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RESEARCH ARTICLE

Innovation and Organizational Performance in Public Universities: An Empirical Study

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ABSTRACT

This research examines how innovation relates to the performance of public higher education institutions in Indonesia. Utilizing survey data from 30 public universities in Java, structural equation modeling is employed to analyze the influence of both administrative and technical innovation on diverse aspects of HEI performance. The results indicate that organizational outcomes are influenced differently by various types of innovation. Administrative innovation has a significant positive impact on staff satisfaction but does not affect other performance dimensions. On the other hand, technical innovation has been shown to have a significant positive impact on staff satisfaction, research publications, financial performance, as well as industry and community engagement. The findings add to the current pool of information and provide valuable suggestions for leaders in higher education institutions who are looking to improve the innovation and success of their schools. Furthermore, this study provides a set of measurement scales to aid HEIs in evaluating their innovation capabilities.

INTRODUCTION

In higher education, the performance of organizations heavily relies on innovation. This research aims to investigate how administrative and technical innovations affect the overall performance of 30 public universities in Indonesia. The study focuses on various aspects such as student and staff satisfaction, research and publication, financial performance, international relations, and community involvement. By analyzing empirical data, we aim to understand how innovation influences organizational outcomes and provide suggestions for improving both innovation and performance in these universities.

According to the OECD and World Bank (2024), Indonesia's innovation system is underdeveloped, with significant room for improvement in science, technology, and innovation capabilities. Innovation greatly relies on the skills and knowledge of the workforce, with the effectiveness and accessibility of education and training being crucial for promoting innovation. Recent policy discussions have extended the focus on innovation beyond the private sector to public services,

including education. While public services may face different incentives compared to businesses, there is a strong case for innovation in education to maximize the return on public investment.

One of the main issues is the funding limitations faced by public universities. Following the decentralization reforms, government subsidies for higher education have significantly decreased, prompting universities to seek alternative funding through the privatization and commercialization of their educational services (Susanti, 2011). This approach, however, raises issues of inequality, particularly for students from low-income groups. Privatization not only limits access to quality education for marginalized groups but also increases education costs, pushing universities to focus more on profit rather than their mission to provide equitable education (Hill & Wie, 2012).

Moreover, the centralized management adopted by public universities often exacerbates institutional inefficiencies. Complex governance structures tend to slow down decision-making, and this bureaucratic rigidity often results in institutions being slow to respond to dynamic local needs. Additionally, public universities are under excessive government regulation, which limits their flexibility in developing innovative curricula or new programs (Hill & Wie, 2012). For instance, strict rules from the ministry often impede university autonomy in resource allocation, limiting their ability to quickly adapt to changing labor market demands or globalization pressures.

Innovation challenges are also a critical issue (Khodayari et al., 2024). The bureaucratic inertia ingrained in public universities often hinders the adoption of new technologies, innovative teaching methods, or collaborations with the private sector that could drive research and development (Bastedo, 2007). Furthermore, resource limitations extend beyond funding to include a lack of expertise in innovation and technology that could support the educational transformation needed to compete globally. External performance indicators imposed by the government often burden universities with administrative targets that encroach on academic autonomy, diverting time and energy that should be focused on innovative research toward bureaucratic performance reporting (McKelvey et al., 2018).

Nonetheless, the potential for higher education reform in Indonesia should not be overlooked. Governance reforms that support further decentralization, strengthen institutional autonomy, and increase more targeted government funding could serve as catalysts for improving the performance of public universities. Some public universities have demonstrated that with greater autonomy and sufficient financial support, they can compete in global research, enhance innovation, and expand access to quality education (Hill & Wie, 2012). In the long run, public universities that can capitalize on these reform opportunities have the potential to become centers of educational excellence in Indonesia, though structural challenges still need to be addressed.

Higher education institutions, particularly in developing countries, have faced increasing competition due to technological advancements and globalization. While private universities have often been more adaptable, public institutions may be constrained by government funding and centralized management. This study examines the need for innovation in Indonesian public universities to enhance their performance efficiency. Research on the significance of innovation in higher education in Indonesia is scarce even though it is becoming increasingly important.

