ENHANCING SALES EFFICIENCY WITH THE USE OF BUSINESS INTELLIGENCE AND ANALYTICS IN A PUBLIC COMPANY

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Summary

The emergence of business intelligence (BI) from advancements in information technology transforms vast amounts of company data into valuable information crucial for strategic decision-making. Numerous studies have shown that very little data is actually used in making strategic decisions, and their quality and comparability are often questionable. Questions of the usefulness of data and their analytical processing occupy an important area in business intelligence. For the purposes of this paper, the use of BI systems for analysis and reporting in public company Croatian Post was analysed. The aim of this research is to examine whether the application of the BI system in the sales network increases the efficiency of sales workers as a result of database management and analytical processing. The paper utilized data collected from the Sales Efficiency System (SES) regarding realized sales and sales efficiency of sales workers over a five-year period from 2018 to 2022, comparing them with data from 2017, i.e., the year preceding the introduction of the SES system. Sales realization per worker and per customer were used as indicators of sales efficiency. The findings reveal a significant increase in sales realization per worker and per customer following the implementation of the BI system

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in the sales network. Interpretations and implications of results are further discussed in the study. By shedding light on the benefits of BI system adoption in optimizing sales efficiency, this research contributes to the growing body of knowledge on the utilization of information technology in enhancing organizational performance.

***Key words**: Business intelligence; Sales Efficiency; Sales Efficiency System (SES); Work efficiency.*

1. INTRODUCTION

In recent decades, the conditions in the business environment have undergone significant changes. The landscape has become uncertain and difficult to predict, with intensifying competition and escalating consumer demands. In such a context, the utilization of information and communication technology is no longer merely an option but a necessity. Business intelligence systems should now be an indispensable part of most Croatian enterprises, both in the private and public sectors, to effectively compete on the international stage. However, two studies conducted several years apart, before and after Croatia's accession to the European Union, revealed an insufficient presence of BI systems. Specifically, during the observed period, there was a minor yet still inadequate increase in the number of companies systematically implementing BI systems in their operations, from 19% to 24% among the category of the 1000 largest enterprises operating in Croatia (Bilandžić & Lucić, 2018).

Research findings at Uber have demonstrated that business intelligence (BI) is crucial in improving decision-making processes, operational efficiency, and achieving positive outcomes such as enhanced customer service, strengthened customer relationships, increased profitability, and reduced failure rates (Shatat et al., 2024). Specifically, after the effective implementation of BI and its tools, a positive impact on decision-making processes and customer service levels was confirmed. Similarly, research on more effective controlling in Croatian companies by Vitezić et al. (2022) affirmed that the implementation of BI systems is on the rise in Croatia and plays a significant role in controlling tasks. However, research on the impact of BI on effectiveness is lacking. The Business Information System, according to Javorović and Bilandžić (2007), represents a specific form of information system meticulously structured, organized, and equipped, tailored to the profile of personnel and directed towards providing direct support to a particular business system or organization, aimed at achieving its business interests, needs, and goals. They delineate three primary purposes for the utilization of information systems: business management and decision-making, scientific research, and technological design. Panian and Ćurko (2010)

emphasize that modern business information systems perform two fundamental functions. Firstly, they prepare the information foundation necessary for decision-making. Secondly, these systems document and permanently store information previously generated.

The most important factors for achieving business value from BI are skilled personnel, BI infrastructure, data quality, BI application and usage culture, alignment of BI with organizational goals, and top management support (Paradza, Daramola, 2021). Companies generate numerous data themselves on a daily basis but are also in contact with numerous data from external sources. However, not all data are of high quality or usable for making business decisions. Therefore, the quality of data and the value of business information hold a particularly important place in the study of business intelligence.

Therefore, the level of technological integration must align with the maturity of sales and operations planning (S&OP) processes to achieve positive effects on company performance, with advanced system integration supporting more efficient decision-making (Nicolas et al., 2021). According to Krajnović et al. (2020), for information producers, enhancing the architecture and performance of information systems is recommended to ensure that information is accessible, easily understandable, manageable, and relevant.

