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Business Process Reengineering based on Information Economics

[1]Syifa Annastasia*, [2]Sinung Suakanto, [3]Muharman Lubis
[1,2,3]Faculty of Industrial Engineering, Telkom University, Bandung, Indonesia
[1,2,3]Jl. Telekomunikasi, Terusan Buah Batu, Bandung, Jawa Barat, Indonesia, 40257
*e-mail: syifaannastasiaaa@telkomuniversity.ac.id

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Abstract

Business Process Reengineering (BPR) is a strategic initiative to achieve fundamental improvements in organizational performance. However, research shows that up to 70% of BPR initiatives fail, often due to unclear value delivery and ineffective process redesign. This study aims to address that gap by redesigning the recruitment and selection process using an information economics approach evaluating the value of information to drive better decision making and resource allocation. The research applied process mapping, identification of non-value-adding activities, and value-based analysis at each stage, followed by the integration of digital tools to streamline workflows and improve data accuracy. A case study in a large organization was conducted to test the effectiveness of the redesigned model. The key findings of this study are its greatest strength and must be explicitly highlighted to convey its impact: the redesigned process resulted in a 67.3% reduction in processing time and a Return on Investment (ROI) of 1,085.17% demonstrating not only operational efficiency but also clear financial gain. These outcomes validate the role of information economics in successful BPR and offer a replicable framework for other organizations. By combining BPR with the discipline of information economics, this study offers a replicable, outcome-oriented framework that addresses one of the most common reasons BPR initiatives fail unclear value delivery. This contribution is particularly critical in HR contexts, where decisions are often qualitative and under digitized. The findings provide actionable guidance for organizations seeking to future-proof their HR processes while avoiding the pitfalls that undermine most BPR efforts.

Keywords: business process reengineering, information economics, human resource, recruitment and selection, process efficiency

1 Introduction

In today's era of globalization, fierce business competition and rapid advancements in science and technology demand that organizations possess high-quality human resources. Human Resource Management (HRM) plays a crucial role as the primary gateway to acquiring top talent that can help organizations achieve their goals [1]. To acquire quality human capital, an efficient and effective recruitment process is essential. The recruitment and selection process is a key factor in determining organizational performance, as it directly impacts the ability to identify candidates who match job qualifications and organizational needs [2][3]. Hiring the wrong candidate can have significant consequences for productivity, efficiency, and even the morale of existing employees [4].

In practice, however, many organizations still struggle to optimize their recruitment process. Mistakes in candidate selection, prolonged processing times, and lack of accurate data frequently hinder the achievement of desired HR quality. Various innovations have been introduced to enhance the accuracy and efficiency of this process, including the adoption of information technology such as e-recruitment [5]. Nevertheless, such transformations do not always result in significant improvements. According to Hammer, around 70% of Business Process Reengineering (BPR) initiatives fail, largely due to weak implementation, resistance to change, and unclear articulation of information value in the redesigned process [6].

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To address these challenges, this study proposes a novel approach by integrating BPR with the information economics method. BPR emphasizes the radical redesign of business processes to achieve significant performance improvements [7], while information economics, developed by Parker, is an IT investment feasibility method that focuses on evaluating the value of information to support decision-making [8]. Through this approach, reengineering the recruitment process not only simplifies workflows but also maximizes the informational value of each decision point.

This study contributes to the field by developing a BPR model based on information economics specifically for recruitment and selection processes. Using a case study in a large organization, the approach demonstrated measurable impact, including a 67.3% reduction in processing time and a Return on Investment (ROI) of 1,085.17%**.** These findings are the main strength of this research, illustrating that applying information economics to BPR can address common implementation pitfalls and significantly increase the likelihood of success. Beyond offering practical solutions, this research also contributes academically by providing a replicable framework for improving HR processes in other contexts.

2 Literature Review

Human Resources (HR) are a strategic asset for organizations in achieving their business goals. The Human Resources (HR) department plays a crucial role in managing the workforce holistically, encompassing both quantitative aspects such as headcount and qualitative aspects such as competencies, attitudes, and individual potential [9]. One of the core HR functions is the recruitment and selection process, which aims to attract the right talent to fill strategic positions. This process is carried out systematically, starting from candidate sourcing whether internal or external through to selection based on competence and alignment with organizational values [10]. The selection stage involves various methods such as interviews, skill assessments, and psychological evaluations, all conducted under the principles of non-discrimination and accountability [11].

