Analysis of Value-Creating and Supporting Component of the Value Chain in the Production Process

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Abstract:
This research focuses on the application of the Process Value Added (PVA) method in the environment of custom piece production at STS Prachatice a.s. The main objective was to identify the most profitable and most loss-making processes, to evaluate the value added of individual production operations, to assess the potential for outsourcing certain processes, and to analyse the profitability of specific orders. The study uses a selection of 30 atypical orders from 2022, obtaining data on selling prices, production hours and costs associated with production and overhead. The analysis shows that manufacturing processes add the most value, while inspection processes are less profitable. Processes suitable for outsourcing were identified, especially when in-house capacity is not used. It was also found that the most profitable orders are those that combine high product uniqueness with efficient use of materials and production hours. The PVA methodology allowed to quantify the added value in the context of time and cost parameters and revealed that contracts with high time pool and unit costs have the most significant added value. PVA indices were established to better reflect the results achieved. The research findings have practical implications for the organization and efficiency of the production process at STS Prachatice, contribute to the development of business policy and procurement activities, and serve as innovative material for academic purposes. The study demonstrates that the PVA method is an effective tool for analysing and optimising business processes, enabling companies to better understand and manage process value-added in order to increase profitability and competitiveness. The implementation of this method in practice has shown concrete economic benefits and provided valuable information for further business policy and procurement solutions.

Keywords: added value; analysis; product portfolio; PVA; production processes

JEL Classification: C61; D61; L60; M20; O14

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1. Introduction

In today's dynamic business environment, characterised by constant change and increasing competition, achieving and maintaining a competitive advantage is a key objective for businesses. Competitive advantage enables firms to gain an edge over competitors, achieve long-term success and strengthen their position in the market (Marshalok et al., 2021). Among the main factors that can generate competitive advantage are efficient production technologies and higher margin strategies. For companies, innovations in technology and business strategies are a key success factor as a result of advances in the world. Companies are looking for new and efficient ways to optimize their manufacturing processes and reduce costs, which is a critical factor in achieving competitive advantage. At the same time, customers are increasingly demanding and looking for products and services that offer additional value and uniqueness (Abadi et al., 2023; Popescu, 2017). This interest in the issue reflects the desire of businesses to maintain their market position and develop their strategies in line with the rapid pace of digital transformation and globalisation. Increasing competition and ever-evolving technologies are leading firms to strive not only to survive but also to dominate their markets. Efficient manufacturing technologies enable firms to improve and optimise their production processes. Modern technology and automation enable them to reduce costs, increase productivity and respond more quickly to changing market needs. This can lead to creating products or providing services at more competitive prices and gaining more market share (Bastas, 2021). On the other hand, there is a higher margin strategy where businesses focus on offering unique and high value products or services at a higher price. This strategy emphasizes differentiation and building a perception of additional value among customers who are willing to pay more for uniqueness and quality (Menz et al., 2021). This literature search focuses on examining two basic approaches that firms use to generate competitive advantage. The first is efficient production technologies that bring improvements in production processes, increase productivity, reduce costs and enable faster response to market demand. The second approach is a higher-margin strategy, where firms focus on offering quality and unique products or services for which customers are willing to pay a higher price.