Javorović and Bilandžić (2007) underscore the importance of adaptability and the significance of business information for successful operations. They emphasize that what constitutes business information for one entity may not be as crucial for another, illustrating the relativity of information. Nonetheless, every business entity seeks information that will be most beneficial for its operations and goal achievement. Therefore, they actively seek the most useful and valuable information, confirming its importance. Within the same business entity, not all information is equally important for decision-making. As emphasized by Paradza and Daramola (2021), organizations must extract adequate business value from the implementation of business intelligence (BI) to maintain profitability and long-term sustainability. However, many organizations that have adopted BI still do not understand how to achieve this value.

2. BUSINESS INTELLIGENCE AND ANALYTICS FOR BUSINESS PROCESSES

Integrating intelligence into business processes requires a complex transformation process of transactional systems into a network for managing business efficiency. This network must facilitate connecting all levels of decision-making in the

company (strategic, tactical, and operational) with user information and requirements to achieve set goals. The first step in this process is analyzing internal processes and grouping them to optimize procedures. Subsequently, business processes are defined and aligned with the company's strategic objectives, and decisions are made regarding the automated execution of certain business processes.

Business intelligence (BI) is defined as a crucial framework for successful company management, encompassing a continuous process in which companies set their goals, analyze progress, gain insights, take actions, and evaluate their performance (Leutić, 2017). The foundation of BI lies in extracting relevant information from vast datasets to make key business decisions (Ćurko & Španić-Kezan, 2016).

Business Intelligence and Analytics (BI&A) encompass "techniques, technologies, systems, practices, methodologies, and applications that analyze key business data to better help the company understand its operations and market and make timely business decisions" (Chen, Chiang, and Storey, 2012). Initially, business intelligence and analytics (BI&A) focused on data analysis and supporting strategic and tactical decisions based on historical data. However, traditional data analysis was not always well-connected to process execution or the connection was weak. This means that most data were used without considering the process context. Additionally, the latest analytical data were not always available for everyday decision-making. Now, BI&A is focusing on addressing both of these limitations. It is evolving towards process orientation, meaning that more attention is paid to understanding processes and integrating them into analytical models. Also, support for operational decisions is improving. This ensures that the latest analytical data are available and useful for everyday operational decisions. In summary, BI&A is evolving towards process orientation and providing improved support for operational decisions, enabling better data utilization in the context of business processes (Graupner et al., 2014)

Business Process Management (BPM), also known as Business Process Intelligence (BPI), plays a significant role in enhancing company efficiency. According to Stackowiak, Rayman, and Greenwald (2007), it involves the process of collecting, analyzing, and presenting data to enable management to make key business decisions on a daily basis. It enables the identification of individuals performing specific tasks, assessment of the time required for executing various activities, and recognition of areas for improvement to ensure alignment of operational processes with the company's strategic goals.

3. TECHNOLOGIES OF BUSINESS INTELLIGENCE

The most commonly used technologies in business intelligence encompass three key areas: data warehousing, analytical processing, and data mining. This means that data is first stored in one place (data warehouse), then analysed to uncover patterns and trends (analytical processing), and further explored through data mining for deeper insights and understanding. The second generation of business intelligence technologies includes more advanced tools and applications, including analytical and managerial applications, as well as various types of systems that enable better data comprehension and more efficient decision-making (Bosilj Vukšić et al., 2013).

The large volumes of data, often inaccessible to end-users, along with numerous primary and auxiliary but disjointed databases, have created the necessity for data warehousing. Data analysis yields the necessary information for decision-making. The foundation for all data analysis is the data warehouse, which encompasses one or more business domains depending on the specific enterprise. Coined by William H. Inmon in 1992, a data warehouse is defined as a "subject-oriented, integrated, time-variant, and non-volatile collection of data in support of management decision making." The data warehouse is shaped as a specific set of data, a primary database, intended for complex analyses to obtain the required information and knowledge for management, decision-making, and business guidance (Bosilj Vukšić et al., 2013; Ćurko & Španić-Kezan, 2016). Javorović & Bilandžić (2007) highlight that databases are organized repositories of data on various bases (ordered and structured according to specific criteria, rules, and programs), allowing for quick access, review, and finding of the required data.