In parallel, innovation serves as a key driver in strengthening organizational competitiveness and economic growth. Innovation is defined as a process of positive change that delivers added value through new products, services, or processes [12] Among the two types of innovation—incremental and radical—radical innovation plays a vital role in creating substantial and fundamental changes that can reshape markets and enhance a company's competitive position [13]. Schumpeter emphasized innovation as the engine of economic development through the creation of new products, methods, and markets. Radical innovation not only enhances company competitiveness but also drives job creation, export growth, and national production efficiency [14].

To assess the feasibility of innovative projects, particularly those based on information technology, organizations use approaches such as *Cost Benefit Analysis* (CBA) and *Information Economics* (IE). CBA is a systematic method that compares the benefits and costs of a project to support sound decision-making [15]. Meanwhile, IE offers an evaluation framework that integrates both financial and non-financial aspects, including direct (*tangible*) and indirect (*quasi-intangible*) benefits, such as benefit acceleration (*value acceleration*) and business function restructuring (*value restructuring*) [16]. This approach enables organizations to strategically optimize IT investments, especially when innovation acts as the main driver of transformation and efficiency

3 Research Methods

The Information economics (IE) method is one of the feasibility assessment methods developed by Parker to link business performance with information technology. IE can also be said to be a set of calculation tools to measure the benefits and costs of information technology projects. Business Process Reengineering (BPR) is defined as a total business transformation, an unconstrained reshaping of all business processes, technology and management systems, and organizational structures or values to achieve major improvements in overall business performance. [17]. BPR can also be defined as a fundamental rethinking and redesign of business processes to achieve improvements in critical and contemporary performance measures, such as cost, quality, service, and speed. [6]. This research will use both tools in the information economics method and Business

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Process Reengineering to improve the business processes raised as the object of research. by combining the methods of Information economics and Business Process Reengineering, it can further strengthen the results of business process improvements made. The purpose of the information economics method is to clarify, measure, and optimize investment in information systems and technology with a tangible and intangible measurement approach. And the purpose of BPR is an effort to change the way work is done by simultaneously addressing all aspects of work that affect performance and competitive advantage.

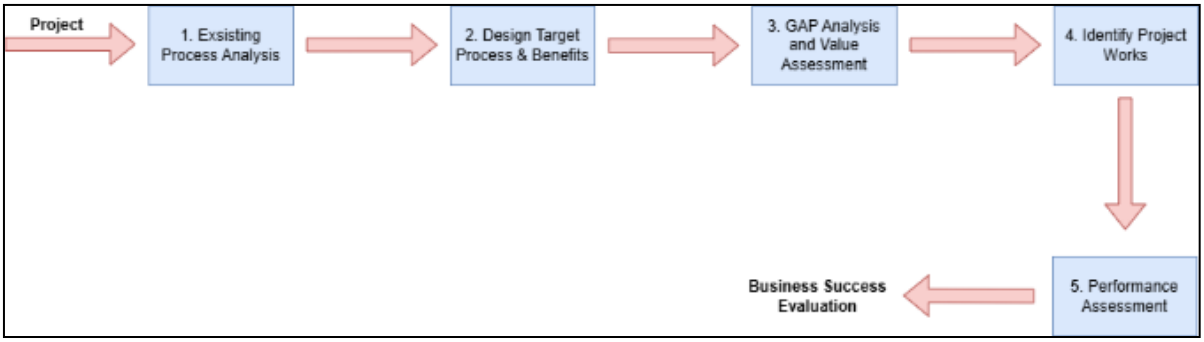

Figure 1. Research methods

The following is an explanation of the diagram above:

1. **Existing Process Analysis**
   In addition to identifying the current processes that occur, which aims to find out the pain points felt by stakeholders.
2. **Design Target Process and Benefits**
   At this stage, in addition to designing a target process that aims to address the inefficiencies identified in the existing process.
3. **GAP Analysis & Information Economics**
   At this stage, conduct a gap analysis between the existing process and the target process to identify the required changes. In addition to analyzing process gaps, this stage also analyzes costs and benefits (Cost & Benefit) to evaluate the investment required to close the gap and review the expected benefits with more specific metrics, including ROI for the changes needed. Not only that, this stage also discusses the value of information economics which plays an important role in ensuring success and reducing the financial risks that will arise. financial risks that will arise.
4. **Identify Project Works**
   In this process follow-up or improvement projects can be implemented to bring the process closer to the process goal. It also evaluates the cost-benefit impact of the project.
5. **Performance Assessment**
   At this stage in addition to assessing the initial objectives. As well as measuring the improvement in cost savings, efficiency and time measurement of the planned process with results. In addition to measuring tangible results, also measure intangible value. Review the overall results to determine if the BPR effort has delivered the expected benefits and any additional ones. Conduct a full cost-benefit evaluation to assess the impact of the re-engineered processes on the business, ensuring alignment with strategic objectives.

