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Utilizing Business Process Management (BPM) for Performance Improvement: A Case Study of an Express Company in Taiwan

應用企業流程管理 (BPM) 提升績效之研究：以臺灣某快遞公司為例

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Abstract

Business process management (BPM) helps align organizational strategies and business processes. To improve operational efficiency, BPM researchers propose the Plan-Do-Check-Act (PDCA) life cycle as a framework for businesses to continuously improve their process management. However, most of past studies regarding the applications of BPM are limited to the primary process while studies on the utilization of BPM in support processes remain rare. The express industry is labor-intensive. However, the lengthy hiring processes of express companies prevent potential candidates from accepting job offers and thus these companies lose their competitiveness. Moreover, the hiring process is previously considered a backend support process, relevant discussions are also limited. This research explores whether and how the PDCA life cycle can be applied to the support process of the express industry. We conduct a case study on the Taiwan subsidiary of a multinational express company. By utilizing the cycle to its hiring process, the case company redefines the responsibilities of process owners and redesigns the process. The results indicate that the application of PDCA life cycle significantly improves the company's operations. Specifically, the recruitment process time is improved by 85.3%, and the rates of damaged reports and rejected offers due to lengthy processes are both improved by 100%. The contribution of this research is threefold. It contributes to the body of knowledge for BPM by applying the PDCA life cycle in Taiwan, an application which answers the call for validation for generalization purposes. It also fills the gap in the BPM literature by focusing on the support process instead. Finally, it provides guidance to practitioners that intend to conduct BPM projects for performance improvement.

【Keywords】business process management (BPM), PDCA life cycle, express industry

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摘 要

企業流程管理 (Business Process Management; BPM) 的目的是達到組織策略與企業流程間的協同。為了提高企業的運作效率，企業流程管理提出 PDCA 的生命週期，讓企業能夠在持續不斷地運作當中透過流程的改善達到提高績效的目的。然而，過去企業流程管理的研究多著眼於可直接傳遞價值予外部消費者的主要流程，對於企業後勤單位的支援流程，相關研究仍然十分有限。「快遞 (Express)」是勞動力密集的行業。由於該產業的聘雇流程普遍較長，常有應聘對象在有限時間的考量內，拒絕某家企業的錄取。這樣的結果進而造成個案公司在產業中逐漸喪失競爭力。然而，由於聘雇流程在產業中多被視為後勤的支援系統，因此較少研究針對聘雇流程的管理進行探討。本研究採行個案研究法，探討企業流程管理的 PDCA 生命週期如何應用在快遞產業的支援性流程（聘雇流程）中。研究發現，透過此應用，個案公司不但重新定義了相關流程參與者之責任，也重新設計了流程，進而為個案公司在流程時間上得到了 85.3% 的改善，以及在瑕疵文件及被拒絕的聘雇指標上有 100% 的進步。本文貢獻在於以台灣產業為對象將 PDCA 生命週期應用在企業流程管理領域，擴充了該理論的實用性；本文亦可供有意以企業流程管理達到績效提升目的的實業者參考。

【關鍵字】企業流程管理 (BPM)、PDCA 生命週期、快遞產業

1. Introduction

Business process management (BPM) is increasingly gaining attention among academic communities, although it is not a new concept (Alibabaei, Bandara, and Aghdasi, 2009). According to Hammer (2002), BPM is a high-level concept that incorporates numerous process management methodologies (e.g. six sigma and lean management). The goal of BPM is to facilitate firms flexibly use the tool that best fits the organization's situation, and an organization is not restricted to one tool when applying BPM, which is one of BPM's advantages.

The express industry in Taiwan experienced limited growth from 2012 to 2018. After navigating the demand fluctuations during the pandemic, the industry after 2023 faces intense competition among logistics providers, making substantial operational growth increasingly challenging. Furthermore, the express industry is a labor-intensive sector that requires a large number of couriers to deliver packages. However, being a courier is becoming a less desirable job in Taiwan due to its demanding working environment. Any shortage of couriers leads to overtime and delayed delivery, resulting in negative perceptions among employees and customers alike. To achieve higher performance and address these challenges, one method that may adopt by the companies to manage the situation is by applying business process management (BPM) (Trkman, 2010).

Although BPM has long been utilizing within organizations, most researchers focus on the primary processes and aim to improve the efficiency of primary activities to enhance business performance (Hammer and Stanton, 1999; Khosravi, 2016; Porter, 1985); most organizations also emphasize applying BPM to primary processes such as logistics and operations. In contrast, applications of BPM to human resources management (HRM) are still limited. Specifically, although HRM is considered a support activity, it is undoubtedly critical to business performance because HR departments help organizations recruit, train, and retain qualified personnel to perform the primary process that directly delivers value to external customers. Surprisingly, little BPM-related research has been conducted on HRM. To address this gap, the research focuses on the practical application of BPM in HRM through the case study of a Taiwan subsidiary of a multinational express company.

The concept of BPM can be traced back to the late 1990s, when it was first applied to

a financial company's billing process to enhance efficiency (Hammer and Champy, 1993). Over time, BPM has been utilized to improve the performance of sales and manufacturing processes, which are key primary processes within organizations (Hammer and Stanton, 1999; Khosravi, 2016). According to Porter's (1985) definition of value chains, support processes are business activities that do not directly add value to products or services but are essential for enabling primary processes. Similarly, the Association of Business Process Management Professionals (2013) emphasizes that while primary processes directly deliver value to external customers, support processes are specifically designed to assist primary processes and therefore do not directly create value for customers.

The purpose of this research is to examine whether organizations can improve support process performance by applying the PDCA life cycle of BPM to the HRM process. The PDCA life cycle, also known as the Plan-Do-Check-Act cycle, is a systematic and iterative framework designed to promote continuous improvement in processes (Deming, 2000). It involves four key stages: Plan, where goals are set, and strategies are formulated; Do, where the planned actions are implemented; Check, where the results are monitored and evaluated; and Act, where adjustments are made to refine and enhance the process.

To achieve our goal, we develop the following two research questions: (1) What are the appropriate stages to apply the PDCA life cycle of BPM to support processes, taking the HRM process as an example? (2) With the existing methodologies that are applied to primary processes, what should be adjusted when applying these methodologies to support processes?