In contemporary business, business intelligence systems utilize data warehousing as a crucial component. Here, data essential for obtaining necessary information is stored (Ćurko & Španić-Kezan, 2016), and due to the continuous flow of events, data generated from business activities is usually stored in operational databases that depict the current state of the business system (Luetić, 2017). Given the large volume of data often not easily accessible to users and the presence of numerous disconnected databases, data warehousing becomes inevitable for effective data analysis and the generation of information required for decision-making. Data analysis from the warehouse enables the creation of decision-making necessary information using various analytical techniques.

Although not mandatory, the data warehouse is often used as a data source for mining, but data can also be pre-processed directly after cleaning. According to Panian and Klepac (2003), there are nine key data preprocessing steps, including finding extreme values, diagnosing and predicting missing values, linking relational keys from different data sources, achieving uniformity in data, sampling, categorizing attribute values,

forming derived attributes, grouping, and normalizing data. Data Mining is the process of automatically analysing data to discover specific patterns or regularities. It uses various methods based on disciplines such as statistics, mathematics, databases, information theory, probability theory, and artificial intelligence to find hidden information in large datasets (Panian & Klepac, 2003).

Regardless of where and in what form data is stored (file, database, or data warehouse), it holds no value if not analysed, processed, and transformed into information. This transformation enables data to become useful and provide relevant insights that can be used for decision-making and business management. (Bosilj Vukšić et al., 2013). One common way of iterative data analysis is through the use of Online Analytical Processing (OLAP), which is performed on dimensions within the data warehouse. Organizing data by dimensions in the data warehouse enables clearer data visualization, facilitating interpretation and understanding of information (Panian and Ćurko, 2010). An important feature of OLAP tools, according to Luetić (2017), is their ability for multidimensional data analysis. This means they allow simultaneous data observation across multiple filters or dimensions. In other words, OLAP tools enable users to analyse data from different perspectives simultaneously, providing deeper insights and better understanding of the analysed information. OLAP tools are a crucial example of how information can be extracted from diverse and disparate data to enable effective management.

4. BUSINESS INTELLIGENCE AND ANALYTICS IN PUBLIC COMPANY CROATIAN POST

In the context of the use of business intelligence and analytical data processing for the purposes of this work, the application of the BI system SES (Sales Efficiency System) to increase sales efficiency in the public company Croatian Post. Namely, Croatian Post manages the most widespread sales network in the Republic of Croatia, which consists of 1,016 post offices with around 2,000 sales workers at post office counters.

Management needs quality and reliable information as a basis for strategic decision-making in planning and management processes. Post office operations and worker efficiency are monitored through the SES (Sales Efficiency System) reporting system, which generates data from a total of 10 databases (5 own databases and 5 partner databases).

SES is based on online analytical data processing, enabling the conversion of data into information, and then into business intelligence with the aim of supporting

decision-making. Analytical processing of data includes dimensional analysis, the fundamental characteristics of which, according to Panian & Ćurko (2010), are "multidimensional views of data, complex and intensive calculations and data research over time".

The advantages of SES are that it enables the subject data to be viewed from different dimensions, i.e. through different filters, and thus enables the creation of different answers depending on business needs. Dimensional analysis made it possible for SES to be a reporting system applicable at all levels of management in the Croatian Post, as it provides both analytical and synthetic information. The users of the report are enabled to monitor the implementation in relation to several types of business. First of all, perhaps the most important, the realization in relation to the business plan, however, also the realization of the current business in relation to the business of the previous year. This analytical tool is extremely beneficial for determining efficiency, but it also gives concrete answers on which products/services need additional work.