   By combining and simplifying the Business Process Reengineering and Information Economics methods, it is expected to maximize the improvement process of the Organization.

4 Results and Analysis

4.1 Result

PT XYZ's current manual and non-integrated recruitment and selection process—from ERF submission to onboarding—results in long processing times, limited monitoring, and high error risk. To address these issues, a redesigned process was developed using SAP SuccessFactors, RPA, and machine learning, enabling automation, integration, and improved efficiency. Key changes include

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digital ERF submission, automated CV screening, integrated interview scheduling, and centralized onboarding, reducing the recruitment cycle from 90 to 60 days. A GAP analysis showed significant improvements, and a Cost Benefit Analysis revealed a high ROI of 1,085.17%, with total financial benefits reaching IDR 17.77 billion. This transformation not only enhances efficiency and candidate experience but also supports PT XYZ's vision as a modern, technology-driven organization.

4.1.1 Existing Process Analysis

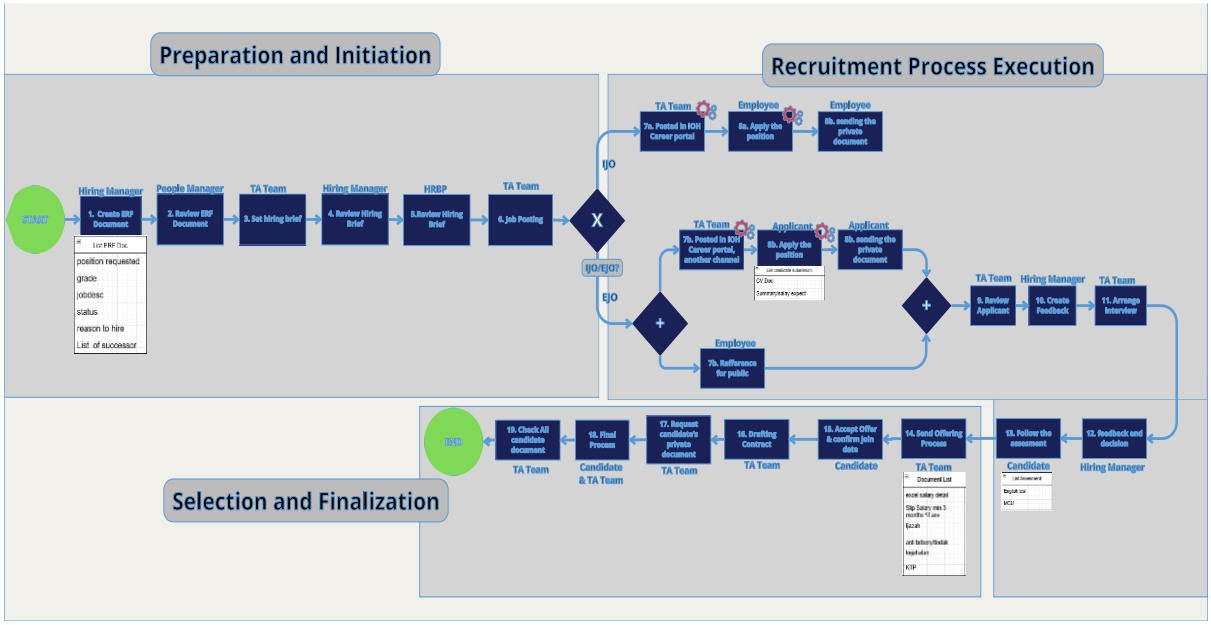

Figure 2. Existing process analysis

The existing recruitment and selection business process at PT XYZ is currently done manually and is not integrated. Starting from Employee Requisition Form (ERF) testing, CV screening, to Onboarding and probation processes. Although this process allows flexibility in decision making. There are a number of challenges such as long duration and limitations in monitoring the process. After analysis, here are some advantages and disadvantages if the existing business process is maintained by the organization.

Pros:

1. Physical documents are easily accessible without the need for a device or internet connection.
2. Physical documents are easily accessible without the need for a device or internet connection.

Disadvantages:

1. The whole process has not been integrated which makes it difficult to track and monitor.
2. Long processing time of up to 90 days for one candidate.
3. Risk of losing candidate and employee data
4. High risk of data errors
5. Long decision making time

4.1.2 Design Target Process and Benefits

After analyzing the existing business process, the following is the design of the recruitment and selection targeting business process with us to streamline, automate and integrate technology. This process involves the SAP Success Factor digital system, RPA and machine learning.