By addressing gaps in the existing literature, this research enhances the body of knowledge in BPM by exploring the application of the PDCA life cycle within Taiwan's express delivery industry. It contributes to a broader understanding of BPM practices and responds to calls for further validation to support generalization across diverse contexts. The findings provide valuable insights for practitioners aiming to implement BPM projects to drive performance improvement and can serve as a reference for applying these approaches in express delivery industries in other regions. The study first defines research purpose and proposes research questions. Section 2 examines prior studies on business processes, BPM, and the BPM life cycle. Next, company records are collected and a case interview is conducted, focusing on the life cycle of applying BPM to support processes. Finally, we draw the conclusions.

2. Literature Review

According to Cao, Deng, and Liu (2023) and Trkman (2010), the logistics industry's development faces significant risks, as organizations navigate a rapidly changing and fast-paced business environment that drives a growing focus on improving business processes to enhance performance. This section traces and illustrates what BPM is, its current status in academia and in practice, and attempts to understand how organizations implement BPM. Specifically, we review different stages in different BPM life cycle models.

2.1 Business Processes

Business processes are defined heterogeneously throughout the literature, with no single definition being widely used in this field (Palmberg, 2009). Deming, whose studies led to the modern quality movement, defines process as "essentially any sequence of work activities" (Deming, 1953; Hammer, 2010). Rummler and Brache (1995) consider a business process to be "a series of steps designed to produce a product or service." Hammer, the pioneer of business process reengineering, defines a business process as "an organized group of related activities that work together to create a result of value to customers (Hammer, 2002)."

In 2009, Palmberg conducts a large-scale review of the definition of a business process. He selects and analyzes seventy-seven articles. He finds that although every author defines business process in their own words, in almost every definition, six components reappear, namely: (1) input and output; (2) interrelated activities; (3) intra-functional or cross-functional; (4) purpose or value for customers; (5) resource use; (6) repeatability. With these six components, he provides a condensed definition of a business process as "a horizontal sequence of activities that transforms an input (need) to an output (result) to meet the needs of customers or stakeholders (Palmberg, 2009)." For the purpose of this research, we choose Palmberg's definition because he mentions that the process provides value to the "internal customer."

2.2 BPM

BPM is a method of managing horizontal sequences of activities within an organization. It is widely accepted that BPM has its roots in three academic fields: total

quality management (TQM), business process reengineering (BPR), and information technology (IT) (Harmon, 2010; Jeston and Nelis, 2008; Jurisch, Palka, Wolf, and Krcmar, 2014; Roeser and Kern, 2015). Similar to business processes, various meanings of BPM exist in the literature. In this subsection, to better understand BPM, we review its definition, trace its origins, and check its current development in the academic fields.

2.2.1 Definition of BPM

BPM has been defined differently in the literature (Roeser and Kern, 2015); evidently, it means different things to different people (Buh, Kovačič, and Indihar Štemberger, 2015). For example, it may be considered a management discipline (van der Aalst, 2013; Association of Business Process Management Professionals, 2013), or a combination of tools, and even a discipline itself (Hung, 2006; Palmberg, 2009). In this paper, we define BPM as a set of tools and also a discipline that aims to improve the business process and integrate components of an entire organization in a permanent and continuous manner (Association of Business Process Management Professionals, 2013; Palmberg, 2009). This definition captures the main characteristics of BPM that also appear among different research, namely continuous improvement and a set of tools and a discipline.

2.2.2 Origins of BPM

According to Harmon (2010), a consensus has been reached that the concept of BPM originated from the fields of TQM, BPR, and IT.

TQM aims to improve existing business processes by eliminating waste and automating non-value-added actions on a continuous basis. This approach has its limitations (Hammer, 1990, 2010). Hammer (2002) notes that “no matter how hard people work, they cannot exceed the capability of the process as it has been designed. Continuous improvement requires an improved design.” In such circumstances, the fundamental problem lies in the faulty design of the process (Hammer, 2010). In response to this problem, the concept of BPR arises in the 1990s (Davenport and Short, 1990; Hammer, 1990; Hammer and Champy, 1993). BPR proponents posit that companies must break from old approaches of doing business so that they can fit into a rapidly changing environment (Hammer, 1990). However, although Hammer (1990) and Davenport and Short (1990) both provide successful practices in their articles, Champy (1995) discovers that 70% of

BPR programs fail. Despite having such high failure rates, there is still a consensus that companies can still benefit from a BPR program if it is implemented correctly (Alibabaei et al., 2009).

TQM and BPR both aim to boost corporate performance by improving the business process. Nevertheless, TQM is considered to be an evolutionary approach that delivers incremental improvements and requires a corporation to continuously enhance its processes. Conversely, BPR is intended to provide a radical improvement in short periods of time by changing the process design, and is more similar to a revolutionary approach (Serban, 2015; Stoddard and Jarvenpaa, 1995). Moreover, during the application of TQM or BPR, IT is viewed as a critical enabler of success because automating processes can provide many benefits if the processes are well-designed (Fiedler, Grover, and Teng, 1995; Jurisch et al., 2014).

Eventually, researchers and practitioners start to combine TQM, BPR, and IT under the name of BPM (Hammer, 2010; Bozdogan, 2010; Lee and Asllani, 1997; Roeser and Kern, 2015). BPM, therefore, includes two sets of tools that share a common goal but vary in essence. Which tools to use depends on the patterns of performance deficiency. As Hammer (2010) argues, "pervasive performance shortcomings generally indicate a design flaw; occasional ones are usually the result of execution difficulties."

2.2.3 Current Research Status of BPM

BPM has been gaining increased attention both in academia and in practice (Škrinjar and Trkman, 2013; Moreira and Dallavalle, 2024). The number of published research articles has been growing yearly, and most of them have been published in the *Business Process Management Journal*, followed by conference proceedings (Roeser and Kern, 2015). According to Dumas (2015), recent BPM research trends have been focusing on interdisciplinary aspects of BPM, and the validation of the BPM life cycle from the industrial tracks. Moreover, earlier BPM research is mostly conducted in Europe, America, and Asian countries which are limited to China, Japan, Korea, and India. Therefore, there is a call for conducting research other than these countries to further contribute to the development of BPM field (Roeser and Kern, 2015). Furthermore, with the widespread application of BPM across various areas (Lee, Fredendall, Roth, Sternberg, and Quiroga, 2024) and extensive research into the impact of emerging technologies on BPM (Broccardo,

Vola, Alshibani, and Tiscini, 2024; Abbasi, Nishat, Bond, Graham-Knight, Lasserre, Lucet, and Najjaran, 2024), a common consensus has emerged: by decomposing and reconstructing business processes, organizations can redefine core activities, differentiate themselves from competitors, enhance their competitiveness, and improve operational performance (Scavarda, Ceryno, Azevedo, and Goyannes Gusmão Caiado, 2024; Szelągowski and Berniak-Woźny, 2024).

