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Implementing Business Process Reengineering as an Entrepreneurial Innovation Strategy to Support Agile Transformation in Universities

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Abstract

This study aims to examine the effect of Business Process Reengineering (BPR) on business process knowledge and departmental performance, and to investigate the moderating effect of process knowledge. The research was conducted in UC's non-academic departments using a quantitative method grounded on Partial Least Squares (PLS). Data collection was from 66 participants, comprising heads of departments and section heads who had been exposed to IPE (Integrity, Professionalism, and Entrepreneurship) training and embodied a unifying entrepreneurial orientation. The results show that BPR has a positive and significant effect on departmental performance and enhances process understanding. However, process comprehension has a weaker effect on performance and does not mediate the BPR-performance association. These findings suggest that the efficiency of BPR in improving performance is better uncovered by good information systems and governance structures that rely on KPIs. Moreover, use of BPR in UC improves operating efficiency and institutional flexibility, i.e., responding and adapting quickly to external developments. Moreover, BPR is a tangible expression of the institution's entrepreneurial spirit of innovation and work process reengineering for increased value and durable competitive advantage. This supports one of UC's fundamental entrepreneurial university traits.

Keywords: agility, business process reengineering, business process understanding, department performance, entrepreneurship

INTRODUCTION

In the era of new, rapidly evolving higher education rules and regulations, universities are under pressure to be responsive and flexible, particularly in reacting to national and international accreditation requirements. Organizational agility refers to the ability of an organization to change and respond to changing and volatile environmental forces at a rapid rate. Agility emphasizes flexibility and the ability of the organization to keep changing continuously in reaction to complex internal and external challenges. An agile organization is characterized through its ability to align its business strategies with evolving conditions relentlessly. Its agility constitutes a key driver of long-term and enduring success (Holbeche, 2015; Xu et al., 2024). Higher education agility allows universities to adapt their internal systems to evolving accreditation standards and stakeholder expectations.

An agility-led strategy guarantees growth and brings benefit to the organisation. It also helps in shaping a new generation with the

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proper talents and abilities. Five principal elements are required in an agile institution: responsive strategies, cooperative organisational structures, adaptive processes, entrepreneurial human capital, and technology integration. All these coupled together render the institution competitive and future-proof (Rigby, Sutherland, & Takeuchi, 2016). Increasing numbers of accreditation agencies within Indonesia, including the establishment and recognition of overseas accreditation agencies such as LAM, have significantly added institutional complexity. Therefore, higher education institutions must adhere to standards in existence and demonstrate their capacity to respond quickly to external change (Harb & Abazid, 2018; Taskymbayeva, Shaikh, & Salimbayeva, 2022).

Business Process Management, or BPM, refers to a systematic process of examination and optimization of organizational processes. BPM aims at performance improvement through efficiency, effectiveness, and flexibility (Taskymbayeva, Shaikh, & Salimbayeva, 2022). Knowledge of the process is a key component of BPM, and it refers to the awareness and understanding of how tasks are performed across departments. Good process management requires workflow mapping and globalizing roles, inputs, and outputs of employees (Simamora et al., 2020). This research was conducted at Universitas Ciputra (UC), an entrepreneurially-minded university committed to the generation of world-class graduates who are ethical, professional, and entrepreneurial in spirit. The entrepreneurship principles at UC are imparted through the curriculum and embedded in the way the university responds to change, encourages innovation, and builds agility (Rosita, 2022; Iskandar et al., 2024).

An actual example of entrepreneurial behavior is Business Process Reengineering (BPR), a change management approach emphasizing redesigning core processes to be more effective, efficient, and responsive. Business Process Reengineering (BPR) is a change management approach that involves radically reconsidering and reorganizing core processes in an effort to achieve significant performance improvements (Herzog, Polajnar, & Tonchia, 2007; Pasaribu et al., 2021). In the university context, BPR is a process for eliminating duplication, clearing out administrative tasks, and aligning internal functions with accreditation and performance standards (Harb & Abazid, 2018). Business Process Reengineering (BPR) is required because of the heightened demand for better services. It involves revolutionary thinking and re-designing business processes to achieve revolutionary improvements in performance while requiring revolutionary changes in organizational design, management systems, processes, and culture.