LITERATURE REVIEW

Definition of Innovation

Organizations striving to gain a competitive edge and enhance their performance now view innovation as a vital tool for success. This involves implementing comprehensive strategies, resources, and systems to drive innovation. Innovation has been defined in various ways by scholars. Parashar and Singh (2005) emphasize its role in integrating knowledge, while Tran (2008) focuses on its creative and commercial aspects. Du Plessis (2007) highlights innovation's potential to generate new knowledge and drive business growth.

Innovation, as defined by Damanpour et al. (2009), is crucial for firms to adapt to changing environments and capitalize on new market opportunities. Research consistently supports this view, demonstrating innovation's positive impact on entrepreneurial performance, organizational performance, and various other organizational outcomes. Seng et al. (2011) identify eight types of innovation in the literature. While several typologies exist, three dominant categories have emerged: administrative and technical, product and process, and radical and incremental.

Evan (1966) and subsequent scholars differentiate between administrative and technical innovations, emphasizing their distinct implications for organizational structure and processes. Technical innovations pertain to the enhancement of products, services, and manufacturing methods, whereas administrative improvements center around the organization's framework and leadership. These two types of innovation often involve distinct decision-making processes and can have varying impacts on organizational performance.

Administrative Innovation

Administrative innovation, as defined by various scholars, involves implementing new procedures, policies, and organizational structures to improve planning, organization, personnel management, and service delivery. It is a key component of organizational innovation and can enhance various aspects of organizational operations, including work redesign, skill development, and management systems. Administrative innovation is particularly valuable for organizations operating in dynamic and competitive environments.

Technical Innovation

According to Subramanian and Nilakanta (1996), this aspect of organizational innovation involves incorporating innovative concepts related to products, services, or manufacturing procedures. Liao et al. (2008) and Armbruster et al. (2008) similarly characterized technical innovation as relating to products, manufacturing, facilities, and organizational routines. Such innovation positively influences production speed, flexibility, and quality. As a result, technical innovation contributes to competitive advantage, organizational excellence, improved performance, and long-term business viability, making it a crucial tool for organizations seeking success in competitive markets.

Innovation is crucial for modern businesses, providing advantages like staying ahead of the competition and enhancing effectiveness. The kind of innovation that works best can differ depending on the specific industry. This study focuses on administrative and technical innovation as key drivers of performance in higher education institutions.

Innovation in Higher Education

Educational organizations are crucial in the advancement of society and should be flexible in meeting the changing demands of the global community. Fostering an innovative teaching and learning environment requires collaboration among all stakeholders. Such an environment is essential for producing high-quality graduates. Educational innovation can occur in various areas, including theory, practice, curriculum, pedagogy, policy, technology, administration, culture, and teacher training.

Higher education has become increasingly diverse and complex. To foster innovation, Brennan et al. (2014) recommend cultivating a culture of innovation, providing incentives for staff, promoting the use of new learning technologies, encouraging cross-institutional collaboration, developing teaching staff skills, and reviewing organizational structures. These measures can help HEIs adapt to the evolving needs of students and the broader higher education landscape.

According to the OECD (2013), educational innovation refers to changing key aspects of the learning setting, such as students, teachers, materials, and tools. It also involves enhancing leadership, design, evaluation, and feedback mechanisms. Serdyukov (2017) emphasizes the importance of educational

innovation for a nation's socio-economic well-being. Education is a crucial foundation for a sustainable future, making innovation in this sector essential.

Definition of Organizational Performance

Performance indicators are essential for assessing organizational success by comparing actual outcomes with expectations and tracking progress toward goals. They help managers evaluate organizational activities and maintain a competitive advantage. Performance remains a central focus in management research and practice. However, there is no single agreed-upon definition due to variations in research objectives and perspectives.