The SES application ensures the monitoring of sales and the realization of sales plans through several segments. To monitor the implementation of the plan, the management has at its disposal the selection of period and organizational unit, overview by type of products, access to analytics, comparison of achievements by products and graphical insight into the achievements. The basic report in SES, which is used to monitor the achievement of sales workers' set goals, is the Balanced Scorecard (BSC). The BSC tracks the key elements of the company's strategy and represents a measurement system that strongly influences the behaviour and results of management and employees (Kaplan, 1992). The main function of the BSC model is a balanced, i.e. pre-measured, evaluation of the future achieved result. This method, with the help of the weighted values of each goal, suggests in advance the specific importance of the goal for the company. In addition, the BSC model valorises all the achieved result - some other valuation models, unlike the BSC, if the corresponding threshold is not achieved, the part below the threshold is completely rejected as the achieved result, which is unfavourable for the worker. Likewise, BSC valorises any exceeding of the set goal, stimulating the worker to continue working regardless of the achievement of the goal. From other reports, the ranking or the positioning system, which aims to create positive effects of the competition that develops among the participants, stands out. However, it is also a great tool for targeting sales to a specific service for a specific period of time (an example of a campaign). Rankings can be created from worker level to organizational units such as post offices, groups, regions. Performance comparisons are an interesting display for monitoring sales trends, as they enable comparison by products, by periods, by organizational units, and comparison of plan and performance.

Accordingly, the objective of this research is to investigate whether the implementation of a Business Intelligence (BI) system within the sales network results in measurable improvements in the efficiency and productivity of sales personnel. By systematically analysing key performance indicators and comparing them before and after the implementation of the BI system, this study aims to provide empirical evidence regarding the impact of BI technology on sales workforce effectiveness. It is expected that the application of the BI system in the sales network increases the efficiency of sales workers as a result of database management and analytical processing. Firstly, we will describe the methods and procedures used to conduct the research, including details about data collection, study design, and all analytical techniques employed. After that the findings of the research will be presented and discussed. At the end we will summarize the main findings of the research, discuss their implications, and suggest recommendations for future research.

5. METHODOLOGY

5.1. Data collection and procedures

The paper utilized data collected from the Sales Efficiency System (SES) regarding realized sales and sales efficiency of sales personnel over a five-year period from 2018 to 2022, comparing them with data from 2017, i.e., the year preceding the introduction of the SES system. The data encompassed the entire analysed period, disaggregated by month and year, on the total number of realisations, the total number of sales workers, and the total number of customers. Realized sales comprised all non-core services provided by strategic partners in the telecommunications, banking, and insurance sectors, contracted at postal office counters. Therefore, standard services of the Croatian Post within the core business domain, which customers specifically visit post offices to perform, were excluded from realized sales. Instead, realized sales accounted for services requiring the involvement of sales personnel, such as offering and engaging in sales discussions with customers.

The introduction of the SES system facilitated management the establishment goals for sales workers and the monitoring of their achievement through the Balanced Scorecard (BSC) model. The SES system enabled the tracking of goal achievement as a percentage on a daily basis, increasing the transparency in sales performance tracking. The focus of this research is on measuring the efficiency of sales workers during a period of 6 years, comparing their efficiency before and after the introduction of BI system. Of course, a lot of different factors can influence sales performance, but in this research the focus is on BI system. The following indicators were used to measure sales performance.

Table 1. Descriptive statistics

	2017	2018	2019	2020	2021	2022
Total number of sale realisations	21.500	29.326	29.698	24.542	24.193	23.782
Number of workers	2.457	2.376	2.209	2.151	1.950	1.865
Sales realization per worker	8.75	12.34	13.44	11.41	12.41	12.75
Total number of customers	40.927.824	39.320.024	37.646.208	29.707.890	27.798.363	26.790.634
Sales realization per customer (x 100)	0.05	0.07	0.08	0.08	0.09	0.09

Sales realization per worker was calculated as the ratio of total sales of non-core services at postal office counters to the total number of workers at these counters during the observed period. Sales per worker provides a rough, but useful initial assessment of a company's performance (Dessler, 2015). While in 2017, the realization of sales per worker stood at 8.75, the following year saw an increase of over 40%, continuing to rise until the onset of the COVID-19 pandemic. Interestingly, even during the COVID-19 years, despite numerous restrictions and a decline in customer, the sales realization per worker was higher than in the period before the introduction of the SES system. The reduction in the number of sales workers and the removal of restrictions related to sales in public areas of postal offices only to customers with vaccination certificates resulted in a renewed increase in sales realization in 2022, reaching pre-pandemic levels.