In the educational sector, BPR is employed to reduce costs, improve the quality of service, and boost efficiency and flexibility by letting go of the past models of work and creating more efficient ways of delivering services (Harb & Abazid, 2018; Pramartha & Mimba, 2020). Process modeling is critical in higher education institutions to ensure clarity and alignment across departments (Homaidi et al., 2022). Business Process Modeling Notation (BPMN) provides a standard graphical syntax for process modeling, thus enabling common understanding, reducing ambiguity, and supporting cross-functional alignment (Papadopoulos et al., 2010; Tisha et al., 2023).

BPMN is particularly important in higher education, where administrative complexity may mask process ownership and accountability. The integrated system within a business process model is not something desired but needed to enable sustainable higher education performance.

BPMN serves a crucial role in processes, evaluating the effectiveness of mapping business processes, rationalizing the extent of work, and discovering and critiquing major processes influencing customer satisfaction (Rosita, 2022). The use of BPR in UC is aligned with the entrepreneurial vision of the university that emphasizes the virtues of flexibility, continuous improvement, and value creation as entrepreneurial principles (Yusuf, Wahyuni, & Sari, 2024; Holbeche, 2015).

BPR enables a responsive organization and institutional innovation by reengineering processes, simplifying document systems, and linking internal quality processes to strategic goals (Yusuf, Wahyuni, & Sari, 2024). In that sense, BPR focuses on improving the performance of operations and sustaining entrepreneurial culture of the university so that change will be seen as an option, not an interruption. Business success is associated with a firm's ability to change, remain competitive, and respond to altering conditions. In this context, entrepreneurial success is dependent on the ability of institutions to position themselves in harmony with their environment to exploit opportunities and handle threats (Iskandar et al., 2024; Acquah, Quaicoe, & Arhin, 2023). Such flexibleness, as shown through BPR adoption, demonstrates the entrepreneurial ability of the institution to take strategic risks and reengineer processes to remain viable in the face of internal and external changes.

Nevertheless, effective BPR implementation also calls for proper comprehension of business processes in departments. Awareness and an understanding of the process owners' role are critical to guarantee seamless implementation, compliance, and sustainability. The objective of this study is to explore the impact of BPR and awareness of business processes on departmental performance and examine whether awareness of business processes is a mediating variable in the relationship between BPR and performance. BPR is a methodology which aims to reengineer business processes which are seen as weak to improve organizational performance by making them efficient and competitive (Yusuf, Wahyuni, & Sari, 2024). Reengineering is a good approach to the process of adjusting higher education institutions to new demands (Pasaribu et al., 2021). The management in such institutions is intricate and therefore requires effective and efficient administrative, educational, and teaching services.

Understanding business processes is paramount in the effective use of Business Process Reengineering (BPR). Laue & Gadatsch (2011) argue that the degree of understanding of business process models in BPO largely impacts the success of redesigned business processes. The implementation quality of processes is interwoven with the comprehension quality of process owners of the sequence, uniqueness, interactions, and logic of activities in business process models. Department performance is the ability of a department or organization to achieve established goals, measurable in terms of performance indicators such as productivity, operational effectiveness, service quality, and achievement of strategic objectives. The performance reflects best usage of processes and resources to offer required outputs and create value for stakeholders (Ererdi & Durgun, 2020).

