OPTIMIZATION OF BUSINESS PROCESS OUTSOURCING

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Abstract. *This article examines the issues of optimizing business processes in a modern business environment using digital technologies. The research was conducted using a mixed methodology, analyzing a questionnaire survey with the participation of 248 enterprise representatives, in-depth interviews with 42 top managers, and 6 focus group discussions. During the study, successful practices were identified through observation and analysis of working documents. Scientifically based recommendations were developed, which provide for the gradual optimization of business processes, the development of digital competencies of employees, and the alignment of technological solutions with strategic goals.*

Keywords: *business process optimization, digital transformation, BPEI index, mixed methodology, operational efficiency, modern management,digital competence.*

INTRODUCTION

At a time when the pace of digitalization of the global economy is accelerating, business process optimization is considered a source of strategic advantage for enterprises. The problem of business process optimization occupies an important place in modern management, as it creates the opportunity to reduce operating costs, improve the quality of products and services, and quickly respond to customer needs.

Large-scale reforms being implemented in the Republic of Uzbekistan to develop the digital economy require the introduction of modern management technologies in the business sector. At the same time, the practice of optimizing business processes in local enterprises is still insufficiently studied, and scientifically based approaches are rarely used.The issues of improving business processes of enterprises and increasing their efficiency in the conditions of the modern economy are studied. During the study, the impact of the implementation of Lean management, Six Sigma methodologies and digital technologies (AI, RPA) on the activities of the enterprise was analyzed. An author's approach to eliminating them through Value Stream Mapping (VSM) is proposed. The results serve as a practical guide for business leaders and managers in optimizing the management system and reducing operating costs.

LITERATURE ANALYSIS

According to the McKinsey Global Institute, companies that effectively use digital technologies increase their competitiveness in the market by an average of 2.5 times. Foreign researchers, in particular Hammer and Champy, developed the concept of business process redesign, while Davenport analyzed innovative approaches. However, very few studies have been conducted specifically for Uzbek enterprises in the context of digital transformation. The purpose of the study is to develop scientifically based recommendations for the comparative analysis and practical implementation of business process optimization mechanisms in the context of digital transformation [1,2].

METHODOLOGY

The study was conducted in 2021-2024 using a mixed methodology. To collect quantitative data, a standardized questionnaire survey was conducted among 248 enterprise representatives, with respondents selected from various sectors (production 38%, trade 34%, service 28%). The survey questions were aimed at assessing the current state of business processes, the level of use of digital technologies, and the results of optimization. As a qualitative research component, semi-structured interviews were conducted with 42 senior managers, which helped to identify in-depth aspects and practical difficulties in optimizing business processes. In addition, 6 focus group discussions were held, each of which involved 8-10 specialists from different departments. The BPEI index was used to assess the efficiency of business processes, which allows for a comprehensive assessment of process speed, number of errors, resource consumption, and customer satisfaction. The Digital Maturity Assessment (DMA) test was used to measure the level of digital maturity, which rates companies into five levels: beginner (1-2 points), developing (3-4 points), intermediate (5-6 points), advanced (7-8 points) and leading (9-10 points). 12 successful practices (case studies) were studied through observation and analysis of working documents, and the results were statistically analyzed using SPSS Statistics 26.0. In order to ensure the reliability of the data, Cronbach's Alpha coefficient was calculated (α=0.89), which indicates high internal consistency.

DISCUSSION AND ANALYSIS

Overall research results and digital maturity analysis. The study showed that 34% of the respondent companies are at the initial stage of digital maturity, 41% are at the medium stage, and only 25% are at the high level. The average business process efficiency index of companies that have fully implemented digital transformation was 8.7 points (on a 10-point scale), while this indicator was 5.3 points for companies at the initial stage. These data indicate that there is great potential for increasing the level of digital maturity in local companies [3].

Table 1

Digital maturity level and business process efficiency

Digital maturity level	Number of enterprises	BPEI (average)	Reduce operating costs	Process speed increase
Elementary (1-2 points)	84 (34%)	5.3	8%	12%
Developing (3-4 points)	52 (21%)	6.4	15%	21%
Medium (5-6 points)	50 (20%)	7.2	23%	29%
Advanced (7-8 points)	42 (17%)	8.1	28%	35%
Leader (9-10 points)	20 (8%)	8.7	31%	43%

As the table shows, business process efficiency progressively improves as digital maturity increases. While entry-level enterprises reduced operating costs by only 8 percent, leading-edge enterprises achieved a 31 percent improvement. Similarly, process speed increased from 12 percent at the entry-level to 43 percent at the highest level [4].

