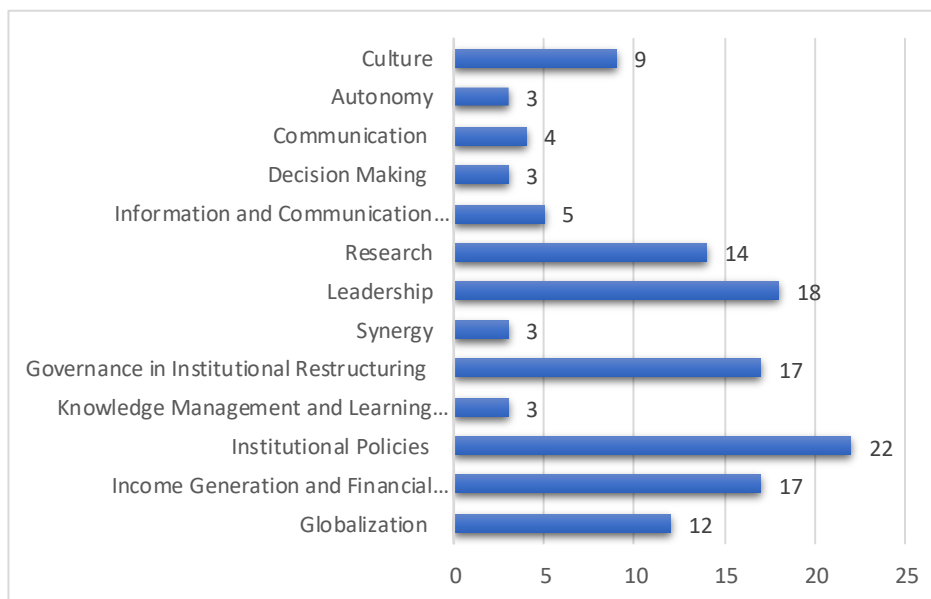

Figure 3 shows the concluded themes while the discussion on the utmost pertinent factors for the higher education perspective was elaborated thereafter.

Figure 3 Themes Eligibility

Institutional Policies

To identify areas requiring constant transformation, institutions need to evaluate and analyze their performance by reviewing their business strategies, corporate structure, operational process, and human capital policies. These changes have to be implemented accordingly to maintain its competitive advantages. While education has been regarded as the asset for improvising teaching and learning agenda[6], organizational culture assists institutions to transform and develop for the better. [20]stated that reformation comes with designated institutional policies and the amount of financial investment with additional challenges that need to be addressed

by leaders in terms of building capacity where talent is the mass driver to enhance performance maintain sustainability. A significant finding concluded that the transformation process was slow and delayed due to its futile institutional policy enactment and lack of clear orientation toward achieving the desired vision and goal [8, 20, 39]. In accordance with the present results, previous studies have demonstrated that government policies influenced the formation and implementation of institutional policies to its HEI[32, 54, 55]. This finding is consistent with [56] who found that institutional governance, the administrative structures, and processes are the pertinent concern in structuring the policy directions of Higher Education Institutions (HEIs).

These results confirm the association between the institutional policy constitution and institutional governance are the driver of transformation supported by the legislation of new higher education policy that strengthens and improves research via R&D innovation and commercialization efforts, increase student funding and scholarship, and broadening access to less advantaged students while being autonomous and sustainable[7, 16, 21, 23, 25, 35, 41, 51, 57-60]. Global institutional rankings mold most HEIs transformation policy to recognize issues, endorse higher instruction policies and enact organizational change (Erkkilä, 2014; Fallon et al., 2011). The ranking system also accords with the institutional globalization and internationalization policy to globally competitive through research and internationalization approaches[1, 22, 61, 62]. [13]stated that the institutional policy governs the higher education community to effectively advance the university's interests and goals as a whole. In addition, [8] supported that sustainable policies also need to be developed to incorporate the sustainability principles and initiatives into the universities' implementation.The higher education reform policies have seen moved towards broadening the university-industry networking and collaborations. This constitution has strengthened the collaborations between teaching and learning, research and innovation education, and shown a significant result in improving and increasing transnational education programs.