Historically, the success of a company has been measured by its financial success, with a focus on budgets, assets, operations, products, services, markets, and employees playing a key role in determining overall profitability (Dixon, 1999; Thurbin, 1994). Consequently, Thurbin (1994) links the financial advantages of organizational performance to the achievement of the organization. Yeo (2003) argues that performance measurement systems are essential for understanding organizational performance, tracking progress, and managing change. While quantitative measures are valuable, qualitative data is crucial for assessing critical objectives that inform decision-making and action.

Venkatraman and Ramanujam (1986) propose that evaluation of a company's performance should be based on financial measurements, operational efficiency, and the impact it has on achieving goals. Darroch (2005) utilized both comparative and internal performance measures, including financial indicators and non-financial metrics like market share and sales growth.

Organizational Performance in Higher Education

Higher education institutions are complex systems with diverse stakeholders. Performance evaluation often focuses on intangible factors like educational quality, research, efficiency, internationalization, and societal impact. The Balanced Scorecard (BSC) is a commonly employed model for evaluating performance across various areas including finance, customer satisfaction, internal operations, and employee development. Zangoueinezhad and Moshabaki (2011) expanded the BSC to include a knowledge-based perspective, incorporating metrics related to regional impact, financial sustainability, internal processes, and human capital development.

Six aspects are taken into consideration when assessing universities in this research: student contentment, employee contentment, financial achievements, academic research and publications, global connections, and collaborations with industries and the community. These dimensions are based on the work of Cameron (1978), the Malcolm Baldrige National Quality Award (MBNQA, 1999), and Zangoueinezhad and Moshabaki (2011).

Innovation and Organizational Performance

Research examining the connection between innovation and performance has expanded significantly in recent decades. Although there has been significant advancement, the research results still vary greatly, emphasizing the importance of ongoing research to improve our comprehension of economic actions, data accuracy, and analytical techniques.

Innovation is a strategic asset for organizations seeking to enhance performance by adapting to change, improving efficiency, building reputation, and generating financial gains (Crossan & Apaydin, 2010). María Ruiz-Jiménez and del Mar Fuentes-Fuentes (2013), along with Chaganti and Damanpour (1991), support the notion that innovation is crucial for achieving competitive advantage and improving organizational effectiveness. Damanpour et al. (2009) discovered that innovation can help firms gain first-mover advantages and superior performance. Innovation is seen as a key element for driving the growth and prosperity of organizations. Odumeru and Ogbonna (2013) further corroborates the positive relationship between innovation and organizational performance.

Research suggests that innovation, particularly process innovation, can enhance organizational performance by improving efficiency, reducing costs, and creating competitive advantages. Multiple studies emphasize the importance of innovation for maintaining competitiveness and achieving economic success (Ungerman et al., 2018; Urbancová & Venclová, 2013; Veryzer Jr, 1998; Williams, 1999).

Based on previous studies, we propose a strong connection between innovation and the success of organizations, particularly in public universities in Indonesia. Our conceptual framework (Figure 1) presents twelve sub-hypotheses to examine this relationship.

Hypothesis

Administrative innovation is significantly correlated with organizational performance in public Higher Education Institutions (HEIs) in Indonesia

H1: Administrative innovation is significantly linked to student satisfaction in Indonesian public higher education institutions (HEIs).

H2: Administrative innovation is significantly linked to staff satisfaction in Indonesian public higher education institutions (HEIs).

H3: Administrative innovation is significantly correlated with research and publication activities in Indonesian public higher education institutions.

H4: Administrative innovation is strongly linked to international affairs in Indonesian public higher education institutions.

H5: Administrative innovation is significantly correlated with the financial performance of Indonesian public higher education institutions.

H6: Administrative innovation is closely linked to industry and community engagement in Indonesian public higher education institutions.

H7: Technical innovation is a significant predictor of student satisfaction in Indonesian public higher education institutions.

H8: Technical innovation is a significant determinant of staff satisfaction in Indonesian public higher education institutions.

H9: Technical innovation is a significant predictor of research and publication outcomes in Indonesian public higher education institutions.