Qualitative research findings and barrier analysis. The in-depth interview analysis identified a number of key barriers to business process optimization. The most common barrier is the lack of digital skills among employees, cited by 78 percent of respondents. High software costs are in second place (63 percent), and integration issues with legacy systems are in third place (54 percent). Additional barriers include a lack of support from senior management (47 percent), employee resistance to change (42 percent), and a lack of a clear strategy (38 percent).

During the focus group discussions, participants raised a number of important points. First, it was emphasized that active participation and ongoing support from top management are essential for successful optimization. Second, the need to develop a change management strategy was emphasized. As one focus group participant noted, the effectiveness of new systems decreases sharply if additional training programs are not organized for employees during the implementation of technological solutions. Third, it was emphasized that open communication about the reasons for the changes and the expected results is important [5].

Benchmarking and performance indicators. Business process optimization has yielded several significant results for companies. Operating costs have been reduced by an average of 31 percent, indicating more efficient use of resources. A 47 percent reduction in errors and defects confirms a significant improvement in quality indicators. A 38 percent reduction in time to market for products and services has been a significant factor in increasing competitiveness.

Table 2

Business process optimization efficiency across industries

Network	**Reduce operating costs**	**Error reduction**	**Time saving**	**Increased customer satisfaction**
Production	35%	52%	41%	28%
Trade	29%	43%	36%	34%
Service	28%	46%	37%	39%
Average	31%	47%	38%	34%

The table shows that business process optimization in different industries has yielded different results. The highest indicators were recorded in the manufacturing sector, which is associated with the characteristics of the industry. In the service sector, customer satisfaction increased to the highest level, which indicates the potential for improving service quality [6].

Analysis of successful practices. The 12 case studies reviewed revealed a number of common features. The companies that achieved the highest results used a step-by-step approach, automating simple processes first and then moving on to more complex ones. The first case study demonstrated the automation of order management in a manufacturing company. The process was reduced from 12 days to 5 days, and errors were reduced by 68 percent. The second case study optimized warehouse management in a trading company, which reduced inventory costs by 42 percent and provided real-time information about the availability of goods.

The third case study demonstrated the experience of digitizing customer service processes in the banking sector. As a result of the implementation of a mobile banking application, customer waiting times were reduced by 73 percent and service quality indicators improved by 56 percent. The fourth case study demonstrated the implementation of a route optimization system in a logistics company, which reduced fuel costs by 34 percent and shortened delivery times by 41 percent [7].

Statistical analysis results. Correlation analysis confirmed the existence of a strong positive correlation ($r=0.82$, $p<0.01$) between business process efficiency and digital maturity level. This is a highly statistically significant result. Regression analysis showed that each point increase in digital maturity level increases the BPEI index by an average of 0.64 points. This result proves the direct relationship between digital technologies and business process efficiency [8].

Another important finding identified during the study is that there is a nonlinear relationship between the size of the enterprise and the effectiveness of business process

optimization. Medium-sized enterprises (100-500 employees) showed the highest relative results, while small enterprises had resource constraints, while large enterprises had slightly lower effectiveness due to the complexity of integration.

Importantly, implementing technological solutions alone does not guarantee operational efficiency. The expected results will be achieved only if technologies are aligned with strategic goals and employees have the appropriate knowledge and skills. The results of the study showed that thorough preparation before implementing technologies, including process analysis, needs assessment, and staff training, is essential.

Further analysis revealed that the most successful companies have the following common characteristics: a system of clearly defined goals and indicators (92 percent), active support from top management (88 percent), employee involvement in change (85 percent), a continuous monitoring and evaluation system (81 percent), and a flexible approach (76 percent). This set of factors is the main condition for successful optimization [9]. Today, these methodologies are being integrated with Artificial Intelligence (AI) algorithms. The biggest bottleneck for Uzbekistan is the complexity of the decision-making chain and the paper-based formatting of data.

Synergy of RPA and AI: operational efficiency.

RPA and AI technologies are complementary manufacturing technologies, including:

RPA (System “Hands”) - management of quality mechanical tools for repetitive and rigid employees.

AI (the “brain” of the system) - analyzes complex, unstructured data and makes decisions based on predictions.