Leadership

Most studies [7, 16, 17, 19, 32, 33, 51, 55-57, 63-66] agreed that successful implementation requires the commitment of top management. In this study, the top management commitment is interpreted as the underlying leadership quality, which is the heart issue in many organizations and is primarily considered in research. [24]quoted that *"if the top is not driving the transformation, it will not happen".*

[1, 35, 38] claimed that the basis of leadership is required in the historical and present development of a university. Leadership may also be a driving force when the leader sees transformation as a method of passing on his/her legacy to the organization ([33, 35, 49, 54, 55, 67] supports this statement, stating that leadership is the most pervasive influence on organizational learning effects.[8] concluded that the role of leadership is highly important in designing university's policies. It is the the core values of an organization that determines the direction of the university. [1, 35, 38] concluded that leadership in the education system is robust in setting up a clear course or program to better understand those in the academic system. A clear pathways will also assist lecturers in designing course outlines which match the pedagogical objectives and are aligned to the university policies and industrial needs. Management leaders are deemed change specialists responsible for effectively actualizing the change at the organization level. From the industrial context, the university can also be classified as a business entity whereby students are considered prospects or the shareholders of the businesses. [6, 24] added that leaders must also develop a support system in the organization. In the education system, strong support from the management reflects the leadership capacity in the sector. Leaders should be able to support academicians in performing their job to the

best of their ability. Sufficient resources and support are necessary for the workforce to enhance their creativity and motivation.

The organization's vision and mission need to be aligned to its objectives to enable the strategic enhancement of its role in educating and producing skilled workers for the professional labor market. Thus, education is seen as a strong competitive platform in many societies. According to[41], globalization has become the backbone in enabling institutions to perform more efficiently.

The forces of globalization have driven nations to initiate policy reforms in order to ensure the excellence, relevance, and marketability of the higher education system while the local ethnic polarizations work in diagonally opposite directions by demanding equal opportunities, access and treatment. *[1]*describe this evolving scenario in higher education as *"the social transformation that has entailed a fundamental restructuring of the organization of higher education itself"*. [41],study stated that the essence of the restructuring process is a redefinition of the relationship between the university, the state, and the market, and a drastic reduction of institutional autonomy. The restructuring of higher education is happening in many countries through cultural diffusion and institutional isomorphism. However, this does not mean that all higher education systems are uniform in these changes since there are varied responses to these globalization forces depending on the politics, economy, culture, and structural features of the particular education system. [41],also mentioned that globalization had become an effective weapon for the higher education transformation.

Income Generation and Financial Implication

The financial implications of the expansion of higher education have always been managed by governments through a substantial reduction in public funding for each student, requiring these institutions to reshape their internal organization and practices. To be a university student or a member of the staff involves constant changes within the working environment. The impacts of the substitution of student grants with loans and the more recent introduction of fees for undergraduates have further transformed student's experience of higher education. Currently, higher education institutions are becoming more dependent on their entrepreneurial capacity for revenue through student enrolments and research grants, commercialization of product contracts as well as endowments. In other words, the constraints of financial means available for post-secondary education gave rise to the privatization of higher education.

Higher education contributes to improved national income through diverse channels. To begin with, the labor force participation rates among degree holders are significantly higher than those who are less educated. An equally important fact is that unemployment rates are lower among university graduates than secondary school graduates. This factor certainly increases the demand for higher education since the opportunity cost of seeking higher education does not seem too much when compared to the level of unemployment among secondary school graduates. Thus, enrolling in tertiary education is deemed to be less costly and is a way of reducing unemployment chances. Higher educated talents are mostly highly paid, thus, leading to an increased average income among those with education. The capacity building and knowledge-driven production of goods and services in the labor market also increase the demand for a more educated workforce equipped with the century's skills.