2. Literature Review

In a corporate context, competitive advantage is a fundamental concept that expresses a company's ability to achieve and maintain an advantage over its competitors, enabling it to achieve sustained success and strengthen its position in the marketplace. In today's dynamic and competitive business environment, generating a competitive advantage is essential for businesses to survive and prosper (Handayani et al., 2022; Pacheco Pumaleque et al., 2021). Competitive advantage in business relates to a company's ability to offer products or services that have a competitive advantage in terms of affordability, innovation, quality, or other attributes that deliver more value to customers than competitors' offerings (Puspaningrum, 2020; Wijaya & Suasih, 2020). An important aspect of competitive advantage is its sustainability, which means that the company has the long-term ability to maintain and enhance this advantage (Isoraite & Dubauskas, 2022). Gaining and maintaining a competitive advantage allows a company to gain market dominance, which enables it to gain a larger market share, customers and establish a strong position (Jeong & Chung, 2023). Furthermore, it allows companies to increase profitability through effective use of this competitive advantage, which means reducing costs, increasing revenues and thus increasing the profitability of the business (Hoan et al., 2021). Competitive advantage also strengthens customer relationships as offering unique products or services creates a positive customer experience and strengthens the relationship between the company and its customers (Amer et al., 2020). It also motivates companies to continuously innovate and develop new products and services and seek new market opportunities (Bertan & Alkaya, 2020). The creation and maintenance of competitive advantage are influenced by many factors. Innovation and technological advancement are the key factors for achieving competitive advantage (Alshumrani et al., 2022). Furthermore, the quality and differentiation of the products or services offered, as well as efficient production and business processes, play an important role (Rua and Santos, 2022). Customer focus, understanding customer needs and preferences and offering customised solutions are also crucial. A skilled workforce with the necessary skills and know-how is another key element for achieving competitive advantage (Perrigot et al., 2020; Samoliuk et al., 2021). In today's competitive market environment, efficient manufacturing technologies have a significant impact on ensuring the growth and prosperity of businesses. These technologies bring innovation, optimization and increase productivity, which ultimately enhance the competitive advantage of enterprises in the market (Xiao and Yu, 2020). Modern manufacturing processes and automation are key elements of efficient production technologies that bring countless benefits to businesses. One of the most significant benefits of modern manufacturing practices is their ability to increase the flexibility and speed of production processes (García and Madinabeitia, 2023). Thanks to automation and digitalization, businesses can respond more quickly to market changes and new customer demands. This ability to adapt to new trends and demands faster than competitors gives businesses a competitive edge and allows them to win new contracts (Leão and da Silva, 2021; Jurczuk and Florea, 2022). Another advantage is the improvement in the overall quality of products. Automation of production processes minimizes human intervention and reduces the risk of human errors. This leads to higher reliability and accuracy of production, which is reflected in the quality of the final products (Schlegel and Kraus, 2023). These efforts are usually supported by R&D development in business activity (Nguyen, 2022). Increased product quality also enhances the company's reputation as a supplier of quality products (Bhattacharyya, 2023). In addition to improving quality, reducing production costs also plays an important role. Efficient production technologies enable optimization of resource utilization and minimize waste generation, thereby reducing the operating costs of the enterprise (Yeh et al., 2021). These cost savings can be further invested in further development of the enterprise or in research and innovation, leading to a stronger competitive position. Reducing the cost of production also allows the firm to offer more competitive prices to its customers, giving it an advantage over its competitors (Okorie et al., 2023). The second strategy, examined more closely, that can strengthen a firm's position in the market is to focus on achieving higher margins. Competitive advantage based on higher margin emphasizes on offering products or services at higher prices, which allows businesses to generate higher profits from each transaction (Nariswari & Nugraha, 2020). Customers are willing to pay higher prices for products that are associated with prestige and higher quality (Garri et al., 2020). In this regard, several key strategies can be identified to achieve competitive advantage through higher margins. The first approach is to focus on quality and luxury. Some companies specialize in producing or offering products and services with high quality and luxury character. This strategy is often applied in industries such as luxury clothing brands, watchmaking or cosmetics (Sunaryo & Lestari, 2023). Wu et al. (2022) confirm that customers in these industries are willing to pay a higher price for products that are associated with prestige, uniqueness and superior quality. With higher margins on such products, businesses can strengthen customer perceptions of value and appeal to a segment with higher purchasing power. This issue has been addressed by Smith (2023) who analysed the variation in margin differences between different parts of the business. Margin variance analysis allows sales and marketing managers to develop strategies to target specific customers in order to increase their profitability (Ruschak et al., 2023). The research explains in detail how customer engagement strategies can be affected by margin variance analysis (Sagapova et al., 2022). Subsequently, margin variance analysis and the development of customer-specific strategies are demonstrated. An important approach is the focus on delivering differentiated value to the customer. This strategy emphasizes the added value that the firm offers to its customers (Islami et al., 2020). This may include enhanced customer care, personalization of offerings, faster delivery or other benefits that are relevant to the target customer group (Transchel et al., 2022). Differentiation can also be achieved through innovation. Businesses with innovation potential and the ability to market unique products have the opportunity to set higher margins on their products as customers are willing to pay for unique products (Udriyah et al., 2019). This strategy helps businesses differentiate themselves from competitors and gain loyal customers who are willing to pay a higher price for unique and quality services (Gandhi & Nevo, 2021). The suitability of each strategy depends on the specific industry and market conditions. In the consumer sector, a higher margin strategy may be preferable if customers perceive the value of the product and are willing to pay for it. This fact was confirmed by the research of Fernandez-Perez et al. (2022), who analysed the evolution of sales of consumer goods at higher prices than needed to achieve profitability. They concluded that a higher margin-based strategy has a positive impact on the economic performance of firms. To the contrary, according to the research of Wen et al. (2022), in the industrial sector, efficient production technology can play a key role in achieving competitive advantage by reducing costs and increasing the efficiency of the production process. According to their results, digitalization of manufacturing enables firms to pursue differentiated competitive strategies and limits the use of cost-competitive approaches. These findings are aligned with the research of Straková et al. (2022) with emphasis on the importance of digitalization in business model changes. Enterprises with higher viability are better able to adapt to digital transformation and favour differentiated competitive strategies. The impact of innovation is particularly pronounced for viable enterprises, regardless of their scale of operation, ownership or productivity (Yang et al., 2023).