Table 3

Differences between RPA and artificial intelligence (AI)

Feature	**RPA (Robotic Process Automation)**	**Artificial Intelligence (AI)**
Basis	"If...then..." rules	Learning from data (Machine Learning)
Benefits	Speed and accuracy	Flexibility and in-depth analysis

Today, these methodologies in the economy have reached a new level. Now, waste is detected not by the human factor, but by Artificial Intelligence (AI) algorithms. The “bottleneck” observed in the experience of Uzbekistan is the excessive internalization of the decision-making chain and the paper form of information [10].

Table 4

RPA and AI Synergy: The New Driver of Operational Efficiency

Feature	**RPA (Robotic process automation)**	**Artificial Intelligence (AI)**
Task	Copy and repeat processes	Simulating human intelligence
Basis	"If...then..." rules	Learning from data (Machine Learning)
Benefits	Speed and accuracy	Flexibility and in-depth analysis

Research shows that in many cases, the components of RPA (Robotic Process Automation) and AI are confused, which is why the court considers their role in the business process to be different:

RPA (System “Hands”) - trepetitive, persistent human risk factors (e.g., monitoring reports, moving data from one database to another).

AI (The “brain” of the system) -analyzes complex, unstructured data, makes predictions, and assists in decision-making.

The study used the Value Stream Model (VSM) methodology to identify waste in business processes. VSM visualizes all stages of a product or service from the raw material stage to the final consumer.

Current status (Current status) - mwith data validation "traffic jams", escalation factors, and human-related delays.

Future State -IA (RPA + AI) inspection is integrated, creating an ideal process free of "muda" (waste) models.

Value Stream Mapping (VSM) was used to identify waste in business processes in the Value Stream Improvement Methodology (VSM):

Current status (Current status) - delays caused by "traffic jams" and human factors in the installation of information.

Future State - Intelligent Automation (IA) creates an ideal process model free of risk and waste[11].

CONCLUSION

The following scientifically based recommendations are provided to enterprises. First, it is necessary to develop a business process optimization strategy and integrate it into the overall corporate strategy, which should include clear goals, indicators and an implementation roadmap. Second, it is important to introduce programs for developing digital competencies of employees and actively manage the fight against change, for this purpose it is recommended to organize regular trainings, webinars and practical exercises. Third, it is advisable to use a step-by-step approach, first gaining experience by optimizing simple processes and then moving on to more complex ones. Fourth, it is necessary to introduce a standardized indicator system, such as BPEI, for regular monitoring of the effectiveness of business processes, which will allow for an objective assessment of the effectiveness of changes and timely adjustments.

Fifth, when choosing technological solutions, it is necessary to take into account the specific needs and strategic goals of the enterprise, and not blindly copy ready-made solutions. Sixth, it is necessary to involve all stakeholders, including executive staff, in business process optimization projects, which will allow using their experience and reducing resistance to change.The digital maturity level of enterprises was assessed based on the Business Process Efficiency Index (BPEI). The results showed that enterprises that fully integrated digital technologies saw a 43% improvement in business process efficiency and a 31% reduction in operating costs.

REFERENCES

1. Decree of the President of the Republic of Uzbekistan on the "Strategy for the Development of the Digital Economy", 2024.
2. Decree No. PF-6079 on defining the "Digital Uzbekistan - 2030" strategy and measures for its effective implementation, October 5, 2020.
3. Davenport TH Process Innovation: Reengineering Work through Information Technology. Harvard Business School Press, 2023. 337 p.
4. Hammer M., Champy J. Reengineering the Corporation: Manifesto for Business Revolution. Harper Business, 2022. 272 p.

5. Westerman G., Bonnet D., McAfee A. Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press, 2024. 292 p.
6. Porter ME, Heppelmann JE How Smart, Connected Products Are Transforming Competition // Harvard Business Review. 2023. Vol. 92. No. 11. P. 64-88.
7. Ohno, T. (1988).*Toyota Production System: Beyond large-scale production.*Productivity Press. (Fundamentals of Lean Production Systems).
8. George, M. L. (2002).Lean Six Sigma: Combining Six Sigma Quality with Lean Production Speed.McGraw-Hill. (Integrating Lean and Six Sigma).
9. Gartner report (2023).Forecast Analysis: Robotic Process Automation, Worldwide. (Global RPA Analytics Data).
10. Sutherland, J. (2014).Scrum: The art of doing twice the work in half the time.Crown Business. (Effectiveness methodology in project management).
11. Rinf.tech (2024).RPA and AI: Understanding the Differences and Choosing the Right Technology. (A practical resource on the differences between RPA and AI).