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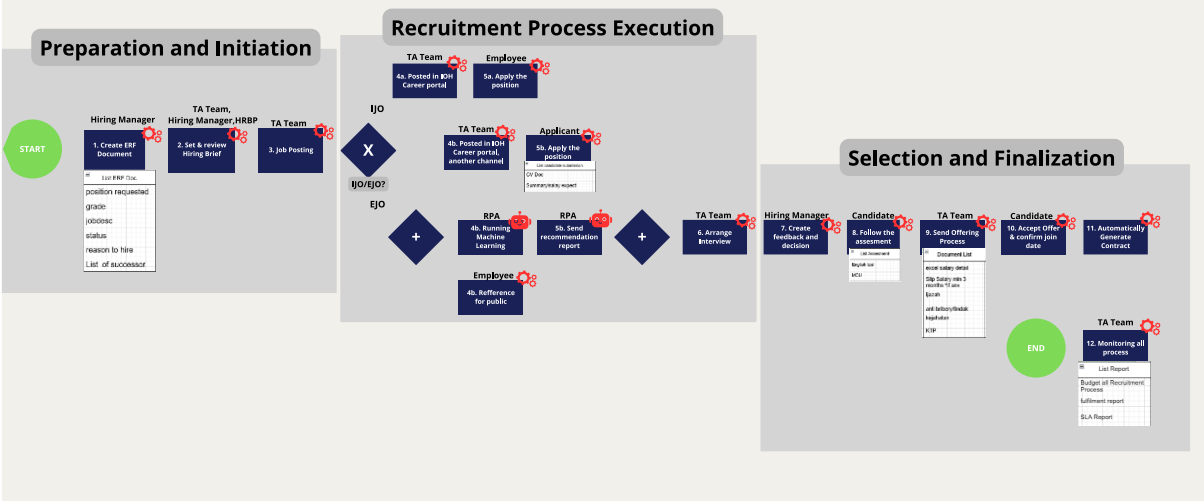

Figure 3. Design target process and benefits

Here is an overview of the significant changes:

1. ERF digitization, submission and approval are done through an integrated SAP Success Factor system.
2. CV Screening Automation, using Machine Learning technology to accelerate candidate screening.
3. Integrated Interview Process, automatic scheduling and synchronized with stakeholders' calendars.
4. Digital Documents, pay slips, contract documents and negotiations are done through the system.
5. Onboarding Integration, all candidate data is stored from the recruitment module, Onboarding to the employee central system.
6. Reduced time to process to 60 days for one candidate.

4.1.3 GAP Analysis & Information Economics

1. GAP Analysis

The following is a GAP Analysis that really shows the difference between existing and targeting business processes.

Table 1. GAP analysis

Process	Existing	Target	GAP
Recruitment Submission (ERF)	Requests to fill vacant positions until approval are done manually	Submission of requirements for vacant positions is done through an integrated system.	Submission time is longer due to reliance on manual processes.
Hiring Brief with Hiring Manager	Brief documented with manual form	Briefs are documented through a technology-based system	Coordination results are not well documented.
Job Postings	Vacancies are published manually one by one	Automatic publication is done through one system that is integrated with all career portals owned by the Organization.	Delay in posting vacancies and possibility of incorrect posting.
CV-Screening	Screening is done manually, requiring a	Using Machine Learning	Manual processes increase the risk of

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	lot of time and effort		errors and take more time
Interview	Manual schedule creation	Create, cancel or reschedule interview schedules in the system that is integrated with the user's calendar.	Non-measurable interview SLA
Feedback Hiring Manager	Feedback is done manually without a standardized SLA	Feedback is organized in the system with clear SLAs and faster response times	Inconsistent and undocumented response times resulting in delays in decision making
Proses Offering	The offering process is manual, not standardized and not documented.	The offering process is carried out through the system with 3 choices of ways, namely through the system E-mail or telephone or text with the same standard offer.	Diverse candidate experience
Document check	Manually done by HR, not integrated in the system and not well documented.	The document checking system is automated and integrated with HRIS data.	Manual processes increase the risk of errors and slow down data verification.

2. Information Economics

The transformation from the existing business process to the targeting process provided significant improvements in document management, time efficiencies, and candidate experience. Investment in technology provides a sustainable impact that can support the organization's strategy.