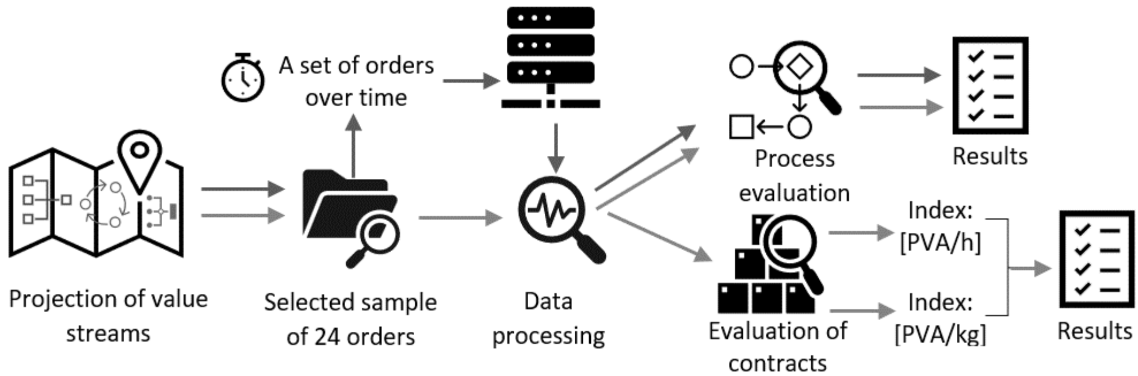
Based on the literature search, we decided to set the following research questions for our paper:

- RQ1: *Which processes are the most profitable and which are the most loss-making?*
- RQ2: *Which manufacturing operations add the most value?*
- RQ3: *Which processes can be replaced by outsourcing?*
- RQ4: *Which contracts are profitable, and which parameters determine this outcome?*

3. Data and Method

An essential part of the solution is the design of optimization of business processes in relation to the activation of individual orders. Since the company has allocated a set of orders for this article, which were selected on the basis of a demonstrative sample, on which the result of the PVA model will be performed and tested, this material is structured according to the requirement, and therefore also the objective of this article, so that it serves as a methodological procedure (manual) for the use of the PVA model method in the selected company STS Prachatice a.s., with regard to the total number of orders for a given time interval. The time limit for the use of the PVA model is individual and entirely up to the requirements of the company. ***Figure 1*** shows a diagram of the methods used and the solutions that will be addressed in order to fulfil the set research questions.

Figure 1. PVA Methodology



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PVA model is a method that is used to express the added process value that is activated on a given order or on a given product. This strategic tool is also used to diversify process value added into relevant processes and sub-processes. The analysis is based on the cost and time requirements of the individual active business processes in a specific sequence. In the value chain, processes are differentiated on the basis of the share of value added in the total output of a given business process. This approach expresses the link between the amount of value contributed by a process and the performance of the relevant workflow.