METHOD

This study follows a quantitative research design with PLS-SEM to examine the effect of Business Process Reengineering (BPR) and process understanding of the business on department performance in universities. This study also ex-

amines the moderating effect of process understanding on the BPR-performance relationship. PLS-SEM possesses several strengths that make it highly suitable for most research contexts. It deals well with small sample sizes and can estimate complex models efficiently (Hair et al., 2021; Kumar, Singh, & Jain, 2022). Data were collected from 66 process owners of business processes, who are Section Heads and Heads of Department of all non-program departments in UC. These respondents, the employees, all of whom have received IPE (Integrity, Professionalism, and Entrepreneurship) training, live the entrepreneurial spirit in carrying out their role at UC/in their role at UC.

This puts the context of this research in higher applicability to the entrepreneurial values that drive work culture at UC. Entrepreneurial motivation is essential in individuals or teams, and it helps to define a good mindset that constantly strives to exceed performance expectations and pursue excellence (Iskandar et al., 2024). The findings of this study have theoretical and practical contributions, contributing directly to UC's strategic development in creating an integrated and agile quality management system that is suited to the entrepreneurial culture of the institution. Theoretically, they build upon the application and understanding of the BPR concept and business processes in higher education institutions, which has been hardly pursued in academic literature so far.

Data were collected with the assistance of a structured questionnaire on the Likert scale (1–5) formulated from a validated instrument previously used in business and management studies. The items were adapted to the higher education context to lend contextual relevance, all the more in non-academic departments. The questionnaire was conducted online via Google Forms and distributed via email and WhatsApp. The respondents were given an explanation of how to interpret each question, and some did it under direct supervision by the researcher to determine correctness of interpretation and completion. Random checks were conducted to verify the data by comparing some of the respondents' answers with actual departmental performance data for consistency and reliability of interpretation.

Data analysis in this research was done in stages. It began with descriptive analysis, which was used to describe the respondents and consolidate the data that had been collected. This was followed by the design of the outer model, in which the measurement model was constructed from the variables and indicators established. The second stage was model testing, which involved outer and inner model testing. The outer model (measurement model) was examined to establish the reliability and validity of the indicators. Validity testing considered the loading factor and Average Variance Extracted (AVE). The reliability was examined using composite reliability and Cronbach's alpha (Rahadi, 2023; Hair et al., 2021). The outer model was based on indicators that are described in Table 1.

Evaluation of the Structural Model (Inner Model) aims to assess the relationships between the measured constructs through the t-test in partial least squares. The evaluation is carried out by measuring the R-Square value, which indicates the amount of variance explained by the independent variables on the dependent variable. The criteria for interpreting the R-Square value are 0.75 (strong), 0.50 (moderate), and 0.25 (weak) (Hair et al., 2021). Furthermore, the Q-Square value is estimated to assess predictive relevance, where a Q-Square

Table 1 Variables and Indicators

Variables	Indicators	Sources
Business Process Reengineering	1. Top management commitment 2. Education and training 3. Teamwork 4. Project of BPR 5. Employee cooperation 6. Information technology support 7. Lever and results	(Herzog, Polajnar, & Tonchia, 2007)
Business Process Understanding	1. General understanding of business processes. 2. Coordinating between units/divisions 3. Documentation and Standardization 4. Use of Technology in Business Processes 5. Process Evaluation and Improvement	(Aberle & Henkel, 2017; Laue & Gadatsch, 2011)
Department Performance	1. Productivity 2. Effectiveness 3. Efficiency 4. Innovation 5. Quality of Work Life 6. Profitability	(Yuliawati & Alinsari, 2022)

value ≥0 indicates good predictive relevance. Hypothesis testing considers the estimated values significant if the t-statistic exceeds 1.65, corresponding to a 10% significance level (Hair et al., 2021). To test the inner model, this study tested the following hypotheses:

H1: Business process reengineering has a significant influence on departmental performance.

H2: Business process reengineering significantly influences business process understanding.

H3: Business process understanding significantly influences departmental performance.

H4: Business process understanding mediates the relationship between business process reengineering and departmental performance.