H10: Technical innovation is a significant determinant of international affairs in Indonesian public higher education institutions.

H11: Technical innovation is a key predictor of financial performance in Indonesian public higher education institutions.

H12: Technological innovation serves as a crucial determinant of industry and community engagement within Indonesian public higher education institutions

RESEARCH METHOD

Sample and data collection

Data collection for this study involved the use of a questionnaire containing 25 items, with detailed explanations provided in Table 5. Data collection was conducted across three regions of Indonesia from June to September 2024. Respondents were public university administrators in Indonesia, including middle and top-level executives. The questionnaire was translated into Indonesian and piloted in both English and Indonesian. Feedback from the 15-person pilot surveys informed

revisions to improve clarity, transparency, and comprehensiveness, minimizing bias in the final questionnaire.

In order to have a diverse sample, 20% of public universities from every geographic area were selected. Each of the 30 universities chosen received around 25 surveys, making a total of about 750 respondents, in accordance with Bollen (1989) recommendation. Questionnaire were distributed via email and traditional mail to the chief of the Research Management Department at every college.

Out of the 750 surveys that were handed out, 543 were completed and returned, leading to a response rate of 70.8%. After screening, 531 responses were used for analysis. The sample included 24.7% research-oriented universities, 37.0% applied, and 38.3% hybrid universities. Most universities (94.6%) were multidisciplinary, with 44.8% medium-sized (10,000-20,000 students), 27.9% small (<10,000), and 27.3% large (>20,000). Around 64% of universities were established between 1955 and 1990.

Measures and variables

Independent variables

We developed a 12-item scale to measure administrative and technical innovation, drawing from existing literature. The scale items were adapted from Chaganti and Damanpour (1991), Liao et al. (2008), Subramanian and Nilakanta (1996), Armbruster et al. (2008), and the OECD (2013). A 5-point Likert scale was utilized to gauge all the items.

Dependent variables

To evaluate the six aspects of organizational performance—student satisfaction, staff satisfaction, research and publications, financial performance, international relations, and engagement with industry and the community—we modified 24 scale items based on previous research. The scale items were derived from the MBNQA (1999), Cameron (1978), and Zangoueinezhad and Moshabaki (2011), and were measured using a 5-point Likert scale.

Statistical methods

We performed various analyses to assess the accuracy and consistency of the measurement model, including reliability analysis, convergent validity analysis, and discriminant validity analysis. Exploratory factor analysis (EFA) was used to simplify the variables, and then confirmatory factor analysis (CFA) was conducted with AMOS 23.0 to examine how well the model fit. Utilizing AMOS 23.0, structural equation modeling (SEM) was implemented to evaluate the proposed connections.

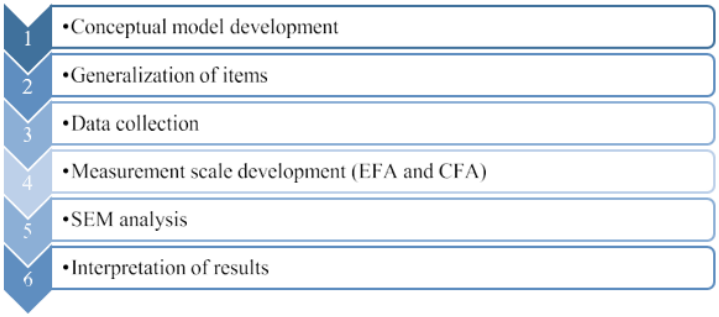

Fig 1. Research Strategy

RESULT AND DISCUSSION

Reliability

The internal consistency of the measurement scales was evaluated using Cronbach's alpha. The measurement scales showed good reliability, with values of 0.771 and 0.857 for administrative

innovation (ADINNO) and technical innovation (TECHINNO) respectively. Four items were removed due to low inter-item correlation, resulting in improved reliability values of 0.884 and 0.846 for ADINNO and TECHINNO.