2.3 BPM Life Cycle

BPM is dedicated to the continuous improvement of business processes. Thus, researchers have developed many BPM life cycles to manage this closed-loop initiative. Nevertheless, various definitions of BPM have led to inconsistent findings on the BPM life cycle. Hence, a group of researchers analyze several BPM life cycles in 2014 in an attempt to determine the alignment among the various models (Macedo de Morais, Kazan, Inês Dallavalle de Pádua, and Lucirton Costa, 2014).

Macedo de Morais et al. (2014) compares six BPM life cycles to the one proposed in 2009 by the Association of Business Process Management Professionals (ABPMP), a nonprofit organization that dedicates itself to expanding the body of BPM knowledge. Macedo de Morais et al. (2014) find that most life cycles emphasize business process automation. Moreover, using the ABPMP model proposed in 2009 as a reference model, Macedo de Morais et al. (2014) find all six BPM life cycles are not fundamentally different, and can be projected in the ABPMP one (see Table 1 below). Each step in the first row of ABPMP model has a corresponding step in another model. If a step has no association with the ABPMP model, the cell is blank.

What Macedo de Morais et al. (2014) find support the viewpoint of the Association of Business Process Management Professionals (2013) that “regardless of the number of phrases in a BPM life cycle and regardless of the labels used to describe them, the vast majority can be mapped to the Plan-Do-Check-Act (PDCA) Cycle made popular by Dr. W. Edwards Deming in 1950s” (Association of Business Process Management Professionals, 2013). PDCA cycle details all actions an organization should perform to implement a BPM project, a cycle which includes understanding the current (AS-IS) business context, designing the future (TO-BE) business process, implementing the TO-BE business process, monitoring process performance, and responding to performance results.

Table 1 Alignment of Six BPM Life Cycles with the ABPMP Model

Authors	Steps					
ABPMP model proposed in 2009	Planning and strategy	Analysis	Design and modeling	Implementation	Monitoring and control	Refining
Hallerbach, Bauer, and Reichert (2008)			Modeling	Frequency and Selection	Execution and Monitoring	Optimization
Netjes, Reijers, and van der Aalst (2006)		Design	Configuration	Execution	Control	Diagnosis
Houy, Fettke, and Loos (2010)	Development of strategy	Definition and modeling	Implementation	Execution	Monitoring and control	Optimization and improvement
van der Aalst (2004)		Design	Configuration	Execution	Diagnosis	
Verma (2009)	Define objectives	Identify process	Classify process	Choose process	Define tool and implement process	Monitor process
Weske (2007)	Administration and stakeholders	Design and analysis	Configuration	Operation	Performance evaluation	

Source from: Macedo de Morais et al. (2014)

Association of Business Process Management Professionals (2013) claims that different labels caused confusion among practitioners and researchers and led to inconsistent research findings. Conversely, the Deming Cycle (i.e. the PDCA cycle) is straightforward, renowned, and less biased. Therefore, the PDCA cycle should be used to explain and deploy BPM programs (Association of Business Process Management Professionals, 2013). Many researchers and practitioners support ABPMP's statement and do not develop other new life cycles further. (Lee and Dale 1998; Makhlouf and Allal-Cherif, 2015; Munehira, 2014; Wangen and Snekkenes, 2014).

More recently, another group of researchers incorporates the ABPMP model proposed in 2009 with external factors outside the organization and proposes a framework to manage the external environment when implementing BPM (Bernardo, Galina, and de Pádua, 2017). This framework specifically focuses on considering external resources before implementing BPM projects.

Nevertheless, current studies of the BPM life cycle focus on providing a comprehensive view but fail to deal with the high-risk during implementation (Khosravi, 2016). As mentioned in subsection 2.2.2., 70% of BPR projects have failed to reach predetermined goals (Champy, 1995). Khosravi (2016) posits that the high failure rate could be attributed to a lack of commitment from senior management, a lack of clear objectives, and employee resistance. However, the root problem may lie in the design of such methods. Therefore, Khosravi (2016) proposes a new model in attempting to bridge this gap, and names the business process rearrangement and renaming model (BPR2). BPR2 embraces the power of name as a technique to eliminate employee resistance in its cycle steps. However, the model only focuses on the implementation of BPR to the detriment of the other half of BPM—the incremental methods descend from TQM. Thus, we should view BPR2 as a complementary model for supporting current BPM life cycles, not a substitute.

Although several distinct BPM life cycles have been proposed recently, the models either focus on BPR and ignore the other half of BPM (Khosravi, 2016) or still build on previous frameworks (Macedo de Morais et al., 2014) that had already been included in the PDCA cycle (Association of Business Process Management Professionals, 2013). Therefore, this study selects the ABPMP's PDCA cycle as the reference model for its comprehensiveness and simplicity.

2.4 BPM Applications

BPM has been applied to both the private and public sectors since its inception (Hammer and Champy, 1993; Khosravi, 2016; Brocke and Rosemann, 2015). Many organizations successfully improve their performance by adopting BPM to manage their business processes (Ranganathan and Dhaliwal, 2001; Trkman, 2010) and to align organizational strategies with business processes (Ensslin, Enssolin, Dutra, Nunes, and Reis, 2017). Based on the previous research, Pradabwong, Braziotis, Tannock, and Pawar (2017) further conduct a quantitative study to examine the relationship between BPM and organizational performance. More recently, scholars have further applied BPM to the area of sustainability (Sohns, Aysolmaz, Figge, and Joshi, 2023; Mc Loughlin, Lewis, Lascelles, and Nudurupati, 2023), creativity management (Narzullayeva and Bakayeva, 2022), and AI (Rosemann, Brocke, Van Looy, and Santoro, 2024). These studies demonstrate a positive and significant relationship, and note that BPM can result in better supply-chain collaborations. In other words, BPM not only benefits a firm's internal performance but also improves a firm's external relationship with suppliers and customers.