Governance in Institutional Restructuring

Institutional restructuring is defined as changes in both governance and management of institutions. Governance involves structures and forms of decision-making while administrations carry out the implementation of decisions. [6]mentioned that institutional restructuring is related to performance, control of the

institution, and decision making, thus providing specific structures for direction in fulfilling the expectation and obligation of the institution. On the other hand, [23]defined governance as a framework in which an organization is directed and control. [8]indicate that the keys to successful transformation are governance, academic career, and academic activities involving various HEIs, academics' identity leadership supports, and strategies.

[28]mentioned that a new governance model is recommended wherein the University leaders need to be given autonomy in decision-making and finances to focus more on funding and the branding of university, plays the role of the custodian of academics, research, and students to sustain its performance and operation. Human habits and satisfaction with their current performance, status, and the situation will initially create resistance to change. Compliant behaviours do not assist in making institutional change initiatives successful. Thus, improving organizational productivity is central to institutional restructuring as many institutions could not afford to manage change. Management changes are often due to technological advancement, production techniques, customer and stakeholders' behavior, economic changes, and business activities that force institutions to initiate change for sustainability [37]. Most beneficial management change can be realized through organization structure, organization employees, specific business technology, production techniques, and administration restructuring[13, 54, 55, 57, 63]. Current studies reported by [39]stated that the transformation of higher education institutions played a crucial role in promoting sustainability, disseminating knowledge, and develop leadership of the institution's people.

Continuous Research Innovation in ICT and Knowledge Management for Learning Innovation

The concept of e-learning has taken off as a lens to study put innovation for teaching and learning on technology-enhanced learning (TEL) in higher education. Technological learning plays an important role in firms' competitive success, supporting their ability to develop, maintain and exploit dynamic core competencies, besides leveraging firms to pursue technology-based strategies[43, 65]. Knowledge is becoming an increasingly popular commodity between nations. The growth of the knowledge-based economy and globalization have induced competition among employers and institutions worldwide for the best brains. Several economic and social factors encourage international student mobility and competition between countries for foreign students [36], encouraging the traditional form of cross-border flow in higher education involves the migration of students from one country to another to advance their studies. The current study by [5]founded that the role of academics is the central key and hence, accelerated the digitalization and adoption of ICT integration in higher education[39, 66, 68].

The Malaysian private higher education sector has been attempting to adopt the higher education system of developed nations since the mid-1990. Through this adaptation, numerous international campuses have been set up in Malaysia to cater for a vast majority of local and international students, of which is currently viewed as an educational hub by foreign partners who are keen to work towards a mutual solution for both parties. In addition to investing new faculty positions and launching targeted fund-raising activities, a prominent response to knowledge change at the local campus level is to alter the academic structure by constantly updating the selection of courses, degree programs, and departments. While knowledge change in higher education is often viewed as inertia or expansion, higher education professionals understand the threat of selective consolidation and program elimination in terms of insufficient centrality, quality or cost-effectiveness. The digitalization and modernization of higher education is happening today with exceptional speed, especially during the pandemic Covid-19[4, 11, 39, 50, 58, 66, 68].

Conclusion

It can be concluded that from this research, the internal factors emerged as an overarching theme and were critical to ensuring the success of the overall initiative of transformation in Higher Education in reality. Undoubtedly, the management of higher education institutions may encounter some difficulties in handling transformation. In addition to a difficult political climate and diminished public confidence, financial constraints loom largely alongside the pressure of alternative structural and resource commitments in various knowledge areas. Deliberations over academic restructuring and resource reallocation may seem endless – often bogged down by inadequate processes which lack substance and likely consequences of proposed changes. The unprecedented public scrutiny of the academic enterprise exacerbates tensions on campus between proponents of different academic areas, between those responsible for planning and those responsible for safeguarding faculty governance, as well as between those who advocate compliance with external demands for demonstrated accountability and those who argue for resistance. The intermingling of academic considerations with wider economic and political concerns suggests that deliberations over the reorganization of academic units are most likely to be ongoing. At the same time, little is known about the consequences of structural and material resource shifts in academic areas for students and society