The other constructs demonstrated acceptable reliability, with Cronbach's alpha values ranging from 0.767 to 0.871. One item (OPIA6) was removed due to low inter-item correlation, but the overall reliability of the OPIA construct remained above the recommended threshold of 0.7.

Promax rotation was used in factor analysis to assess the measurement scales' dimensionality. The KMO measure and Bartlett's test of sphericity indicated that factor analysis was appropriate for analyzing the data. The analysis identified six factors for organizational performance and two factors for innovation. Missing data were excluded listwise. Discriminant validity was assessed, and all items loaded satisfactorily onto their respective factors, validating the measurement model.

An examination of discriminant validity was conducted to verify the uniqueness of the concepts. The average variance extracted (AVE) of each idea was evaluated in comparison to its overlapping variance with other concepts. All constructs met the criterion of AVE being greater than shared variance, validating their distinctness.

Correlation analysis

Table 2 displays the statistical summaries and correlation matrix for the variables. The examination uncovered meaningful connections between creativity and different aspects of company success.

Confirmatory factor analysis

Model fit was assessed using multiple statistics: χ^2/df, TLI, CFI, GFI, RMSEA, and AGFI. Acceptable fit criteria were χ^2/df < 3.0, TLI, CFI, GFI, and AGFI values close to 1, and RMSEA < 0.08. The CFA results for innovation and organizational performance are presented in Table 3 and Figures 3 and 4

Testing the research models

The potential connections between administrative innovation (ADINNO) and technical innovation (TECHINNO), as well as different aspects of organizational performance (OP), were only partially validated. Significant positive relationships were found between TECHINNO and OPIC, OPFP, OPRP, and OPF, supporting hypotheses H8, H9, H11, and H12. However, hypothesized relationships between ADINNO and OPS, OPIC, OPFP, OPIA, and OPRP were not supported.

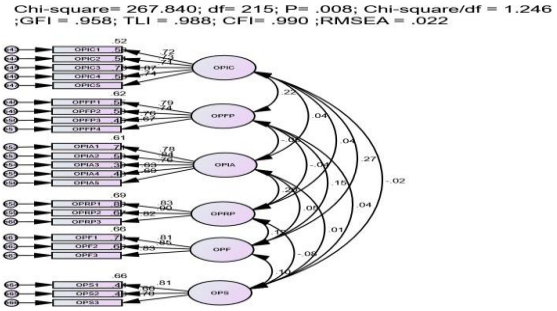

Fig 2. Results of CFA for OP

Source: Made by author, 2024

Table 1. Validating the Research Models and Findings

Independent variable	Dependent variable	Estimate	p-Value	Finding
Administrative Innovation	Student Satisfaction	—0.072	0.099	H1 = rejected
Administrative Innovation	Staff Satisfaction	—0.089	0.021	H2 = Supported

Administrative Innovation	Research Publication	—0.019	0.668	H3 = rejected
Administrative Innovation	International Affairs	—0.047	0.236	H4 = rejected
Administrative Innovation	Financial Performance	0.019	0.649	H5 = rejected
Administrative Innovation	Industry Community Engagement	—0.013	0.668	H6 = rejected
Technical Innovation	Student Satisfaction	0.046	0.495	H7 = rejected
Technical Innovation	Staff Satisfaction	0.239	***	H8 = Supported
Technical Innovation	Research Publication	0.154	0.028	H9 = Supported
Technical Innovation	International Affairs	—0.040	0.521	H10 = rejected
Technical Innovation	Financial Performance	0.144	0.027	H11 = Supported
Technical Innovation	Industry Community Engagement	0.290	***	H12 = Supported

Source: Made by author (2024)

DISCUSSION

This study highlights the importance of effective innovation management in higher education institutions. While administrative innovation (ADINNO) is positively correlated with staff satisfaction, it has limited impact on other dimensions of organizational performance. This may be due to ADINNO's focus on internal organizational factors rather than external relationships. Despite the positive effects on staff and students, further research is needed to understand why some individuals remain dissatisfied.