Moreover, to obtain an in-depth insight into the types of BPM projects that organizations adopted, a team of researchers and practitioners investigates BPM (Reijers, van Wijk, Mutschler, and Leurs, 2010) and analyzes a set of 33 completed industrial BPM projects. They find that only 3 out of the 33 BPM projects focus on improving the support process; one of these three projects reveals that a financial service provider aims to improve its client information management process to assist sales in maintaining its relationship with clients. Unfortunately, the investigation does not disclose more details about the other two projects due to confidentiality restraints.

Nonetheless, what Reijers et al. (2010) find are consistent with Ranganathan and Dhaliwal (2001), who conduct a survey which find that organizations do not plan to manage their support process over the subsequent 5 years, regardless of the level of interest in it. This finding again is consistent with prior studies that BPM is mainly applied to primary processes of organizations (Gosnik, Pofuk, and Kavcic, 2015; Khosravi, 2016). Nevertheless, as mentioned in Section 1, support processes such as HRM processes are critical for maintaining daily operations of express companies. They are as important as primary processes and yet are relatively ignored. Thus, this paper focuses on the application of the BPM life cycle to support processes and aims to fill a notable gap in

existing literature.

3. Methodology

3.1 Case Study Methodology

According to Yin (2014), the core purpose of a case study is to shed light on a decision or series of decisions, focusing on the reasons behind them, their implementation process, and the outcomes achieved. The case study methodology is best used when the research question is related to how or why, when the study looks at a contemporary set of events, and when the researcher has little or no control over behavioral events. The case study methodology is a standard approach in the humanities and social sciences for conducting qualitative research. Having said that, some researchers combine qualitative data with quantitative data to define a case (Yin, 2014); some researchers do not always engage in the thick description or detailed observational evidence that makes up qualitative research (Geertz, 1973). In this research, we include both qualitative and quantitative data.

We collect data from (1) documentation: relevant books and journal articles on BPM, (2) internal records: the process records archive in the case company, and (3) interviews: according to the specific questions planned for this research.

3.2 Research Subjects

The case company is a Taiwan subsidiary of one of the largest express service providers in the world, currently operating in more than 220 countries. They entered into Taiwan during the 1970s, and now have nine service centers across the island, where the case company employs more than 1,300 workers to maintain its daily operations. Half of the employees are couriers, and another quarter of the workforce are customer service specialists. The other employees work in sales, finance, IT, and human resources departments.

To generate profits through internal activities, the case company establishes the FOCUS strategy to emphasize the importance of its employees. With the FOCUS strategy, the case company allocates resources to those assets that can motivate employees and expect an increase of service quality. With satisfactory service quality, the company further anticipates having more loyal customers and achieving a more profitable performance.

The FOCUS strategy is a positive feedback cycle that has been clearly communicated throughout the case company. Consequently, the case company treats employees as an important asset that contributes to the growing profits of their business. As a result, the case company expends effort hiring talented candidates because they expect these new employees to bring excellent services to the customers, and high profits to the company.

However, the case company is currently facing a critical problem on recruitment resulting directly from its lengthy internal process. This research thus selects this case company as the subject to explore whether and how the PDCA life cycle assists in solving the problem and helps improve its performance.

3.3 Case Study Interview

Interviews are an essential source of case studies-related evidence and focus on oral conversations between interviewers and respondents (Yin, 2014). The purpose of the case study interview is to exchange opinions. Interviewers may analyze respondents' motivations, thoughts, attitudes, and insights into a certain topic. Moreover, the interviewers can change the questions or choose new ones in accordance with respondents' answers during the interview. Since this research focuses on elucidating a certain topic, the case study interview is a proper research methodology to collect first-hand information.

The interview reveals how the case company applies the BPM life cycle to its internal support processes and improves process performance. We develop the interview questions as shown in Table 2. With this interview protocol, we apply a semi-structured approach during the interview, a method which means we could adjust the order of the questions based on the interviewees' responses.

We use purposive sampling in the case study interview, that is, we select the interviewees purposively to obtain the most comprehensive and representative information related to our research questions. To best investigate the effect of BPM project on the case company, we expect the selected interviewees are project team members who fully understand the internal process and the performance measurements, as highlighted in our interview protocol. We invite all three project team members and all of them agree to participate in the research. Specifically, the three interviewees are one senior corporate advisor (15-year seniority in the express industry), one business process analyst (1-year seniority), and one senior recruiter (3-year seniority). We list more detailed background

information of them in Table 3. Since the corporate advisor and recruiter are quite experienced and equipped with rich domain knowledge, they assist in clarifying the business problems and identifying the past and future processes. On the other hand, the business process analyst help communicate the processes clearly and explore the roles and responsibilities of each process carefully. Using the information obtained from the interview, we explore various perspectives of the processes and conduct a comprehensive analysis.

Table 2 The Interview Protocol

The Overall Questions
How do you select a BPM project?
How do you conduct a BPM project?
Do you conduct other activities that help implement the BPM project?
The Plan Stage
How does the project team make sure the project aligns with corporate strategies?
What information is needed during the project? How to collect?
What is the measurement?
The Do Stage
How does the company execute the BPM project?
How to make sure the project can be carried out successfully?
Is there any change in the organization? What is it?
The Check Stage
When does the company check the performance results of a project?
The Act Stage
Does the company refine the process after the project?
Is there any new project brought up because of what has achieved so far?

Table 3 Interviewees Background

Title	Seniority	Background Description
Senior Corporate Advisor	15 years	Responsible for facilitating the BPM project and developing process workflows; currently holding a strategic position in the medium to the high management level.
Business Process Analyst	1 year	Responsible for analyzing raw data, defining the scope of problem and identifying the root causes in the BPM project.
Recruiter A	3 years	Responsible for recruiting staff for business operations, including all couriers of the company; currently serving as the HR Manager at the case company.