The theoretical basis of the PVA method is elaborated for practical use to express the added process value in the manufacturing engineering company STS Prachatice. This strategic-economic tool is used to diversify the process value added into relevant processes and sub-processes (operations). The procedure for calculating the added value for individual process flows is presented using the example of a piece order consisting of:

- Order / product selection.
- Mapping value-added flows on the specified order/product.
- Diversification of processes according to performance and cost parameters.
- Meeting the entry condition for value added calculation.
- Calculation of value added in each process.

Real identification of business processes for the needs of the PVA method (drawing of individual production operations into the company process map in the realm of the entire STS Prachatice premises). The detail was processed at the level of operations. Setting of calculation of production costs for individual orders (in total) and for individual production operations according to the following relations:

$$Resource\ cost_{(Z1)} = Price\ per\ standard\ hour_{(Z1)} * Nuber\ of\ worked\ hours_{(Z1)}$$

Summary of production costs for individual monitored orders according to the relationship:

$$Order\ number_{(Z1)} = Resource\ cost_{(Z1)} + Resource\ cost_{(Z2)} \ldots$$

Testing the PVA value of the model (positive values). In case of positive values, verification of the profitability of the company's production process; the company generates profit according to the relationship:

$$Invoiced\ price > total\ operating\ costs$$

Designed and used relational equations for calculating value added in individual business processes. The following relationships were used:

$$Cost\ share_{(Z1)} = \frac{Resource\ cost\ of\ production\ operation_{(Z1)}}{Total\ production\ cost} * 100\ [\%]$$

$$Time\ share_{(Z1)} = \frac{Time\ fund\ of\ production\ operation_{(Z1)}}{Total\ time\ fund} * 100\ [\%]$$

The share of an operation in the PVA value of a given process or manufacturing operation:

$$Avg_{(Z1)} = \frac{Resource\ cost\ of\ production\ operation_{(Z1)} + Time\ fund\ of\ production\ operation_{(Z1)}}{2}$$

In order to be able to better reflect the results achieved from the PVA method on the selected set of orders, it is necessary to evaluate the order portfolio itself and its individual contributions to the added process value. For this purpose, we have established two indices, the first index expressing the share of each order in the PVA share and the corresponding diverted time pool in production and the second again working with the PVA value, but in this case it is related to the diverted material. The first index was calculated on the basis of the following equation:

$$Index\ PVA/H_{(order\ A)} = \frac{PVA_{(order\ A)}}{H_{(order\ A)}}$$

An interesting index is the PVA relative to the total material written off in kg, here we need to keep in mind that the larger the number we get from this index, the less material handling and associated overheads will be required. The second index is therefore expressed as follows:

$$Index\ PVA/kg_{(order\ A)} = \frac{PVA_{(order\ A)}}{kg_{(order\ A)}}$$

It was also useful to demonstrate the margin that was assigned from the PVA value, where the calculation was carried out as follows:

$$Margin(PVA)_{(order\ A)} = \frac{PVA_{(order\ A)}}{Production\ cost_{(\text{order}\ A)}} * 100\ [\%]$$

Last but not least, a distinction was made between process value added and EBIT. This difference was always positive, as EBIT was always greater than PVA.