Technical innovation significantly impacts research publications, financial performance, staff satisfaction, and industry and community engagement in higher education institutions. While it does not directly influence student satisfaction or international affairs, TECHINNO can generate revenue, foster relationships, and enhance research and publication outcomes by focusing on product and service development, stakeholder involvement, and market-driven offerings.

Both administrative innovation (ADINNO) and technical innovation (TECHINNO) are significant predictors of staff satisfaction. However, neither significantly impacts international affairs or student satisfaction. While TECHINNO could potentially contribute to internationalization and meet student expectations through stakeholder involvement and market-driven offerings, the current findings do not support this.

The findings deviate from our initial hypotheses, suggesting that factors beyond innovation may influence organizational performance. Future research should explore potential interaction effects, such as moderation and mediation, to enhance our knowledge of how innovation impacts performance in colleges and universities.

Research on innovation and organizational performance within the Indonesian education sector was scarce when this study was conducted. There may be existing innovation practices that university administrators are not fully aware of, which could contribute to the lack of support for some hypotheses. Centralized management by the Ministry of Education and Culture limits the autonomy of Indonesian higher education institutions (HEIs), hindering their ability to innovate. HEIs' lack of control over key areas such as curriculum, enrollment, assessment, degrees, staffing, budget, and infrastructure restricts their capacity for innovation and organizational efficiency.

The results of this research align with previous studies, confirming the strong link between innovation and the success of a company (Bowen et al., 2010; Calantone & Vickery, 2010; María Ruiz-

Jiménez & del Mar Fuentes-Fuentes, 2013; Odumeru & Ogbonna, 2013). Innovation serves as a primary catalyst for organizational success, influencing performance through adaptation, efficiency, competitiveness, and financial rewards (Chaganti & Damanpour, 1991; Crossan & Apaydin, 2010; Damanpour et al., 2009).

In this study, the author highlights that innovation in higher education in Indonesia is still constrained by centralized management, which negatively impacts university autonomy in implementing innovation. Government policies play a significant role in shaping the innovation landscape in higher education, acting as both facilitators and barriers. Policies designed to encourage innovation are often implemented in varying contexts, affecting their effectiveness (Van Vught, 1989). While regulations can ensure quality and accountability, overly rigid frameworks may limit the flexibility and creativity of educational institutions, ultimately impacting the relevance and quality of the innovations produced. For instance, policies emphasizing utilitarian outcomes may pressure universities to prioritize economic contributions over preserving academic freedom, potentially restricting their innovative capacity (Häyrinen-Alestalo, 1999). Therefore, the interaction between government policies and university strategies becomes crucial, where successful initiatives often emerge from supportive policy environments that promote institutional autonomy (Dodgson & Staggs, 2012).

However, challenges also arise from centralized management. Centralized regulations can create a culture of compliance, where universities focus more on meeting prescriptive goals rather than pursuing innovative practices (Scott, 2018). Finding a balance between governance and creativity becomes complex; excessive oversight often hampers the development of new curricula and programs, which are essential for fostering innovation (Scott, 2018). On the other hand, some researchers argue that a certain level of regulation is necessary to maintain standards and ensure that the innovations produced are relevant to societal needs. Therefore, further research is needed to explore these dynamics and how they influence institutional performance and the quality of innovations generated.

CONCLUSION

This research provides real-world proof that there is a direct link between creativity and success within higher education organizations. By examining various forms of innovation, including administrative and technological advancements, this study adds to the current body of knowledge and offers useful advice for professionals in the field. The findings highlight the effectiveness of innovation as a managerial tool for enhancing organizational outcomes. This study developed measurement scales for innovation and organizational performance in higher education institutions, drawing upon existing theoretical frameworks. These scales can serve as a reference for future research on this subject.