4. Case Analysis

4.1 Problem Definition

According to the industry reports from the case company, since 2008, the total express industry market in Taiwan has had an average annual growth rate of less than 1% for 8 successive years. The competition among express businesses is fierce. To grow above the market, the case company has to outperform competitors and satisfy its customers in terms of consistency in speed and service quality delivered by its employees, particularly the couriers. Couriers form the core of daily operations. As the senior corporate advisor points out, "*We can afford the absence of marketing, sales, IT, or HR for weeks, but we cannot afford any shortage of couriers for one day. They play the most critical role—to keep this giant machine running*." Couriers are responsible for the complete appearance of packages and on-time physical deliveries. There are approximately 650 couriers in the case company, and that number continues to grow. Any shortage of workforce in operations leads to overtime work for first-line couriers, even in the worst-case scenario—delivery delay—that places the case company at the risk of losing customers to its competitors. Furthermore, such occurrences make the customer service department a battlefield. This vicious cycle is the opposite of the FOCUS strategy, in that unhappy employees are delivering poor quality services to customers, which destroys existing customer loyalty and breaks the profitable network. Recruiting a sufficient workforce in the operations department is the key to avoiding this downward cycle.

However, the case company encounters the problems of recruiting couriers in Taiwan. "*Twenty percent of the candidates pursuing courier jobs are not familiar with the formal offer letter process in a corporation and are showing little patience waiting for [the] offer letter. They just reject our offers because we cannot have them onboard immediately, even though our package is better*," recruiter A stated. Candidates can be interviewed and be onboard on the same day in local Taiwanese companies, a recruitment process which is impossible for the case company to accomplish due to its internal policies. The average process time for the case company to approve the compensation report and generate an offer letter is 9.5 working days, approximately 2 weeks. "*Two weeks is too long for our candidates*," recruiter A added. Indeed, the resourcing team is facing rejections because of the lengthy internal process, even though the case company's total reward is better than its

competitors. As recruiter A noted, "*The consequences of rejections are terrible. I may need to do the screening and interviews all over again. It is one of the reasons for overtime working, for me and for the couriers*."

The case company operates all functions of HRM in Taiwan, which includes recruiting, compensation and benefits (C&B), people development, employee relations, and occupational health and safety. The problem is associated with the recruitment process. Typically, the hiring process starts after the hiring manager fills out a requisition form. After recruiters receive the form, they open the position to the labor market, followed by resume screening, intelligence testing, interviews, compensation approval, and making offers to qualified candidates.

For the purpose of this research, we select the compensation approval process of new talent recruitment as an example. We utilize the PDCA cycle as the analysis framework. In the following section, we first explore the current (AS-IS) process. The PDCA cycle was then applied to current processes to determine their functionality. Then we propose the future (TO-BE) process. Finally, in Section 4.3 we analyze the whole reengineering of this process using the PDCA framework.

4.2 Compensation Approval Process

4.2.1 The AS-IS Process

After the case company identified the problem, a project team was formed to improve the hiring process. As the senior corporate advisor stated, "*There are thousands of processes in this company. How did I get into a new project in that short space of time? Draw the process on a piece of paper or on the computer. Everything becomes clear once it's visualized*." The first step is to document current (AS-IS) business processes.

The project team members conduct interviews with recruiters to document the AS-IS business processes. The business analyst reveals that "*we held interviews separately with different recruiters to collect information. It helped us identify the inconsistency and consistency of their performance on the same task*."

The AS-IS approval processes of the compensation reports and the offer letters are a serial workflow, meaning that the compensation approval process must complete when the offer letter approval process starts. The compensation approval process begins after the hiring manager tells the recruiter the final decision. The recruiter then prepares the

compensation report in physical form, which is then passed on to the HR business partner, the first- (often the hiring manager) and second-level manager, the function head, the HR head, and the general manager by the candidate. After all approvers sign the compensation report, it is transported to the recruiter who hands it to the C&B department, which triggers the offer letter approval process.

In the offer letter approval process, the C&B specialist prepares the offer letter in physical form which is then passed on to the HR and function head by the candidate. After the HR and function head signed the offer letter, it is returned to the C&B specialist who then informs the recruiter to reach out to the candidate. We illustrate aforementioned processes in Figures 1 and 2.

"*It is true that you cannot improve what you cannot measure. We must identify KPIs to monitor the performance*," the senior corporate advisor reveals. It typically takes 8.5 working days for each compensation report to be signed and approved, and another working day to complete the offer letter approval process. The average process time from the hiring manager making the final decision to the recruiter reaching out to the candidate is 9.5 working days. In addition to the process time, the number of damaged reports is also monitored.

As the business process analyst notes, "*After conducting interviews to the recruiters and finishing drawing business processes, I started to collect relevant regulations, like policies and national legislation. I also needed to figure out a way to connect the process to corporate strategy*." The approval process for the compensation reports and the offer letter aims to ensure a sufficient supply of personnel to maintain daily operations, and to help achieve the FOCUS strategy. "*The point of the FOCUS strategy is to motivate employees so that they provide great service quality to our customers. Any shortage in the workforce just leads to the opposite of that. We need to motivate them, not discourage them*" (business process analyst). Moreover, the analyst reports an internal policy controls the approval process and requires the HR business partners and hiring managers to be the approvers. The HR manager will determine whether this approval process needs to go to CEO/GE. The CEO/GE will then be notified if the answer is yes. The company then has to archive compensation reports and the offer letters.