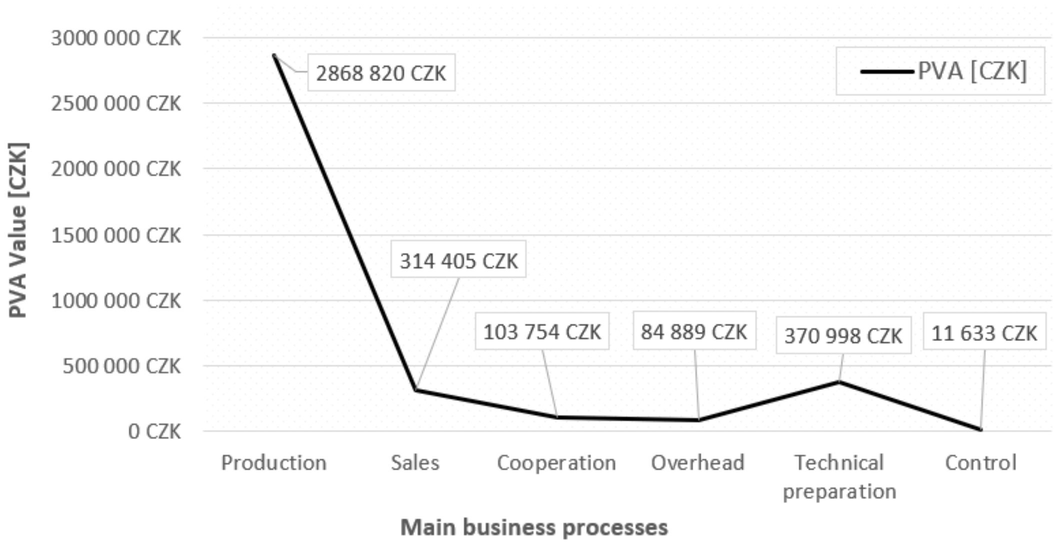
$$EBIT_{(order\ A)} - PVA_{(order\ A)}$$

The results of these calculations are contained in ***Table 1***. The greatest decision weight should be given to the PVA index, and then to the cost margin.

4. Results

As part of the research, we first performed contract selection, we then determined the mapping flows with a specification on the value stream. Next, we diversified the analysed processes into time-measurable and non-time-measurable processes. We identified the following business activities outside the main production process as non-time-measurable processes, as you can see in the following figure.

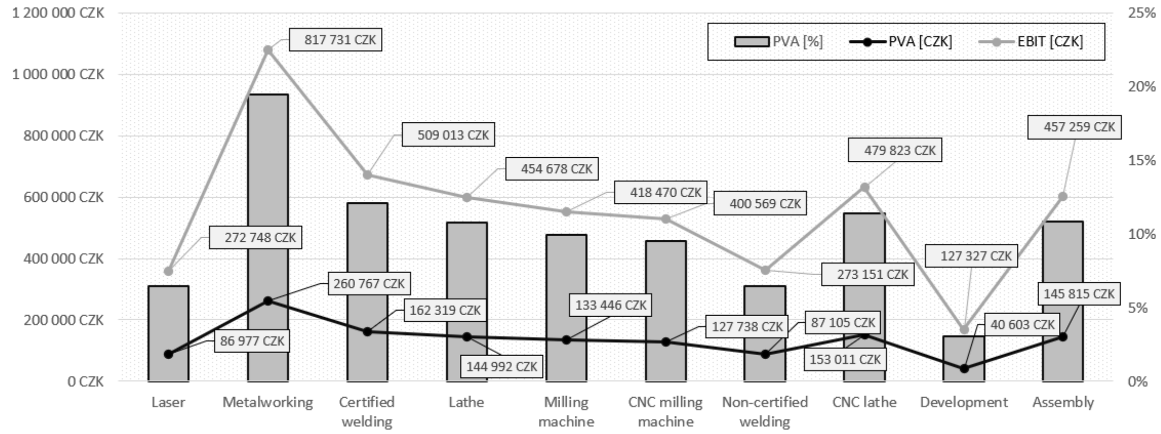
Figure 2. Relationship between PVA and individual manufacturing operations



Source: Authors

Figure 2 shows that production, which is a time-measurable process, adds the most process value. Next was technical preparation, followed by sales, cooperation and overhead. The process of control ranked with the lowest value. We can see that the result obtained is mainly due to the fact that the production process is the most costly process of all and smoothed both in terms of time outputs and cost outputs, this process is the most costly. In contrast, the control process does not represent such an operational cost. In the next stage, we need to look more closely at the distribution of process value added across the sub-levels of the production activity, or the production operations that contribute to the operating economic result. The results can be seen in ***Figure 3***, where the PVA ratio is compared to the EBIT ratio, which is determined from the booked costs in the form of depreciation, overheads, etc.