RESULTS

This study involved 66 respondents, consisting of all heads of department up to section heads from all non-program departments at Universitas Ciputra. Data was collected using an online-based closed questionnaire, which included three primary constructs: Business Process Reengineering (BPR), Business Process Understanding (BPU), and Department Performance (DP). Data were analyzed using PLS-SEM. The average value for BPR is 4.31, BPU is 4.51, and DP is 4.34, which shows the tendency of positive answers from respondents to all constructs. Most respondents answered on a scale of 4 and 5, with a relatively small percentage of neutral answers (score 3), indicating a good understanding of the questions.

The outer model test showed that of the initial 106 items, 50 were declared valid based on a loading factor of ≥0.70. Discriminant validity results are also met, both through the cross-loading test and the Fornell-Larcker criterion. All constructs show high reliability, with Cronbach's Alpha and Composite Reliability values above 0.90. The AVE values of all con-

Table 2 Outer Model

Items	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
BPR14	0.703	0.971	0.973	0.612
BPR16	0.804			
BPR17	0.790			
BPR18	0.778			
BPR19	0.868			
BPR21	0.792			
BPR23	0.758			
BPR24	0.807			
BPR26	0.717			
BPR29	0.707			
BPR30	0.774			
BPR32	0.718			
BPR34	0.818			
BPR36	0.835			
BPR39	0.770			
BPR41	0.787			
BPR44	0.849			
BPR45	0.775			
BPR46	0.837			
BPR47	0.775			
BPR48	0.741			
BPR52	0.751			
BPR53	0.806			
KD12	0.730	0.948	0.951	0.640
KD15	0.718			
KD16	0.762			
KD20	0.806			
KD21	0.868			
KD22	0.905			
KD23	0.751			
KD3	0.852			
KD33	0.724			
KD6	0.841			
KD7	0.815			
KD8	0.798			
PBP1	0.795	0.956	0.960	0.617
PBP10	0.816			
PBP11	0.808			
PBP12	0.725			
PBP13	0.788			
PBP14	0.784			
PBP16	0.743			
PBP2	0.810			
PBP3	0.756			
PBP4	0.778			
PBP5	0.711			
PBP6	0.821			
PBP7	0.805			
PBP8	0.845			
PBP9	0.787			

Table 3 Fornell-Larcker Criterion

Variable	BPR	KD	PBP
BPR	**0.782**		
KD	0.665	**0.800**	
PBP	0.757	0.616	**0.786**

structs are also above 0.60, which indicates good convergent validity (see Table 2 and Table 3).

The structural model has an R-Square value of 0.473 for the departmental performance variables and 0.573 for business process understanding, which belongs to the "moderate" category. The Q-Square value of 0.775 confirms that the model has good predictive power. The model also passes the goodness of fit test based on the SRMR value (< 0.10). This indicates that the model in this study has predictive relevance because the Q^2 value is greater than zero and close to 1, which means the model's predictive ability is relatively good (see Table 4 and Table 5).

Hypothesis testing results indicate that BPR has a positive and significant effect on departmental performance ($t = 3.530$; $p < 0.05$) and business process understanding ($t = 16.310$; $p < 0.05$). BPR significantly improved employees' understanding of business processes, particularly through the re-evaluation and restructuring workflows. However, despite the increase in process understanding, it did not significantly affect departmental performance. Business pro-

Table 4 R-Square

	R-square	R-square Adjusted
KD	0.473	0.447
PBP	0.573	0.566

Table 5 Goodness of Fit

	Saturated Model	Estimated Model	Description
SRMR	0.098	0.098	SRMR < 0.10
d_ULS	12.274	12.307	d_ULS> 2.000

Table 6 Inner Model

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics (|O/STDEV|)	P Values
BPR -> KD	0.451	0.459	0.128	3.530	0.000
BPR -> PBP	0.757	0.765	0.046	16.310	0.000
PBP -> KD	0.282	0.283	0.160	1.771	0.077
PBP x BPR -> KD	0.040	0.037	0.101	0.391	0.696

cess understanding had no significant effect on departmental performance ($t = 1.771$; $p = 0.077$) and did not moderate the relationship between BPR and performance ($t = 0.391$; $p = 0.696$) (Table 6).