Moreover, it is uncertain whether any shared sense of institutional purpose, the basis for interdependence on campuses, and the core academic activities of knowledge creation, preservation, and transmission will remain viable. Still, little research substantiates this claim that the human factor is the major constraint to this transformation agenda in the higher education perspective. Nonetheless, the result can be further explored to perform a comprehensive study that needs future work, including investigating the interaction and relationship between these themes and expanding on the current knowledge.

REFERENCE

1. Wright, S. and J.W. Ørberg, *Autonomy and control: Danish university reform in the context of modern governance.* Learning and Teaching, 2008. **1**(1): p. 27-57.DOI: https://doi.org/10.3167/175522708783113550.
2. Mader, C., G. Scott, and D.A. Razak, *Effective change management, governance and policy for sustainability transformation in higher education.* Sustainability Accounting, Management and Policy Journal, 2013.
3. Amer, H. and C. Shaw. *Lean leadership paradoxes: a systematic literature*.DOI: https://doi.org/10.32738/CEPPM.201411.0028.
4. Benavides, L.M.C., et al., *Digital transformation in higher education institutions: A systematic literature review.* Sensors, 2020. **20**(11): p. 3291.DOI: https://doi.org/10.3390/s20113291.
5. Castro-Guzmán, W., *Challenges of Professional Development for Technology Integration in Higher Education.* Cuadernos de Investigación Educativa, 2021. **12**(2).DOI: https://doi.org/10.18861/cied.2021.12.2.3090.
6. Lee, M.N.N., *Global trends, national policies and institutional responses: Restructuring higher education in Malaysia.* Educational Research for Policy and Practice, 2004. **3**(1): p. 31-46.DOI: https://doi.org/10.1007/s10671-004-6034-y.
7. Foxon, T.J., *Transition pathways for a UK low carbon electricity future.* Energy Policy, 2013. **52**: p. 10-24.DOI: https://doi.org/10.1016/j.enpol.2012.04.001.
8. Shariffuddin, S.A., et al., *Transformation of higher education institutions in Malaysia: a review.* Journal of Global Business and Social Entrepreneurship (GBSE), 2017. **1**(2): p. 126-136.
9. Burnes, B. and P. Jackson, *Success and failure in organizational change: An exploration of the role of values.* Journal of change management, 2011. **11**(2): p. 133-162.DOI: https://doi.org/10.1080/14697017.2010.524655.

10. Maassen, P., Å. Gornitzka, and T. Fumasoli, *University reform and institutional autonomy: A framework for analysing the living autonomy.* Higher Education Quarterly, 2017. **71**(3): p. 239-250.DOI: https://doi.org/10.1111/hequ.12129.

11. Antonopoulou, H., et al., *Transformational leadership and digital skills in higher education institutes: during the COVID-19 pandemic.* Emerging science journal, 2021. **5**(1): p. 1-15.DOI: https://doi.org/10.28991/esj-2021-01252.

12. Kitchenham, B. and S. Charters, *Guidelines for performing systematic literature reviews in software engineering, 1-44.* 2007.

13. Mallett, R., et al., *The benefits and challenges of using systematic reviews in international development research.* Journal of development effectiveness, 2012. **4**(3): p. 445-455.DOI: https://doi.org/10.1080/19439342.2012.711342.

14. Okoli, C., *A guide to conducting a standalone systematic literature review.* Communications of the Association for Information Systems, 2015. **37**(1): p. 43.DOI: https://doi.org/10.17705/1CAIS.03743.