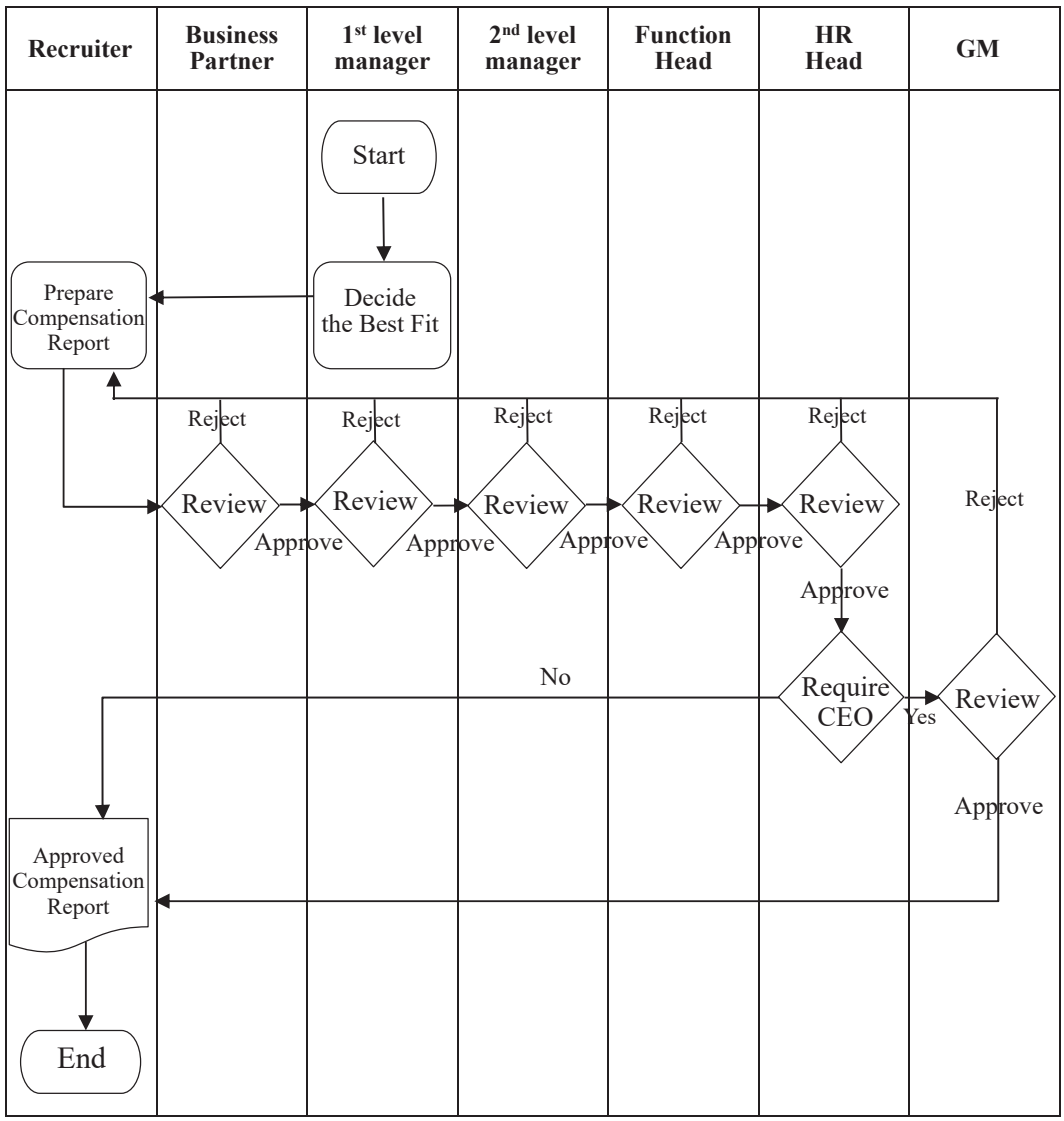

Figure 1 AS-IS Compensation Approval Process

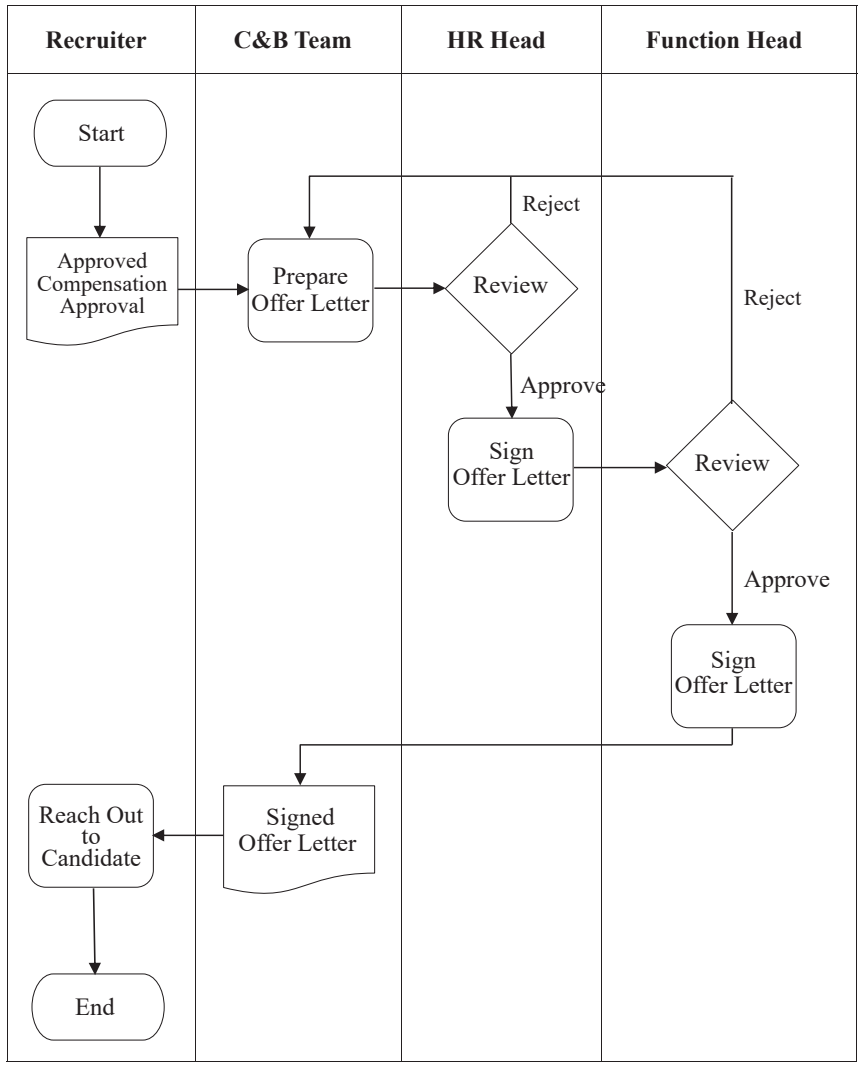

Figure 2 AS-IS Offer Letter Process

4.2.2 PDCA Cycle

The Planning Stage

The purpose of the planning stage is to define business context and to design business processes. As shown in 4.2.1, the project team members first document the AS-IS process, collect internal and external regulations, and connect the process to corporate strategy. "*Linking the process to corporate strategy is critical to communicate the value to all stakeholders involved in a project*," the senior corporate advisor states.