Theoretical implications

This research study provides evidence to support the idea that there is a strong connection between innovation and the effectiveness of organizations within the academic sector. It confirms various theories and adds to the current pool of knowledge available on this subject. This study is pioneering in its analysis of innovation in higher education institutions from both administrative and technical perspectives. By examining these distinct types of innovation, the research offers valuable insights into their impact on organizational performance. This research adds to the existing body of knowledge on effectiveness assessment in universities by highlighting the importance of creativity. Additionally, the newly created evaluation criteria may serve as a valuable tool for upcoming studies on creativity and operational success within educational institutions.

Managerial implications

This study offers practical recommendations for improving organizational performance in higher education institutions. The findings are particularly relevant for academic leaders and can guide their decision-making regarding innovation initiatives. Academic administrators should prioritize innovation by implementing policies that support innovation, fostering a supportive culture, and adopting advanced management practices. This includes focusing on organizational structure, information technology, and other factors that facilitate innovation.

The study recommends strategies for fostering innovation in higher education institutions, including curriculum review, program development, stakeholder involvement, collaboration, and partnerships. These strategies can enhance organizational performance and meet evolving societal needs

Limitations and Recommendations for Further Research

This study's findings may have limited generalizability due to its focus on Indonesian higher education institutions. Future research should explore the applicability of these findings to other contexts. Additionally, incorporating qualitative methods could address potential biases in self-reported data from managerial staff. Potential future studies may investigate how innovation impacts the performance of organizations in various sectors and nations by analyzing long-term trends with time-based data. This would allow for a deeper analysis of causal relationships.

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REFERENCES

Armbruster, H., Bikfalvi, A., Kinkel, S., & Lay, G. (2008). Organizational innovation: The challenge of measuring non-technical innovation in large-scale surveys. *Technovation*, *28*(10), 644–657.

Bastedo, M. N. (2007). Bringing the state back in: Promoting and sustaining innovation in public higher education. *Higher Education Quarterly*, *61*(2), 155–170. https://doi.org/10.1111/j.1468-2273.2007.00344.x

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research*, *17*(3), 303–316.

Bowen, F. E., Rostami, M., & Steel, P. (2010). Timing is everything: A meta-analysis of the relationships between organizational performance and innovation. *Journal of Business Research*, *63*(11), 1179–1185.

Brennan, J., Broek, S., Durazzi, N., Kamphuis, B., Ranga, M., & Ryan, S. (2014). Study on innovation in higher education. *Publications Office of the European Union, Luxembourg*.

Calantone, R. J., & Vickery, S. K. (2010). Introduction to the special topic forum: Using archival and secondary data sources in supply chain management research. *Journal of Supply Chain Management*, *46*(4), 3.

Cameron, K. (1978). Measuring organizational effectiveness in institutions of higher education. *Administrative Science Quarterly*, 604–632.

Chaganti, R., & Damanpour, F. (1991). Institutional ownership, capital structure, and firm performance. *Strategic Management Journal*, *12*(7), 479–491.

Crossan, M. M., & Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: A systematic review of the literature. *Journal of Management Studies*, *47*(6), 1154–1191.

Damanpour, F., Walker, R. M., & Avellaneda, C. N. (2009). Combinative effects of innovation types and organizational performance: A longitudinal study of service organizations. *Journal of Management Studies*, *46*(4), 650–675.

Darroch, J. (2005). Knowledge management, innovation and firm performance. *Journal of Knowledge Management*, *9*(3), 101–115.

Dixon, N. (1999). 7 Learning Across Organizational Boundaries: Museums. *Organizational Learning and the Learning Organization: Developments in Theory and Practice*, 115.

Dodgson, M., & Staggs, J. (2012). Government policy, university strategy and the academic entrepreneur: the case of Queensland's Smart State Institutes. *Cambridge Journal of Economics*, *36*(3), 567–585. https://doi.org/10.2139/SSRN.2026857

Du Plessis, M. (2007). The role of knowledge management in innovation. *Journal of Knowledge Management*, *11*(4), 20–29.

Evan, W. (1966). Organizational lag. *Human Organization*, *25*(1), 51–53.