Figure 3. Share of PVA and EBIT of individual sub-processes



Source: Authors

From ***Figure 3*** we can see which manufacturing operations are the most profitable and which are the least profitable. An interesting finding is that the operation with the highest value added generated is the locksmith operation, followed by certified welding, automated CNC lathe, assembly operation and conventional non-automated machine. On the other hand, are laser manufacturing operation, non-certified welding and development workshop. In terms of EBIT value, the locksmith operation ranked the best and the development workshop ranked the worst. Because processes are tied to products, you can convert this process value added from processes to individual jobs. ***Table 1*** presents a list of the performance parameters we tracked, which allows us to compare the jobs we tracked.

Table 1. PVA and EBIT indices and PVA per hours worked and materials

Order	PVA [%] / production costs	EBIT - PVA	PVA/H	PVA/kg
120462	358%	153 868	3390,367	39,010
122051	289%	39 059	2599,089	77,063
122002	221%	11 559	1999,023	27,764
122047	180%	70 842	1851,375	57,494
121402	169%	52 200	1691,220	33,585
121439	179%	81 342	1619,197	66,370
122049	154%	64 973	1428,871	39,221
121403	151%	77 198	1356,131	52,355
122161	138%	92 109	1228,741	42,204
122048	69%	63 859	633,133	21,166
121234	64%	80 508	604,758	32,904
122096	68%	294 540	588,009	11,461
121227	60%	41 840	569,706	28,819
121351	50%	132 625	472,190	25,495
122022	9%	210 992	83,873	2,312
121337	-1%	122 313	-14,580	-1,003
122006	-21%	152 398	-186,092	-6,694
119519	-30%	126 385	-256,034	-38,897
121373	-41%	53 071	-328,945	-9,960
122012	-38%	60 205	-333,802	-179,261
120242	-74%	104 873	-697,985	-25,117
121316	-79%	252 145	-756,949	-63,047
121121	-82%	425 567	-797,202	-155,002
120241	-96%	103 529	-860,791	-73,342

Source: Authors

Table 2. Activation of production operations on individual orders

zakázka	Laser	Metalworking	Certified welding	Lathe	Milling machine	CNC milling machine	Non-certified welding	CNC lathe	Development	Assembly
120462	0,02%	0,16%	1,29%	0,04%	0,00%	0,18%	0,13%	0,40%	0,00%	0,00%
122051	0,06%	0,04%	0,30%	0,07%	0,00%	0,00%	0,00%	0,00%	0,00%	0,02%
122047	0,02%	0,26%	0,00%	0,34%	0,17%	0,00%	0,00%	0,19%	0,00%	0,27%
121402	0,12%	0,55%	0,03%	0,87%	0,00%	0,61%	0,00%	0,66%	0,00%	0,54%
121439	0,14%	0,68%	0,00%	0,67%	0,13%	0,22%	0,00%	0,71%	0,00%	0,66%
122049	0,09%	2,10%	2,29%	1,41%	2,37%	1,28%	0,00%	1,36%	0,22%	2,43%
121403	0,06%	0,44%	0,44%	1,43%	0,22%	0,79%	0,00%	0,20%	0,00%	0,94%
122161	0,16%	1,14%	0,00%	0,03%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
121234	0,19%	1,08%	0,00%	0,11%	0,00%	0,02%	0,43%	0,24%	0,00%	0,00%
122048	0,05%	0,22%	0,66%	0,05%	0,00%	0,20%	0,43%	0,00%	0,18%	0,68%
121227	0,21%	1,05%	0,00%	0,08%	0,00%	0,12%	0,35%	0,23%	0,00%	0,00%
122096	0,17%	0,73%	2,17%	1,10%	0,77%	1,59%	0,01%	1,30%	0,13%	0,00%
121351	0,09%	1,04%	0,00%	0,33%	0,00%	0,25%	0,10%	0,64%	0,00%	0,30%
122022	0,26%	1,69%	0,00%	0,12%	0,00%	0,00%	0,31%	0,12%	0,00%	0,00%
121337	0,32%	0,26%	0,00%	0,04%	0,00%	0,00%	0,65%	0,00%	0,00%	0,24%
122006	0,27%	0,88%	0,00%	0,00%	0,00%	0,28%	1,08%	0,22%	0,03%	0,45%
119519	0,39%	0,83%	0,00%	0,52%	0,00%	0,00%	0,00%	0,21%	0,00%	0,00%
122012	0,28%	0,79%	0,00%	0,42%	0,00%	0,00%	1,73%	1,10%	0,00%	0,04%
121373	0,13%	0,05%	1,02%	0,71%	1,25%	1,16%	0,04%	0,00%	0,80%	0,83%
120242	0,15%	1,13%	0,94%	0,18%	0,33%	0,28%	0,60%	0,31%	0,30%	1,27%
122002	0,20%	0,00%	0,53%	0,64%	0,68%	0,80%	0,00%	0,38%	0,57%	1,73%
121316	0,17%	2,05%	0,72%	0,57%	0,62%	1,06%	0,27%	0,85%	0,36%	0,20%
121121	0,53%	0,81%	2,67%	0,52%	0,28%	0,04%	0,00%	0,00%	0,00%	0,00%
120241	0,17%	3,33%	0,01%	1,61%	0,45%	0,98%	0,99%	0,93%	0,72%	1,31%