DISCUSSION

This study examines the effect of business process reengineering (BPR) and business process understanding on the performance of departments within higher education institutions. Results from the study confirm that BPR affects departmental performance significantly and positively, with process simplification and redesign creating efficiency, productivity, and achievement of strategic goals (Yusuf, Wahyuni, & Sari, 2023; Pasaribu et al., 2021). Furthermore, the research finds that BPR enhances organizational responsiveness, enabling institutions to respond more quickly to external challenges and regulatory changes, thereby supporting an agile and competitive organizational culture (Iskandar et al., 2024).

BPR has an excellent and positive effect on department performance and business process knowledge within this research. This is in line with the general philosophy of BPR, in which it demands radical redesign of work processes to improve efficiency, quality, and speed of service significantly. BPR not only simplifies the non-value-added procedures and simplification of operation but also analyzes procedures for reasons of linking them to the specific functions and demands of each department. These modifications render processes more flexible and strategically focused. The findings validate BPR as an effective means of raising overall departmental performance without sacrificing compliance with external rules and for accreditation continuous improvement. This finding is consistent with theory and previous research, which hypothesize that BPR increases efficiency, service quality, and productivity with significant process redesign. Additionally, this hypothesis concurs with findings indicating that business process orientation has a significant and positive influence on non-financial performance with an impressive correlation coefficient value (Glavan & Vukšiæ, 2017).

Harb & Abazid (2018); Pasaribu et al. (2021) assert that BPR in universities involves an ultimate reengineering of processes that leads to significant improvement of effectiveness, efficiency, speed of services, and quality. It enhances internal performance and enables institutions to become more responsive and competitive in a changing environment. Business Process Management (BPM) is the foundation for constant organizational improvement. Therefore, institutions must innovate and normalize business procedures to manage external alterations in an effective manner (Liu & Chen, 2024; Puspitasari & Jannah, 2021). Results of this study agree with existing studies on business process modeling in higher education. For instance, Business Process Modeling at Matej Bel University has made a positive impact on the quality and efficiency of educational services by means of improved quality management by using a systematic approach. Organizations adopt BPM primarily due to the fact that it has been observed to enhance performance and provide long-term competitive advantage (Van Looy, 2021).

Embracing BPR makes organizations question and construct a clearer understanding of workflows and unit responsibility to each other, enhancing their process know-how within. This is in line with the findings of Homaidi et al. (2022), which show that business process mod-

eling through the application of the BPMN method successfully improves business process management by clarifying complex processes. The study also found that BPR significantly improved the business process knowledge of employees, particularly through redesigning and reengineering workflows. However, it did not find any direct significant effect on departmental performance. Business process knowledge did not affect departmental performance significantly and did not mediate the influence of BPR on performance. By process understanding, in this context, is meant the degree to which employees are aware and understand the most important things they do, creating the workflow within their departments, from input to output that creates value for stakeholders.

However, this research discovered that such understanding does not impact departmental performance to a significant extent. This implies that understanding by itself is not enough to improve performance without strategic execution. One of the reasons can be the presence of strong support systems, such as integrated information systems and formalized performance governance through KPIs (e.g., Balanced Scorecard), which become stronger drivers of performance outcomes (Puspitasari & Jannah, 2021). This is supported by questionnaire findings, where 99.49% of them agreed on the importance of information systems to be utilized in supporting business processes. So, in the case of strong systems and clear policies in environments, process awareness is supporting knowledge and not a direct stimulus to performance by the departments. This would suggest that in UC's case, the degree of effectiveness of departmental performance lies more with the strength of the system, organizational policies, and management leadership.