Häyrinen-Alestalo, M. (1999). The university under the pressure of innovation policy-Reflecting on European and Finnish experiences. *Science & Technology Studies*, *12*(1), 44–69. https://doi.org/10.23987/STS.55122

Hill, H., & Wie, T. K. (2012). Indonesian universities in transition: Catching up and opening up. *Bulletin of Indonesian Economic Studies*, *48*(2), 229–251. https://doi.org/10.1080/00074918.2012.694156

Khodayari, S., Hatami, H., & Ahmadian, S. (2024). Factors Influencing Customers' Acceptance Of Internet Services In Iran. *Journal Of Humanities, Social Sciences And Business*, *3*(3), 784–796. https://doi.org/10.55047/jhssb.v3i3.943

Liao, S., Fei, W.-C., & Liu, C.-T. (2008). Relationships between knowledge inertia, organizational learning and organization innovation. *Technovation*, *28*(4), 183–195.

María Ruiz-Jiménez, J., & del Mar Fuentes-Fuentes, M. (2013). Knowledge combination, innovation, organizational performance in technology firms. *Industrial Management & Data Systems*, *113*(4), 523–540.

McKelvey, M., Buenstorf, G., & Broström, A. (2018). *The knowledge economy, innovation and the new challenges to universities*. Taylor & Francis. https://doi.org/10.1080/14479338.2018.1417695

Odumeru, J. A., & Ogbonna, I. G. (2013). Transformational vs. transactional leadership theories: Evidence in literature. *International Review of Management and Business Research*, *2*(2), 355.

Parashar, M., & Singh, S. K. (2005). Innovation capability. *IIMB Management Review*, *17*(4), 115–123.

Scott, P. (2018). Compliance and creativity: Dilemmas for university governance. *European Review*, *26*(S1), S35–S47. https://doi.org/10.1017/S1062798717000527

Seng, L. K., Yusof, N., & Abidin, N. Z. (2011). Types of Innovation Implemented by Housing Developers in a Developing Country. *International Journal of Academic Research*, *3*(3).

Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning*, *10*(1), 4–33.

Subramanian, A., & Nilakanta, S. (1996). Organizational innovativeness: Exploring the relationship between organizational determinants of innovation, types of innovations, and measures of organizational performance. *Omega*, *24*(6), 631–647.

Susanti, D. (2011). Privatisation and marketisation of higher education in Indonesia: the challenge for equal access and academic values. *Higher Education*, *61*(2), 209–218. https://doi.org/10.1007/s10734-010-9333-7

Thurbin, P. (1994). *Implementing the Learning Organisation: The 17 Day Programme*. Pitman Publishing.

Tran, T. (2008). A conceptual model of learning culture and innovation schema. *Competitiveness Review: An International Business Journal*, *18*(3), 287–299.

Ungerman, O., Dedkova, J., & Gurinova, K. (2018). The impact of marketing innovation on the competitiveness of enterprises in the context of industry 4.0. *Journal of Competitiveness*, *10*(2), 132.

Urbancová, H., & Venclová, K. (2013). Importance of Knowledge Continuity in Business Continuity Management. *Acta Universitatis Bohemiae Meridionalis*, *16*(1), 3–13.

Van Vught, F. A. (1989). Creating innovations in higher education. *European Journal of Education*, 249–270. https://doi.org/10.2307/1502744

Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review*, *11*(4), 801–814.

Veryzer Jr, R. W. (1998). Discontinuous innovation and the new product development process. *Journal of Product Innovation Management: An International Publication of the Product Development & Management Association*, *15*(4), 304–321.

Williams, A. (1999). *Creativity Invention and Innovation: A guide to building your business future*. Allen & Unwin.

Yeo, R. (2003). Linking organisational learning to organisational performance and success: Singapore case studies. *Leadership & Organization Development Journal*, *24*(2), 70–83.

Zangoueinezhad, A., & Moshabaki, A. (2011). Measuring university performance using a knowledge-based balanced scorecard. *International Journal of Productivity and Performance Management*, *60*(8), 824–843.