Here are some added values for the Organization:

1) Improved operational efficiency, digital processes reduce redundancies and waiting times in the recruitment and selection process.
2) Improved user experience, candidates get a more transparent experience, increasing job offer acceptance rates.
3) Organizational image, digitalization strengthens the Organization's branding as a modern and innovative workplace.
4) More efficient and effective decision making.
5) Risk analysis and risk mitigation to avoid failure in implementing innovation.

3. Financial Impact Analysis

The results of the financial impact analysis are obtained based on the Cost Benefit Analysis (CBA). There are several steps to conduct a Cost Benefit Analysis (CBA) on the recruitment and selection process, as follows:

1. Identification of Implementation Costs

In the implementation process there are several types of costs that need to be identified. Technology costs include the procurement of new software and technology infrastructure. In addition, training costs include training for the HRIS team who will be the users. As well as initial operational costs must be taken into account, such as the cost of transitioning the old system to the new system, including potential temporary operational disruptions.

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Table 2. Identification of implementation costs

Category	Cost Component	Estimated Cost (IDR)
Technology	HRIS Procurement	1.000.000.000
	Technology Infrastructure	200.000.000
Training	HRIS Team, TA	100.000.000
Initial Operation	system transition and integration	200.000.000
Total Cost of Implementation		1.500.000.000

2. Identify the Impact of Information economics

There is an impact to be gained from implementing improvements to the recruitment and selection business process.

a. Bussiness Needs

a) Operational efficiency, reduction in recruitment process time, which will reduce operational costs by automating the process.
b) Improved talent quality, reduced cost due to bad hire cost.
c) Increased productivity, Filling positions faster so that new employees can immediately work and contribute. In addition, it can also increase productivity for the TA team to be able to make more strategic decisions and focus on other innovations.
d) Operational Cost Reduction: Reduced manual administration costs (physical documents, etc).

Table 3. Business impact

Category	Impact Component	Estimated Impact (IDR)
Time Efficiency	Reduced recruitment time (90 days to 60 days)	300.000.000
Operating Cost Reduction	Decrease in manual administration costs	127.500.000
Productivity Improvement	Faster position filling (earlier Employee Contribution)	3.750.000.000
Talent quality	Reduction of costs due to bad hires	7.200.000.000
Total Financial Impact		15.127.500.000

b. Technologies Needs

a) Recruitment process automation, Technology such as AI, Machine Learning for screening candidates according to requirements.
b) System integration, Integrate all HR processes from recruitment and selection to employee offboarding in the HRIS system.

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Table 4. Impact technologies

Category	Impact Component	Estimated Impact (IDR)
Automation Savings	Cost reduction against manual activities	3.150.000.000
Integration Savings	Cost reduction against various separate systems	400.000.000
Total Technology Savings Impact		2.050.000.000

c. Sociologies Needs

Better candidate experience, with better processes and systems, the recruitment process becomes more transparent, fair and accessible, thus increasing candidate satisfaction with the Company.

Table 5. Impact of sociologies

Category	Impact Component	Estimated Impact (IDR)
Better Candidate Experience	Job offers acceptance rate after process reengineering: 100% of 300 candidates	-90 candidates, which means that more candidates accepted the job offer after the improvements were made.
	Candidate dropout rate after process reengineering: 20%	30 fewer candidates abandon the recruitment process when it is not yet complete
Total Technology Savings Impact		600.000.000

d. Return on Investment (ROI)

$$\text{ROI} = \left(\frac{17.777.500.000 - 1.500.000.000}{1.500.000.000}\right) \times 100\% = 1.085{,}17\% \quad (1)$$

Based on the results of the above calculations, it shows that an investment of Rp. 1,500,000,000 in the recruitment and selection business process transformation process results in a financial return of Rp. 17,777,500,000 or an ROI of 1,085.17%. It can be said to have the following results:

a) **Significant efficiency**, Significant efficiency is very influential by implementing business process improvements, companies can maximize financial benefits that are far greater than the cost of implementation.
b) **Profitable investment**, ROI of 1,085.17% shows that investment in technology and process optimization not only covers upfront costs but also provides a large net return.
c) **Support to Organizational VISION**, this transformation is aligned with the Organizational Vision to become the first-choice digital telecommunication company, by delivering a modern, fast and efficient recruitment process.
d) **Justification for Implementation**, the high ROI is a strong basis for continuing the implementation of business process improvements, given their significant impact on operational efficiency and the potential for improving the Organization's overall performance.