Based on this data, an additional variable was used to address the research questions. Sales realization per customer was calculated as the ratio of total sales of non-core services at postal office counters to the total number of customers who utilized any of the services at postal office counters during the observed period.

5.2. Statistical analyses

Statistical software SPSS v23 was used for data analysis. Before running the analysis, the assumptions for one-way analysis of variance (ANOVA) were checked. There were no significant outliers, and the distributions of the dependent variables in respected groups were approximately normal. Homogeneity assumption is not met, but

sample sizes are equal across groups, so homogeneity assumption is not necessarily required. ANOVA analysis was conducted based on data collected on monthly basis. In total, data from 72 months collected in the time period 2017 – 2022 was used in one-way analysis of variance.

6. RESULTS AND DISCUSSION

The general goal of the research was to analyse the work efficiency of sales workers, and specifically to understand whether the application of the BI system in the sales network increases the efficiency of salesperson as a result of database management and analytical processing.

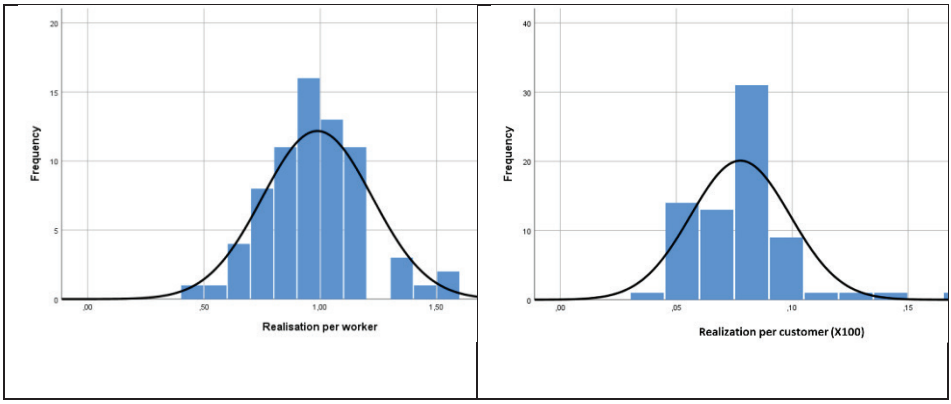
Table 2. Descriptive statistics for study variables on monthly basis

	M	SD	Range	Skewness	SE	Kurtosis	SE
Sales realisation per worker	0.99	0.24	0.49 - 0.99	0.90	0.28	2.28	0.56
Sales realisation per customer	0.08	0.02	0.04 - 0.18	1.71	0.28	6.31	0.56

Note. N = 72. SE = Standard Error

The mean realisation per worker in the period between 2017 and 2022 is M = 0.99; SD = 0.24, while the average realisation per customer is M = 0.08; SD = 0.02. Indicators related to the asymmetry and inclination of the distribution of results, considering the corresponding standard errors, indicate the approximate normality of the distributions on all the scales that were used. Therefore, it can be concluded that there are no major deviations from the normality of the distributions in the data as can be seen also below in the graphical representations.

Figure 1. Normality of distributions of study variables sales realisation per worker and customer



To answer the main research question, a one-way analysis of variance (ANOVA) was performed to compare differences in realisation per worker and realisation per customer in the period between 2017. and 2022. Prior to performing the variance analysis, the conditions for performing the analysis were checked. According to Levens's Test of homogeneity of variances, the variances between the target groups were shown to be heterogenous, both for the differences in realisation per worker ($F(5,66) = 2.63$, $p = 0.032$) and for differences in realisation per customer ($F(5,66) = 2,36$, $p = 0.00$). Given the equal number of respondents in the groups and the previously established normality of distribution, it can be concluded that the conditions for analysis of variance are met. The results of this analysis of variance are shown below in Table 3.