Moreover, team members are able to identify the disadvantages of the AS-IS process and develop an improved business process flow by combining the information collected. "*Several factors that led to process deficiency were discovered. The report was in paper form and carried by the courier. This caused a long process time due to transportation and waiting. The paper report was also prone to damage, which led to repeating of work tasks. Additionally, there were no internal policies or regulations that required signatures on the compensation report. And it didn't have to be a serial process*," the business process analyst revealed.

To solve these identified problems, the project team combines the compensation report and offer letter into one document and decides to digitalize the process by using Microsoft SharePoint 2013. The senior corporate advisor states that "*we expected a 50% improvement in process time at the beginning. That is 4.75 working days. We also expected zero 'damaged' reports in the TO-BE process*."

Other than undertaking the actions to understand the then-current business process, the project team also holds several informal meetings with HR colleagues. "*Our job is to bring changes to other functions. It is common that people resist changes at the beginning. This is why it is so important to create a social connection with them. It can more or less reduce their resistance during the project*," the senior corporate advisor states.

The Do Stage

The purpose of the do stage is to commit the designed process to operations. The project team takes several initiatives to support successful implementation. First, there is a change in the HR organization structure. "*Recruiters previously reported to the resourcing manager. Now, they report to the HR business partner so that the performance of recruiters is linked to the HR business partner. This change directly increased the engagement of HR*

business partners in this project," the senior corporate advisor notes.

The project team also modifies the responsibilities of recruiters, C&B specialists, and couriers. Because the compensation report and offer letter are combined, recruiters are responsible for making the offer letter instead of C&B specialists. Moreover, since digitization is brought in, couriers no longer need to physically deliver the documents.

Before the new compensation process is officially implemented, the project team holds several training sessions to orient recruiters, HR business partners, and all managers to the new compensation process. User manuals are also generated to facilitate the implementation.

Finally, a dashboard is established on Microsoft SharePoint 2013 to monitor in-time performance, which includes the process time and number of damaged reports.

The Check and Act Stages

The purpose of the check and act stages is to measure the new process against expectations and enable the company to react in accordance with the results. As the business process analyst reveals, "*We saw this BPM project as a great success. It not only met the initial goal but also made a further improvement project possible*." We describe the details of the results in the following section.

4.2.3 The TO-BE Process

The case company is hampered by the lengthy process time, which makes it difficult to recruit local couriers. The project team collects all relevant information to solve this problem, including current business context, internal policies, and external regulations. Then, they combine the approval process of compensation reports with that of the offer letters. The team further introduces a new (TO-BE) compensation approval process complied with all regulations. First, the original serial approval process would now be conducted simultaneously. The TO-BE process also brought a change in responsibility: because the compensation report was merged with the offer letter, recruiters assumed responsibility for preparing the offer letter instead of C&B specialists. The TO-BE process is shown in Figure 3.

The new TO-BE compensation process was implemented in September 2016. At the end of 2016, the project team held a meeting to review the performance results. As the

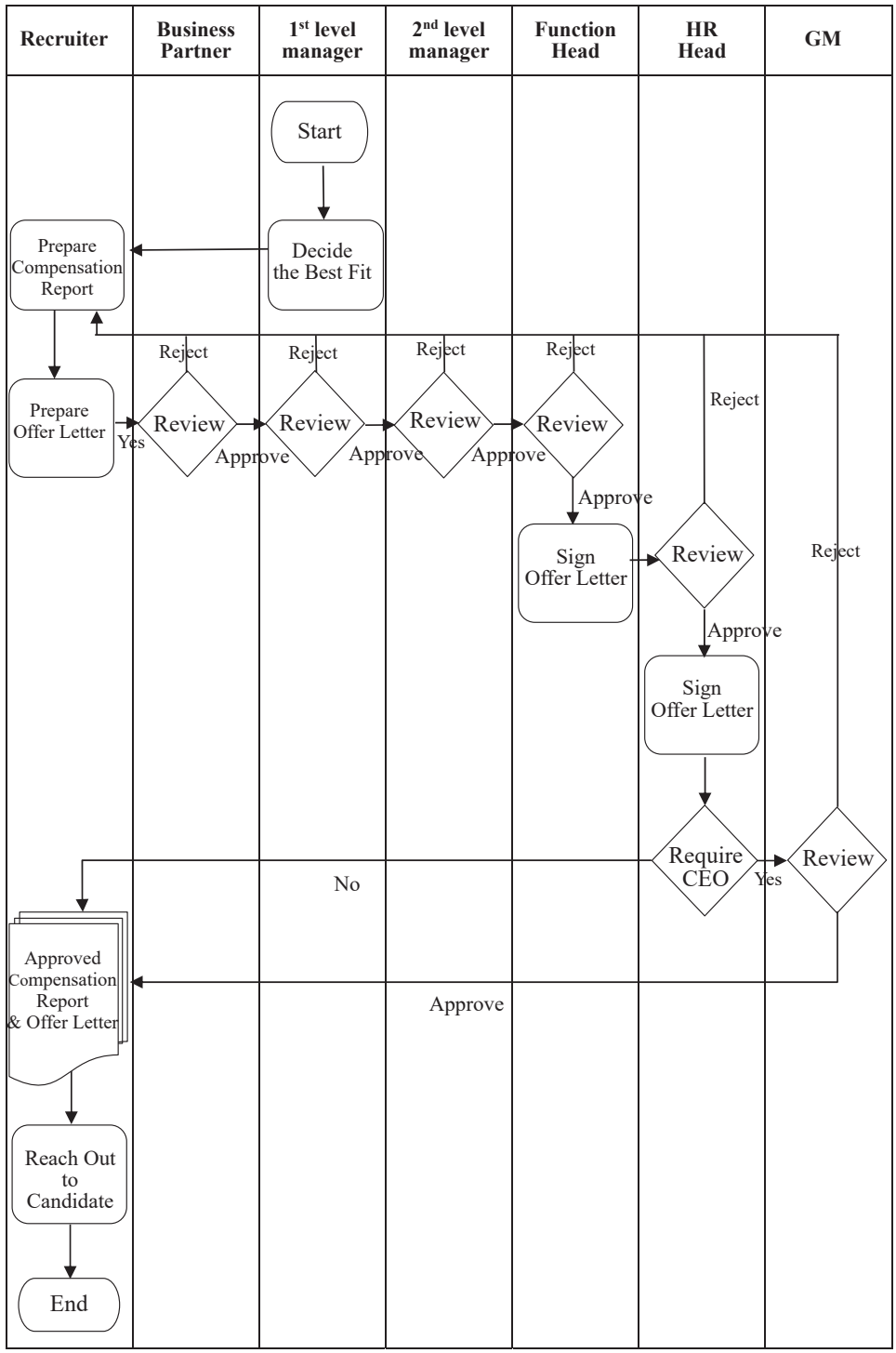

Figure 3 TO-BE Compensation Approval (with Offer Letter) Process

senior corporate advisor stated, "*When comparing process efficiency in 2015 Q4 with 2016 Q4, the average process time of generating an offer letter had improved 85.3% to 1.25 working days*." Recruiter A also added, "*No candidate rejected an offer due to lengthy internal process since September 2016*."