This aligns with Ahmad, Van Looy, & Shafagatova (2024), the discovery that not every aspect of business process management has a direct impact on performance without the assistance of a system. Modern information systems have a very important role in managing and optimizing business processes through facilitating the free exchange of tasks, information, and human capability between organizational compartments. By making these functions more efficient and integrated, such systems play a great role in increased organizational productivity. In addition, changes enabled by contemporary information systems result in improved organizational structures in numerous dimensions, thus ending up in better service quality and higher customer satisfaction (Liu & Chen, 2024).

Furthermore, process understanding did not allow the connection between BPR and performance to be made, implying that the impact of BPR on results is reliant more upon institutional design rather than individuals' level of understanding. While it provides informative information, 42–53% of the performance difference cannot be explained ($R^2 = 0.473$), and it can be inferred that other factors such as leadership, organizational culture, and digital maturity are contributing significant roles (Ererdi & Durgun, 2020; Iskandar et al., 2024; Liu & Chen, 2024). Besides, there must be measurement boundaries, as the tools utilized were taken from an industry environment and require further testings to fit more the unique character of higher education institutions (Hair et al., 2021; Pasaribu et al., 2021).

Moreover, results of this study highlight that the successful implementation of BPR in Universitas Ciputra as entrepreneurship spirit is continuously enhancing to enable strengthen-

ing organizational agility. Entrepreneurial firms make it a point to look for ideas in various areas and are cultivating an organizational culture to help convert those ideas into executable business plans (Iskandar et al., 2024). Organizational nimbleness is realized when the administrative and technology foundations of the company are malleable enough to construct, alter, and reconfigure quickly to comply with changing external market needs (Holbeche, 2015; Rigby, Sutherland, & Takeuchi, 2016; Kumar, Singh, & Jain, 2022).

This is evident in the streamlined process, reduction of SPMI documents from 532 to 260, and the simplification of performance indicators on regular documents. Too process and administration-focused, indicators are replaced by output and outcome-based indicators to ensure administrative effectiveness and transparency in measuring performance (Harb & Abazid, 2018; Pasaribu et al., 2021). That is also consistent with previous study findings that organizational and business processes are determinants of success. They create the structure and effectiveness necessary to propel goals that increase customer satisfaction and operational efficiency and result in significant competitive differentials (Glavan & Vukšiæ, 2017; Van Looy, 2021).

The adaptability that results from this process is a tangible reflection of the entrepreneurial spirit embedded in Universitas Ciputra's organizational culture, i.e., the ability to respond to change quickly, efficiently, and innovatively. Organizational agility is articulated in terms of the ability of an organization to continuously learn, to decide quickly, to leverage technology, and to leverage a shared bond in order to provide valuable products to the stakeholders (Darino et al., 2019). As entrepreneurialism requires the readiness to substitute conventional ways with fresh value creation, BPR becomes a strategic tool that proves the active position of the organization in facing the dynamics of the external environment. Thus, introduction of BPR in UC influences internal effectiveness and reflects the entrepreneurial spirit of a business company which is flexible, solution-seeking, and future-oriented in responding more strategically to the needs of national and international accreditation.

CONCLUSION

This study indicates that Business Process Reengineering (BPR) has a major impact on improving the performance of departments at Universitas Ciputra through increased efficiency, productivity, achievement of strategic objectives, and organizational responsiveness to external pressures. BPR encapsulates the entrepreneurial spirit of the university through innovative process innovation, fostering value creation and future-readiness. Whereas BPR heightens employees' process awareness, neither their awareness nor its indirect effects have any impact on performance, again very likely because there are already well-established information systems and governance. Recommendations of the study are to institutionalize BPR as entrepreneurial innovation in departments with the assistance of periodic reviews, robust data systems, and ongoing training to raise process literacy and mindset. However, the limitations are that it accounts for non-academic departments within one institution and does not account for variables like leadership, culture, and digital infrastructure that should be accounted for in subsequent studies to obtain an overall perspective of performance.

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