Table 3. Means, Standard Deviations, and One-Way ANOVA Statistics for differences in realisation per worker and differences in realisation per user

characteristic	2017		2018		2019		2020		2021		2022		F(5,66)
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	
Sales realization per worker	0.73	0.10	1.03	0.16	1.12	0.15	0.95	0.16	1.03	0.21	1.06	0.36	5.37 p=0.00
Sales realization per customer	0.05	0.01	0.07	0.01	0.08	0.01	0.08	0.01	0.09	0.02	0.09	0.04	6.82 p=0.00

Note. N= 72. p>0.05

The analysis of variance showed a statistically significant difference ($F(5, 66) = 5.37$, $p = 0.00$) in Realisation per worker in the analysed time period between 2017. and 2022. Tukey's HSD post hoc test for multiple comparisons found that the average

realisation per worker was significantly different between year 2017 and year 2018 (p = 0.009, 95% C.I. = [-.55, -.52]), between year 2017 and 2019 (p = 0.000, 95% C.I. = [-.64, -.14]), and then between year 2017 and 2021 (p = 0.007, 95% C.I. = [-.55, -.06]), and between 2017 and 2022 (p = 0.002, 95% C.I. = [-.58, -.09]).

Furthermore, statistically significant difference (F (5, 66) = 6.82, p = 0.00) was obtained in Realisation per customer during the analysed period. Tukey's HSD post hoc test for multiple comparisons found that the average realisation per user was significantly different between year 2017 and year 2018 (p = 0.043, 95% C.I. = [-.04, -.01]), between year 2017 and 2019 (p = 0.009, 95% C.I. = [-.05, -.01]), between year 2017 and 2020 (p = 0.002, 95% C.I. = [-.05, -.01]), between 2017 and 2021 (p = 0.000, 95% C.I. = [-.06, -.01]), and finally between 2017 and 2022 (p = 0.000, 95% C.I. = [-.06, -.02]).

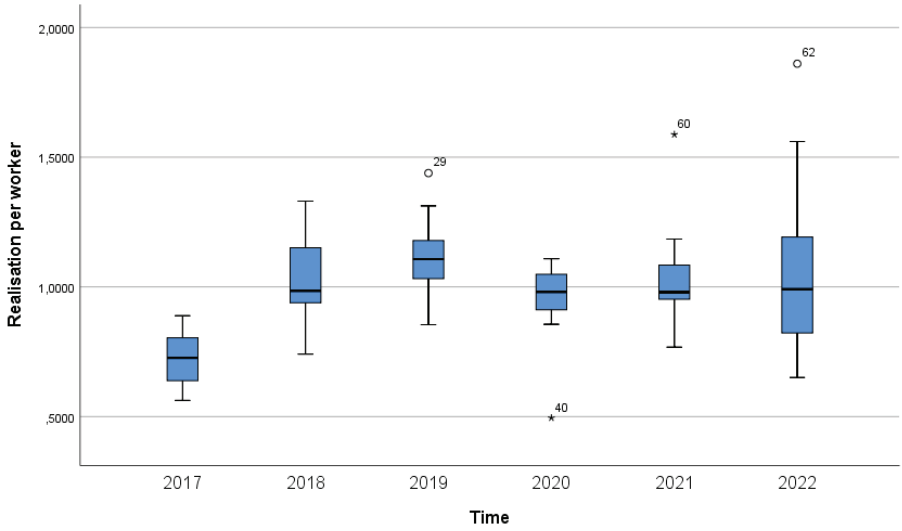
The obtained results indicate that realisation per worker and realisation per user are statistically significant lower in 2017 compared to other years in the analysed period. The application of the BI system SES in setting goals for sales employees and reporting on achieved results has been in place since 2018. Prior to that, goals were set through the Work Performance Management System (URU), which only had the capability of describing the achieved results. For the evaluation of "achieved," it was necessary to reach between 95% and 105% of the goal, while anything below 95% was considered "not achieved," and anything above 105% was considered "exceeded." Such an evaluation system was not motivating enough for sales employees. In other words, achieving 0% or 94% of a sales goal was valued the same. A similar situation occurred for excellent employees who exceeded their goals. Whether a worker achieved 106% or 200% of the set goal, they were equally evaluated as "exceeded."