The implementation of the transformation of the recruitment and selection business process brought significant efficiency in time, cost, and resources.

a) Reduced recruitment cycle time by 30%, allowing positions to be filled faster and new employee contributions to begin immediately.
b) Reduced operational costs by 20% through digitization and elimination of manual and non-value-added processes.

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An ROI of 1,085.17% indicates that investments in technology and process optimization are highly profitable.

a) The relatively small implementation cost compared to the benefits generated proves the economic value of this transformation.
b) The large net gains provide strong justification for expanding investment in recruitment and selection technologies in the future.

4. Innovation Assessment

1) Innovation Identification

a. Recruitment Process Automation: AI implementation for candidate screening
b. HRIS Integration: Candidate data management, interview to Onboarding in one system.
c. Use of Predictive Analytics: Helps select more suitable candidates efficiently and effectively.
d. Make changes to rules and SOPs that are no longer relevant to business processes.

2) Decision Making Scheme

a. innovate BPR
b. Decision 2, maintain manual or traditional recruitment and selection processes

3) Scenario Definition

a. Success scenario, Innovation improves efficiency, hiring quality, and ROI.
b. Failed scenario, the innovation fails to achieve the expected benefits and impact and causes losses.

4) Scenario Probability

a. Probability of Innovation Success (Ps) = 80%
b. Probability of Innovation Failure (Pg) = 20%

5) Payoff Estimation

If you do Innovation:

a. Success: Rp. 17,777,500,000 (high nominal benefit due to efficiency and quality)
b. Failure: Rp. 1,500,000,000 (lower cost but suboptimal results).

If you don't innovate:

a. Success: Rp. 12,000,000,000 (high nominal benefit due to efficiency and quality)
b. Failure: Rp. 4,000,000,000 (lower cost but suboptimal results)

5. EVPI Model Calculation

1) Expected Value without Perfect Information (EVwoPI):

$$\text{EV}\omega\text{oPI} = (\text{P}_S \times Payoff \text{ Success from the Best Decision}) + (\text{P}_g \times Payoff \text{ Failing the Best Decision}) \quad (2)$$

$$\text{EV}\omega\text{oPI} = (0{,}8 \times 17.777.500.000) + (0.2 \times 1.500.000.000) = 14.522.000.000 \text{ Rupiah} \quad (3)$$

2) Expected Value with Perfect Information (EVwPI):

$$\text{EV}\omega\text{PI} = (\text{P}_S \times \max(Payoff \text{ Success})) + (\text{P}_g \times \max(Payoff \text{ Failed})) \quad (4)$$

$$\text{EV}\omega\text{PI} = (0{,}8 \times 17.777.500.000) + (0.2 \times 12.000.000.000) = 16.622.000.000 \text{ Rupiah} \quad (5)$$

$$\text{EVPI} = \text{EV}\omega\text{PI} - \text{Ev}\omega\text{oPI} \quad (6)$$

$$\text{EVPI} = 16.622.000.000 - 14.522.000.000 = 2.100.000.000 \quad (7)$$

From the above calculations, it can be concluded as follows:

a. Perfect information on innovation success or failure is worth up to IDR 2,100,000,000.
b. With perfect information, Organizations will be more confident in investing resources for automation, integration or analytics in the recruitment process.

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6. Risk Assessment

1) Key Risk Identification

a. Technology Doesn't Work as Expected

a) Risk: The implemented AI and HRIS-Integration does not deliver the expected results (e.g. less accurate candidate screening due to system disruption).
b) Impact: Reduced efficiency of recruitment and selection process quality

b. HR Resistance from HR-Team

1) Risk: The HR team is unable to adapt to the new technology and prefers to use the manual methods they are accustomed to.
2) Impact: Reduced effectiveness of technology adoption and slower recruitment and selection process.

c. Errors in Data and Analytics

1) Risk: Use of predictive analytics and inaccurate or invalid data due to poor data quality.
2) Impact: Leads to wrong hiring decisions in selecting expected candidates.

d. Higher than Projected Costs

1) Risk: Technology implementation and training costs are higher than expected.
2) Impact: Financial loss due to higher costs than budgeted.

2) Risk Probability and Impact

Table 6. Risk probability and impact

Risk	Probability (%)	Financial Impact (IDR)
Technology is not working as expected	20%	Rp. -5.000.000.000
Resistance from HR Team	15%	Rp. -3.000.000.000
Errors in data and Analytics	10%	Rp. -2.000.000.000
Higher than Projected Costs	25%	Rp. -4.000.000.000

3) Decision Scenario

In the EVPI scenario there are two options that the author decided to consider:
a. Innovation: Technology implementation and business process changes.
b. No Innovation: Maintaining manual or traditional recruitment methods.