15. Tasdemir, C. and R. Gazo, *A systematic literature review for better understanding of lean driven sustainability.* Sustainability, 2018. **10**(7): p. 2544.DOI: https://doi.org/10.3390/su10072544.

16. Kotter, J.P., *Leading change: Why transformation efforts fail, 6(1), 9.* 1995.

17. Burns, J. and J. Vaivio, *Management accounting change.* Management accounting research, 2001. **12**(4): p. 389-402.DOI: https://doi.org/10.1006/mare.2001.0178.

18. Prastacos, G., et al., *An integrated framework for managing change in the new competitive landscape.* European Management Journal, 2002. **20**(1): p. 55-71.DOI: https://doi.org/10.1016/S0263-2373(01)00114-1.

19. Hamel, G. and C.K. Prahalad, *Competing in the new economy: Managing out of bounds.* Strategic management journal, 1996. **17**(3): p. 237-242.DOI: https://doi.org/10.1002/(SICI)1097-0266(199603)17:3<237::AID-SMJ829>3.0.CO;2-G.

20. Mzangwa, S.T., *Transformation as part of evolving organisational culture in the South African higher education institutions.* Cogent Social Sciences, 2019. **5**(1): p. 1638635.DOI: https://doi.org/10.1080/23311886.2019.1638635.

21. Mohamed Shaffril, H.A., S.F. Samsuddin, and A. Abu Samah, *The ABC of systematic literature review: The basic methodological guidance for beginners.* Quality & Quantity, 2021. **55**(4): p. 1319-1346.DOI: https://doi.org/10.1007/s11135-020-01059-6.

22. Whittemore, R. and K. Knafl, *The integrative review: updated methodology.* Journal of advanced nursing, 2005. **52**(5): p. 546-553.DOI: https://doi.org/10.1111/j.1365-2648.2005.03621.x.

23. Leithwood, K., et al., *How Leadership Influences Student Learning. Review of Research.* Wallace Foundation, The, 1-90., 2004.

24. Liker, J.K. and T.Y. Choi, *Building deep supplier relationships.* Harvard business review, 2004. **82**(12): p. 104-113.

25. Mustafa, M.Z.b. and M.N.b. Nordin, *Special Elements and Values Needed in Leadership for Special Education.* Review of International Geographical Education Online, 2021. **11**(4).

26. Radnor, Z. and G. Bucci, *Analysis of lean implementation in UK business schools and universities.* Association of Business Schools, London, 2011. **74**.

27. Rees, S.J. and H. Protheroe, *Value, kaizen and knowledge management: Developing a knowledge management strategy for Southampton Solent University.* The Electronic Journal of Knowledge Management, 2009. **7**(1): p. 135-144.

28. Varghese, N. and M. Martin, *Governance reforms and university autonomy in Asia.* International Institute for Educational Planning (IIEP), 50., 2013.

29. Varghese, N.V. *Governance reforms in higher education: A study of selected countries in Africa, 1-30.*

30. Apple, M.W., *Can education change society? ist edition pages 200.* 2012: Routledge.DOI: https://doi.org/10.4324/9780203083550.

31. Balzer, W.K., et al., *A review and perspective on Lean in higher education.* Quality Assurance in Education, 24(4), 442–462. , 2016.DOI: https://doi.org/10.1108/QAE-03-2015-0011.

32. Cano, M., E. Viza, and A. Kourouklis. *Critical success factors for implementing continuous improvement approaches within public sector organisations.*

33. Event, G. and W. Paper, *Leadership and Change in Post - Conflict States : A Case Study of Liberia. East, 1–31.* 2010.

34. Lussier, R.N., *Human Relations in Organizations: Applications and skills building, 642.* 1999.

35. Mader, C., G. Scott, and D.A. Razak, *Effective change management, governance and policy for sustainability transformation in higher education.* Sustainability Accounting, Management and

Policy Journal, Vol. 4 No. 3, pp. 264-284. , 2013.DOI: https://doi.org/10.1108/SAMPJ-09-2013-0037.