Because the approval document is digitalized, there are no incidents of damaged paper due to physical transportation; the TO-BE process also establishes clear responsibilities among approvers and couriers. More specifically, recruiters assume responsibility for the offer letter, rather than the C&B specialist, and couriers no longer need to physically deliver the documents. Moreover, recruiters' reports are now directly delivered to the HR business partner instead of the resourcing manager. These changes have led the case company to achieve improved performance, as shown in Table 4.

Table 4 Performance of TO-BE Compensation Approval Process

Measures	2015 Q4	2016 Q4	Improvement Rate (%)
Process Time (*Working days*)	9.5	1.25	85.3%
Damaged Report (*number/quarter*)	2	0	100%
Rejected Offer due to lengthy process	(N/A)*	0	100%

Note: *not recorded in history but existed for certain.

4.3 BPM Life Cycle Analysis

The case study provides an opportunity to verify the application of ABPMP's PDCA life cycle in Taiwan. As argued by Association of Business Process Management Professionals (2013), there are typical stages in different BPM projects, namely the PDCA stages. They further identify how much information must be disclosed at each stage. This information is revealed when the case company conducts the BPM project. As the senior corporate advisor disclose, "*There are common steps we always take in each BPM project: to understand the current business process, to map the process to FOCUS strategy, to collect internal and external regulations, to identify proper measures, to redesign the business process, to build social connections with the target function, to manage stakeholders, to hold training sessions, to generate user manuals, and to establish a control mechanism*."

The Plan Stage

According to Association of Business Process Management Professionals (2013), the plan stage should be used to define the current business context and design an improved business process. In this stage, the inputs, outputs, deliverables, and participants must be identified. The purpose of the process also needs to align with corporate strategy. Any policy or national legislation that may restrict the business process must be identified. Before starting to design the improved business process, an organization should decide what IT tool will be used in the project.

In the case company, the project team visualizes the current process, collects information on relevant regulations, maps the current process against the FOCUS strategy, and selects the IT tool before designing the new process. The steps that the project team takes are consistent with what the ABPMP suggested.

Nonetheless, we discover one special action which is not included in the ABPMP's PDCA cycle. That is, the case company emphasizes the importance of informal meetings with key stakeholders prior to and during the project. This type of social connection can, as the senior corporate advisor states, "*reduce their resistance against changes*."

The Do Stage

The purpose of the do stage is to push the new process designed into operation. Several actions have been suggested to help implement BPM projects, which include changes in work responsibilities, restructuring the organization, changing the operational tools that add to the deployment, and adjusting the performance control mechanism.

In the case company, the project team uses different means to help implement the BPM project. During the compensation approval process, the project team partially restructures HR functions to gain the support of HR business partners. The team also modifies recruiters' and C&B specialists' responsibilities. Managers participate in several training sessions to familiarize themselves with the new system. A user manual is provided for future reference. An in-time performance dashboard has also established to monitor the process performance.

The Check and Act Stages

The check and act stages aim to measure a new process against expectations and

enable companies to react in accordance with the performance results. The appropriate actions in the act stage might be maintaining the process or taking new directions in the plan stage.

In the case company, the compensation approval process redesign made the onboarding process improvements possible.

5. Conclusion

This research explores how BPM may be applied to the HR management process and examines the inadequacies of the BPM life cycle. Our case study shows that the ABPMP PDCA life cycle can explain most of the formal steps taken by the case company and yet excludes its subtle, informal method of facilitating the BPM project. The ABPMP PDCA life cycle is mainly restricted to one project and does not include the actions taken before the project. However, these actions are considered crucial to the success of the BPM project. Our study shows a well-executed BPM project with an 85% increase in efficiency for the compensation approval process. The result also accords with previous research findings for studies in which people management and change management are critical factors organizations should consider (Faeste and Hemerling, 2016; Trkman, 2010).

We also notice that although it is not part of the initial purpose of this research, it is determined that the main obstacle to the success of BPM projects is inadequate stakeholder management. As the senior corporate advisor mentioned in our interview, the case company held several informal meetings to decrease possible resistance. Any resistance thereafter comes from employees' lack of a positive mindset to deal with their weaknesses. If substantial resistance exists, a BPM project may never begin, a condition which may explain the lack of research in this field.

The implications of the present research for the express industry are worth noting. This research first confirms that the PDCA cycle can be successfully applied to this industry. In other words, the PDCA framework is considered helpful in analyzing and proposing solutions to process inefficiency in the express industry. It further confirms the critical role that support processes provide to the primary process to improve performance. Furthermore, without support from top management, the perspectives of various process owners can be diverse, which can fuel challenges of process management and

reengineering.

The present study contributes to BPM research. Most importantly, it provides a generalization of the ABPMP PDCA life cycle, which has been examined and confirmed in Europe, North America, China, Japan, Korea, Taiwan, and India. The ABPMP PDCA life cycle's failure to incorporate an informal method of executing a BPM project is also highlighted. Moreover, the research findings address the gap in the BPM body of knowledge between BPM applications and supportive processes.

Nevertheless, we acknowledge the following limitations. First, this research collected data through case interviews, which might have introduced negative effects due to reflexivity. Second, a single case study might lack cross-company or cross-industry application. Third, the research subject is a subsidiary of a multinational company. A different corporate culture may require an alternate method of conducting a BPM project.

Therefore, we suggest using a cross-case study to expand research subjects in the future. Researchers can identify whether informal activities facilitate the completion of a BPM project. Furthermore, Cross-case studies will not only increase research robustness, but also create a better understanding of how BPM may be applied to support processes in different types of companies.

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