For these reasons, sales employees would give up on selling certain services if they estimated they couldn't achieve 95%, or they would stop selling once they exceeded 105% of the goal. By applying the BSC model of setting and evaluating goals using weights starting from 2018, sales employees were enabled to have every service sale valued, recognized, and included in goal achievement and overall evaluation transparently. Thus, every worker, at any time, using the SES system, sees their BSC "card" with the percentage of goal achievement. Additionally, they can easily compensate for achieving less in one goal with greater achievement in another because ultimately, all achieved percentages of goals realization are summed up to the final evaluation. Therefore, if a worker achieves even 1% of a goal, that result will be included in their overall evaluation. The same goes for exceeded goals, which will be recognized in the actual achieved percentage. In other words, sales employees are motivated because now the rule "everything sell will be accepted" applies.

The change in goal setting methods is evident in the results of sales per employee, which increased by more than 40% in the first year of implementing the BSC model in the BI system SES.

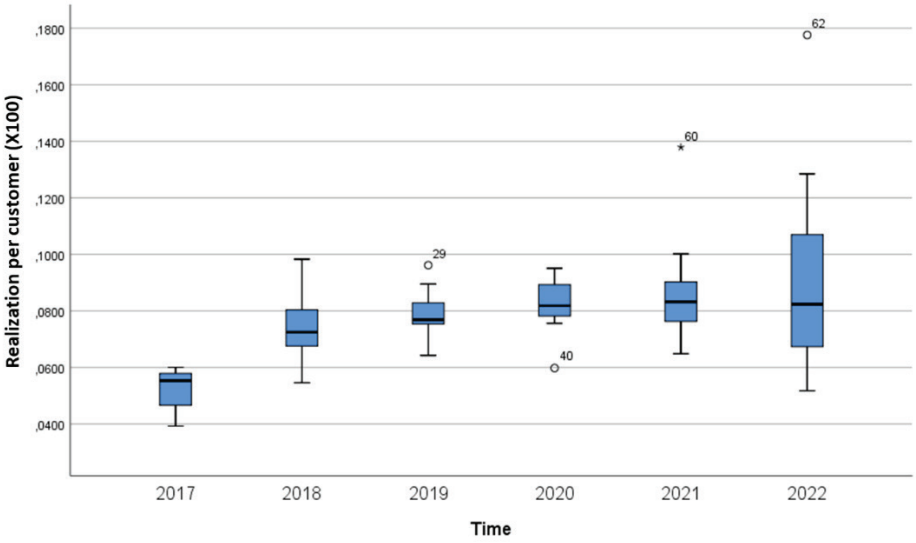
This aligns with Dessler's (2015) that highly effective HR practices combined with new technology lead to better productivity, quality, sales, and financial success. Similar results were also found by Bilandžić et al. (2012), who stated that companies implementing BI activities believe that, among other things, this contributes to increased productivity, improved internal communication, and ultimately achieving higher company profits. Below in following figures the results are visualized through boxplots.

Figure 2. Boxplot diagram showing realisation per worker in time



The median for the year 2017 is lower compared to all other years, which indicates that the middle salespersons' realisation in this year is lower compared to the following years. The variability of the results is somewhat higher in 2022. compared to earlier years.

Figure 3. Boxplot diagram showing realisation per customer in time.



Likewise, the median realisation per customer in 2017 is lower compared to the median realisation per customer in the following years. The variability of the results is somewhat higher in 2022. compared to earlier years.

Sales activities in post offices were significantly affected during the pandemic as customer movement was restricted. Unlike private sector competitors, Croatian Post, as a public enterprise, adhered to different, stricter rules for customer service in accordance with the decisions of the Croatian Civil Protection Headquarters. This resulted in a significant decrease of over 30% in the number of customers at post offices, consequently leading to a reduction in the number of employees. With the cessation of special security measures for entering public institution premises, restrictions on working hours, and the number of customers in sales areas, Croatian Post, in collaboration with partners from insurance, banking, and telecommunications sectors, has initiated a series of sales campaigns to encourage the return of customers and service sales by sales workers. These actions have resulted in a slightly higher monthly fluctuation in service realization per customer and per worker in 2022 compared to previous years.