4) Payoff Estimation

If innovating:
a. Success: Rp. 17,777,500,000 (high nominal benefit due to efficiency and quality)
b. Failure: Rp. 1,500,000,000 (lower cost but suboptimal results)
If you don't innovate:
a. Success: Rp. 12,000,000,000
b. Failure: Rp. 4,000,000,000

5) Expected Value Without Perfect Information (EVwoPI)

Calculate the EVwoPI, which includes all the risks identified above.

$$\text{EV}\omega\text{oPI} = (\text{P}_S \times (Payoff \text{ success}) + (\text{P}_g \times (Payoff \text{ Failed} \quad (8)$$

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$$EV\omega oPI = (0{,}8 \times 17.777.500.000) + (0.2 \times 1.500.000.000) = 17.222.000.000 \text{ Rupiah} \quad (9)$$

6) Expected Value with Perfect Information

With perfect information, it is possible to know in advance whether the technology will succeed or fail and make decisions based on that. The probability of risks considered in EvwPI, as follows:

a. If the technology works (80%)

Payoff: Rp. 17.777.500.000

b. If technology fails (20%)

Payoff: Rp. 1.500.000.000

$$EV\omega PI = (0{,}8 \times 17.777.500.000) + (0.2 \times 1.500.000.000) = 17.222.000.000 \text{ Rupiah} \quad (10)$$

7) EVPI calculation

With perfect information, organizations can get better results to make better decisions.

$$EVPI = 17.222.000.000 - 17.222.000.000 = 0 \quad (11)$$

In this model, the EVPI calculation shows a value of 0, which means that the risk of innovation is very measurable, and even if perfect information is available, the organization can already estimate a good result without additional information. However, it is recommended that the organization should manage the risk with great care, especially on technology risk and implementation cost by mitigating the risk through several approaches.

4.1.4 Identify Project Works

1. Project Work Plan Results

Table 7. Project work plan results

Phase	Duration	Main Activities
Phase1 (Planning and Preparation)	2 Weeks	Establishment of project team, establishment of project objectives and KPIs, establishment of budget and resources, development of project communication plan
Phase 2 (Existing Business Process Analysis)	4 Weeks	Analyze existing processes and identify strengths and weaknesses in the business process.
Phase 3 (Business Process Redesign)	4 Weeks	Design new and more efficient process flows, develop new standard operating procedures, validate new designs with stakeholders
Phase 4 (Technology Implementation)	16 Weeks	Implementation of the new system, integration of the system with various other processes, system testing and resolution of technical problems
Phase 5 (Training and Competency Development)	2 Weeks	Training for HR team and Hiring Manager on the use of the new system, technology-based recruitment process simulation
Phase 6 (Monitoring and Evaluation)	3 Weeks	Trial the new recruitment system, evaluate the results of the trial based on the KPIs that have been set.
Phase 7 (Refinement and Scalability)	3 Weeks	Improve the system and SOPs based on the evaluation results, increase the scalability of the system to support larger recruitment volumes, develop a sustainability plan and continuous improvement.

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2. Key Performance Indicator

Table 8. Key performance indicator

KPI	Description	Target	Results
Recruitment Cycle Time	Time required to fill vacant positions from opening to hiring	30% reduction in cycle time	The time to fill positions before BPR was 90 days, after BPR it was 60 days. The reduction was 33.33% which means it exceeded the target.
Recruitment Cost per Candidate	Average cost to hire one candidate	20% reduction in recruitment costs	The administrative cost before the BPR per candidate was Rp. 20,000,000. after the BPR, it became Rp. 5,000,000 per candidate. The reduction is 75% which means it exceeds the target.
Candidate Quality	Time taken to fill the position with the right candidate	25% reduction in recruitment errors	The number of bad hires before BPR was 30 candidates, after BPR it was 6 candidates per year. The reduction is 80% which means it exceeds the target.
New Employee Productivity	New employee productivity in the first 3 months compared to target	15% increase in productivity	
Stakeholders Satisfaction Level	Stakeholders' satisfaction index with the quality of the recruitment process	Satisfaction rate of 80% or more	Currently, the stakeholder satisfaction index is still at 60% because the survey has not been conducted thoroughly.
System Efficiency	Time taken to process candidate applications with the new system	50% reduction in application processing time	The cost of technology savings amounted to Rp. 2,050,000,000 which previously required 900,000,000 per year for recruitment needs. The savings are more than 50%.