36. Siddaway, A., *What is a systematic literature review and how do I do one.* University of Stirling, 2014. **1**(1): p. 1-13.

37. Thomas, A., et al., *Identifying the characteristics for achieving sustainable manufacturing companies.* Journal of manufacturing technology management, 23(4), 426–440. , 2012.DOI: https://doi.org/10.1108/17410381211230376.

38. Siano, A., et al., *Corporate communication management: A framework based on decision-making with reference to communication resources.* Journal of Marketing Communications, 2013. **19**(3): p. 151-167.DOI: https://doi.org/10.1080/13527266.2011.581301.

39. Tabucanon, A.S., et al., *Investigating the Critical Issues for Enhancing Sustainability in Higher Education Institutes in Thailand. International Journal of Sustainable Development and Planning, 16(3), 503–514.* 2021.DOI: https://doi.org/10.18280/ijsdp.160311.

40. Bloom, D.E., P. Altbach, and H. Rosovsky, *Looking Back on the Lessons of'Higher Education and Developing Countries: Peril and Promise': Perspectives on China and India.* Available at SSRN 2861079, 3(1), 2016.DOI: https://doi.org/10.6017/ijahe.v3i1.9635.

41. Meredith, S. and M. Burkle, *Building bridges between university and industry: theory and practice.* Education+ Training, 50(3), 199–215. , 2008.DOI: https://doi.org/10.1108/00400910810873982.

42. Näslund, D., *Lean, six sigma and lean sigma: fads or real process improvement methods?* Business process management journal, Vol. 14 No. 3, pp. 269-287., 2008.DOI: https://doi.org/10.1108/14637150810876634.

43. Rathi, D., L.M. Given, and E. Forcier, *Knowledge needs in the non-profit sector: an evidence-based model of organizational practices.* Journal of knowledge management, Vol. 20 No. 1, pp. 23-48., 2016.DOI: https://doi.org/10.1108/JKM-12-2014-0512.

44. Armenakis, A.A. and A.G. Bedeian, *Organizational change: A review of theory and research in the 1990s.* Journal of management, 1999. **25**(3): p. 293-315.DOI: https://doi.org/10.1177/014920639902500303.

45. Azman, N., M. Sirat, and V. Pang, *Managing and mobilising talent in Malaysia: issues, challenges and policy implications for Malaysian universities.* Journal of Higher Education Policy and Management, 2016. **38**(3): p. 316-332.DOI: https://doi.org/10.1080/1360080X.2016.1174406.

46. Bailey, T., N. Badway, and P.J. Gumport, *For-Profit Higher Education and Community Colleges. Educational Research, x, 1–69.* 2003.

47. Balzer, W.K., M.H. Brodke, and E.T. Kizhakethalackal, *Lean higher education: successes, challenges, and realizing potential.* International Journal of Quality & Reliability Management, 2015.DOI: https://doi.org/10.1108/IJQRM-08-2014-0119.

48. Bennett, M. and N.H.N.D. N, *The role of culture and leadership in lean transformation: a review and assessment mode. International Journal of Lean Thinking, 3(1), 119–138.* 2012.

49. Ferrer-Balas, D., et al., *An international comparative analysis of sustainability transformation across seven universities.* International Journal of Sustainability in Higher Education, Vol. 9 No. 3, pp. 295-316., 2008.DOI: https://doi.org/10.1108/14676370810885907.

50. Appelbaum, S.H., et al., *Factors that impact the success of an organizational change: a case study analysis.* Industrial and Commercial Training, 49(5), 213–230. , 2017.DOI: https://doi.org/10.1108/ICT-02-2017-0006.

51. Dobbins, M. and C. Knill, *Higher education governance in France, Germany, and Italy: Change and variation in the impact of transnational soft governance.* Policy and Society, 2017. **36**(1): p. 67-88.