Source: Authors

The results show that compared to the PVA performance indices, the best performing orders were 120462, followed by 122051 and in third place was 122002. On the other hand, the worst performing orders were 120241, 121121 and 121316. We can see that the best ranked order was always the order that represented the largest time pool but also the largest cost per unit of part or unit of production. In the results we have demonstrated the calculations of the performance of the product portfolio as a function of the production cost, the EBIT difference, and the process value added per unit of time and per unit kg of material itself. An interesting result was just achieved in the conversion of process value added per material written off, where we see that the best ranked order number 122051 with a value of 77.063 CZK per 1 Kg of material written off. Thus, it turns out that it is not important in terms of determining the most efficient orders to proceed in terms of time efficiency or cost efficiency, but that here it is necessary to take into account waste efficiency, i.e. the element of circular economy.

5. Discussion

The presented research aimed to apply the newly developed PVA (process value added) method and to verify its principle on a model company in a custom piece production environment. The research was carried out on a selection of 30 orders of atypical nature from the year 2022 that are produced in the enterprise. It was successful in obtaining data such as selling price, production hours worked, and cost associated with the production and overhead of each order using order sheets. This data was used to determine which processes contributed the most to profitability in terms of our selection and which contributed the most to loss, the following research question was formulated within this question: *RQ1: Which processes are the most profitable and which are the most loss-making?* Using the PVA method, we showed that the most profitable process was the production process, which symbolized about 70% of the operating profit. This result is based on the determination of performance parameters from cost and time intensity, where this process completely dominates. On the other hand, the worst ranked process was control, which symbolizes less than 1.5% of the operating profit from orders. This fact is due to the fact that production in a manufacturing environment is a completely dominant component and within the value chain, it is confirmed that the production process brings the greatest added value, as formed by Hoan et al. (2021).

In the next phase of the research, we decided to evaluate sub-processes, or production operations, after processes, because production is the largest part in terms of process value added, and therefore our attention shifted to the distribution of process value added to individual production operations, which represents another *RQ2: Which manufacturing operations add the most value?* The result was that the most profitable production operation is the locksmith operation, which is accompanied by a minimal degree of innovation or elements of automation or digitalization. The explanation that we put forward is that this operation is not the fastest or most efficient in terms of performance, but in terms of the ratio of how many performance hours worked and at what cost, this operation is indeed the most profitable, and should the company wish to invest resources in automation in the future, this process is appropriate as there is the greatest potential to ensure profitability. On the other hand, processes that are digitalised or automated, such as the laser operation or the CNC lathe operation, are ranked average, due to the under-utilisation of the time capacity; once the machine is not working the required pool of hours for which the hourly cost of the machine is budgeted, the machine is loss-making, and this is exactly the case. In such a case, the following research question then really comes into focus: *RQ3: Which processes can be replaced by outsourcing?* In case the company is not able to adequately fill its production capacities for the usability and full provision of the technological plan of a given product, it is necessary to solve this process in the form of outsourcing, in this case the orders consisting of sheet metal parts, whose production is provided in the first phase by a laser or CNC machine shop - so we recommend outsourcing this process at least in part and transfer the low-cost pricing policy from the order to another company that will provide this part.