4.1.5 Performance Assessment

Here are the results of the Performance assessment:

1. HRIS, to monitor selection success rate and employee retention data.

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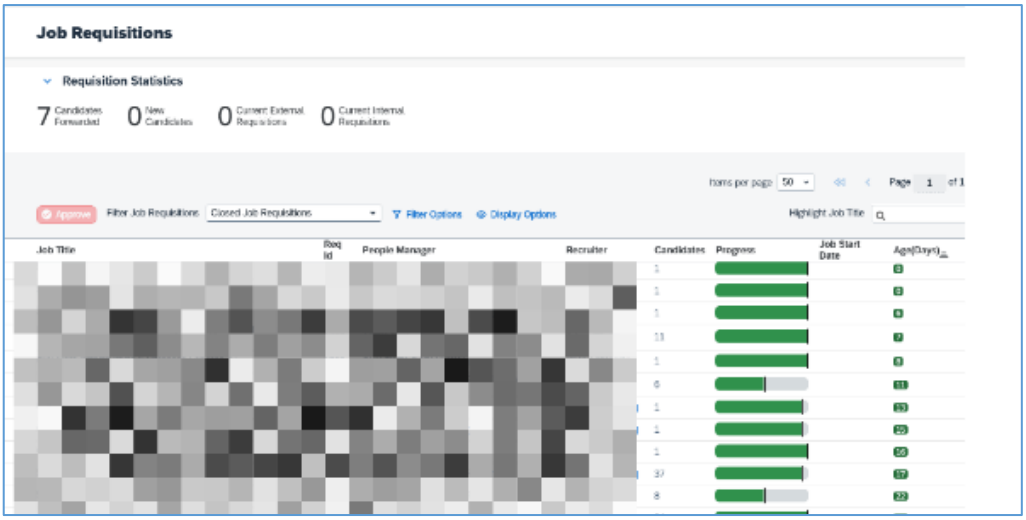

Figure 4. Performance Assesment

From the sample above, there are 69 candidates whose average ticket has been closed with an SLA with the longest being 22 days, even exceeding our target at the beginning that the SLA for the candidate is 30 days. If you look based on the data above, it can be stated that the current recruitment and selection system can streamline the time of users.

2. Satisfaction Survey, to get user feedback on the quality and speed of the recruitment process.

Table 9. User Feedback

Feedback	Reason of giving feedback
Information on the internal recruitment process is easily known by many employees because it can be accessed on an integrated system.	This feedback is given as a form of appreciation and support so that HR can continue to improve its system.
With a recruitment system that is integrated with the organization's system and succession planning, the recruitment process now utilizes internal candidates first.	This feedback shows the importance of system integration in today's digital era
The application is easier and everything is well-documented.	It is expected that all applications in the HR function will become easier, such as the recruitment and selection process.

3. New Employee Performance Report: to assess the success rate of selection in terms of integration and productivity. Within the three-month probation period, 70% of employees passed the probation with scores that reached the expectations of their respective work units.

4.2 Discussion

4.2.1 Operational Efficiency

The implementation of the recruitment and selection targeting business process is expected to reduce the recruitment duration from 90 days to 60 days. It is expected to increase the productivity of the HR team, as well as minimize operational costs.

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4.2.2 Candidate Quality Improvement

Machine Learning technology is expected to screen candidates based on relevant specifics. This reduces the risk of recruitment and selection errors. It also ensures that the selected candidates have the right skills.

4.2.3 Candidate and Stakeholder Experience

The digitization process is expected to provide greater transparency and improve the candidate experience. Feedback from the survey shows that candidates are more satisfied because the process is fast, transparent and accessible.

5 Conclusion

The radical innovation implemented in PT XYZ's recruitment and selection business process—through machine learning, SAP SuccessFactors, process digitization, and system integration—has proven to be a strategic response to existing organizational challenges. The redesigned process resulted in a **67.3% reduction in processing time** and achieved a **Return on Investment (ROI) of 1,085.17%**, highlighting substantial efficiency gains and cost-effectiveness. By applying the principles of **information economics**, the organization was able to minimize delays in decision-making, reduce operational overhead, and significantly improve the quality of hired candidates. These improvements not only enhance recruitment outcomes but also position PT XYZ as an agile and forward-thinking digital organization aligned with its vision to deliver world-class employee experiences. Practically, this research offers a replicable framework for other companies seeking to modernize HR processes with measurable results. Future studies could further explore the long-term impact of information-driven BPR on employee retention, employer branding, and strategic workforce planning.

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