52. Apple, M.W., *Markets, standards, teaching, and teacher education.* Journal of teacher education, 2001. **52**(3): p. 182-196.DOI: https://doi.org/10.1177/0022487101052003002.

53. Nasruddin, E., R. Bustami, and S. Inayatullah, *Transformative foresight: Universiti Sains Malaysia leads the way.* Futures, 2012. **44**(1): p. 36-45.DOI: https://doi.org/10.1016/j.futures.2011.08.005.

54. Emiliani, B., *Lean in Higher Education by Bob Emilani Lean in Higher Education. Strategies, (February 2005), 1–4. .* 2010.DOI: https://doi.org/10.1201/EBK1439814659-c1.

55. Emiliani, M.L., *Improving business school courses by applying lean principles and practices.* Quality Assurance in Education, 12(4), 175–187, 2004.DOI: https://doi.org/10.1108/09684880410561596.

56. Gioia, D.A. and J.B. Thomas, *Identity, image, and issue interpretation: Sensemaking during strategic change in academia.* Administrative science quarterly, 1996: p. 370-403.DOI: https://doi.org/10.2307/2393936.

57. Hines, P. and S. Lethbridge, *New development: creating a lean university.* Public Money and Management, 2008. **28**(1): p. 53-56.DOI: https://doi.org/10.1080/14783363.2018.1429258.

58. Kundu, G. and B.M. Manohar, *Critical success factors for implementing lean practices in it support services.* International Journal for Quality Research, 2012. **6**(4): p. 301–312.

59. Leite, H., N. Bateman, and Z. Radnor. *Lean implementation and sustainability: a classification model of the main organizational barriers and enablers*.

60. Loh, K.L. and S.M. Yusof, *Blue ocean leadership activities improve firm performance.* International Journal of Lean Six Sigma, Vol. 11 No. 2, pp. 359-375., 2019.DOI: https://doi.org/10.1108/IJLSS-09-2018-0102.

61. Yaisawarng, S. and Y.C. Ng, *The impact of higher education reform on research performance of Chinese universities.* China Economic Review, 2014. **31**: p. 94-105.DOI: https://doi.org/10.1016/j.chieco.2014.08.006.

62. Yonezawa, A. and Y. Shimmi, *Transformation of university governance through internationalization: Challenges for top universities and government policies in Japan*, in *Matching visibility and performance*. 2016, Brill Sense. p. 101-118.DOI: https://doi.org/10.1007/978-94-6300-773-3_6.

63. Campbell, J., *The trilemma of malaysian higher education.* International Journal of Technology Management & Sustainable Development, 2018. **17**(1): p. 3-24.DOI: https://doi.org/10.1386/tmsd.17.1.3_1.

64. Hines, P., D. Taylor, and A. Walsh, *The Lean journey: have we got it wrong?* Total Quality Management & Business Excellence, 2020. **31**(3-4): p. 389-406.

65. Kocoglu, I., et al., *Learning, R&D and manufacturing capabilities as determinants of technological learning: enhancing innovation and firm performance.* Procedia-social and behavioral sciences, 2012. **58**: p. 842-852.DOI: https://doi.org/10.1016/j.sbspro.2012.09.1062.

66. Kundu, A. and T. Bej, *Experiencing e-assessment during COVID-19: an analysis of Indian students' perception.* Higher Education Evaluation and Development, Vol. 15 No. 2, pp. 114-134., 2021.DOI: https://doi.org/10.1108/HEED-03-2021-0032.

67. Francis, D., *Lean and the learning organization in higher education.* Canadian Journal of Educational Administration and Policy, 2014(157).

68. Abuže, A. and V. Ļubkina. *Transversal Competencies for Digital Readiness and Development of Human Capital in Engineering Education*.DOI: https://doi.org/10.17770/etr2021vol2.6658.