In the research we come to the full conclusion, where after evaluating the performance of the main and supporting processes we come to the evaluation of the contracts as such. It must be said that, with regard to the research conducted and with regard to the analysis we have made, we have drawn on Wu et al. (2022), where the success of the contract is always decided by the uniqueness and originality of the product, which is hidden in the value perceived by the customer, i.e. how much he is willing to pay to the company to satisfy his tailored needs. Therefore, we defined the last research question: *RQ4: Which contracts are profitable, and which parameters determine this outcome?* Here, we used newly created indices, where we recalculated process value added per unit of production hour, unit costs, and per unit of material shipped in kg, and we also tracked the relative difference between PVA value and EBIT - book depreciated value. We had to conclude that the PVA parameter is a suitable parameter to determine the efficiency in terms of waste and holding the elements of circular economy within the company, but that it is also a suitable tool to determine the performance of the product portfolio in relation to the unit cost. Thus, retrospectively, we were able to evaluate, not only from costs but also from other parameters, which orders are the most profitable, such as order number 120462 or order 122051, while the worst performing orders were 120241 and 121121. The research conducted has limitations in the form of the data obtained, where even in future research it would be advisable to include more orders and, for example, to validate this method on data collection at quarterly or annual intervals. It would also be worth considering attempting to compare the results obtained with other results from other companies to make comparisons at the level of sectoral differentiation or size, for example, and to demonstrate whether any mechanisms within these differentiations are valid with a link to the calculation of the PVA value share.

6. Conclusion

On the basis of the research and analysis conducted in STS Prachatice a.s. using the Process Value Added (PVA) method, it can be summarized that a differentiated approach to the evaluation of process value added is key to optimizing business processes and increasing profitability. The main objective was to identify the most profitable and the most loss-making processes, to evaluate the added value of individual production operations, to assess the potential for outsourcing certain processes, and to analyse the profitability of specific orders. The research showed that manufacturing processes add the most significant value, while control processes contribute minimally to the overall operating profit. This is supported by a thorough analysis of the performance, cost and time requirements of each process. It was also found that some processes can be more efficiently implemented through outsourcing, especially when internal production capacities are not fully utilised. This finding is particularly relevant for digitised or automated processes where under-utilisation of capacity leads to increased costs. The analysis also revealed that the most efficient contracts in terms of profitability are those that combine high product uniqueness and originality with efficient use of materials and production hours. The research highlighted the importance of tracking indicators such as SG&A per unit production hour, unit cost and waste in the circular economy. The results of the research have practical implications for the organization and efficiency of the production process and have been implemented in the STS Prachatice company. The results thus contribute to the development of the company's business policy and custom activities and also serve as innovative material for academic purposes. In conclusion, the PVA method is an effective tool for analysing and optimising business processes, enabling companies to better understand and manage process value-added to increase profitability and competitiveness.

Furthermore, the product portfolio was analysed in terms of process added value. It was found that orders with a high time pool and unit cost have the highest added value. PVA indices were established to better quantify the value added in the context of time and cost parameters. Overall, this study demonstrated that the PVA method is an effective tool for analysing and optimising business processes. The implementation of this method in practice showed concrete economic benefits for STS Prachatice and provided valuable information for further solutions in the area of business policy and procurement. This methodology provides a strategic approach to diversifying process added value, emphasizes the importance of innovation and automation, and contributes to building the competitiveness and sustainability of the company in complex market conditions. The solution used the already mentioned method to analyse the current state of the manufacturing and business process, focusing on the identification and analysis of the generated process value in relation to the product portfolio structure. Subsequently, the optimization of business processes was carried out in relation to the activation of individual orders with practical implications for the organization and efficiency of the production process of STS Prachatice.

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