7. CONCLUSION

The application of the BI system in the sales network increases the efficiency of sales workers. The results suggest a significant increase in sales realization per worker and per customer after the implementation of the BI system in the sales network. The findings suggest that using Business Intelligence (BI) systems can significantly enhance sales performance. This implies that businesses should prioritize investments in data-driven technologies to improve sales efficiency and potentially gain a competitive edge in the market. The results indicate further that integrating data from various systems enables organizations to better set goals for workers. This implies that businesses should allocate resources towards implementing integrated data systems and providing training for employees to increase data insights effectively. The study demonstrates the utility of Balanced Scorecard (BSC) reports as analytical tools for evaluating sales performance and identifying areas for improvement. This implies that organizations should adopt a balanced approach to performance evaluation, considering both strategic objectives and concrete performance metrics. Despite the significant findings obtained, this study has also some limitations: The study focuses specifically on the application of the BI system in the sales network of Croatian Post. This limits the generalizability of the findings to other industries or organizations with different structures, cultures, or technological capabilities. Therefore, caution should be used when extrapolating the results to other contexts. Second, the study compares data from a five-year period (2018-2022) with data from the preceding year (2017). However, it does not consider temporal factors such as seasonality or changes in market dynamics, which could confound the interpretation of results. Next, the conducted study is a correlational study with a limited number of variables included in the study. Other external factors not accounted for in the study could also influence sales performance, and without controlling for these factors, it's challenging to attribute the improvement solely to the BI system. In the following studies factors such as changes in sales strategies, motivation and satisfaction of the sales team, product quality, economic conditions, competitive pressures etc. should be controlled for in the analysis because all these factors are important and can potentially influence sales performance. Further, while the study identifies a significant increase in sales realization per worker and per customer following the implementation of the BI system, it's essential to establish causality rather than just correlation. In further studies researchers should consider conducting a study with an experimental design. Addressing these potential limitations can enhance the validity and reliability of future research.

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POVEĆANJE PRODAJNE EFIKASNOSTI PRIMJENOM POSLOVNE INTELIGENCIJE I ANALITIKE U JAVNOM PODUZEĆU

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Sažetak

Razvojem informacijske tehnologije pojavljuje se koncept poslovne inteligencije kojom se brojni podaci kompanija pretvaraju u smislene informacije potrebne menadžmentu za donošenje strateških odluka. Brojna istraživanja pokazuju kako se vrlo malo podataka zaista koristi pri donošenju strateških odluka, a njihova kvaliteta i usporedivost često su upitne. Važno područje u poslovnoj inteligenciji zauzimaju pitanja uporabne vrijednosti podataka, i kvalitete njihove obrade. Za potrebu ovoga rada ispituje se korištenje BI sustava za analizu i izvještavanja u javnom poduzeću Hrvatska pošta. Cilj istraživanja je ispitati povećava li primjena BI sustava u prodajnoj mreži efikasnost prodajnih radnika kao rezultat upravljanja i analitičke obrade bazama podataka. U radu su korišteni podaci prikupljeni iz sustava za efikasnost prodaje (SES) o realiziranim prodajama i efikasnosti prodajnih radnika tijekom petogodišnjeg razdoblja od 2018. do 2022. godine, uspoređujući ih s podacima iz 2017. godine, odnosno godine prije uvođenja SES sustava. Realizacija prodaje po radniku i po korisniku korišteni su kao pokazatelji efikasnosti prodaje. Rezultati pokazuju značajan porast realizacije prodaje po radniku i po korisniku nakon uvođenja BI sustava u prodajnoj mreži što ukazuje na prednosti uvođenja BI sustava za optimizaciju učinkovitosti prodaje. U radu je ponuđena interpretacija dobivenih rezultata te se raspravlja o implikacijama istih. Istraživanje doprinosi količini znanja o korištenju informacijske tehnologije u poboljšanju efikasnosti poduzeća.

Ključne riječi: *efikasnost prodaje; poslovna inteligencija; radna uspješnost; sustav za efikasnost prodaje (SES).*