

## USE OF DEMING CYCLE IN DEVELOPING MECHANICAL TECHNIQUE BUSINESS IN SERANG

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**Abstrak:** Penelitian ini bertujuan untuk mengetahui pengembangan bidang usaha teknik mesin di Kota Serang dengan menggunakan metode PDCA. Pengambilan data dalam penelitian ini menggunakan metode wawancara langsung dengan subjek penelitian adalah entitas bisnis dalam bentuk UD dan CV di Kota Serang. Analisis data yang digunakan adalah deskriptif kuantitatif. Hasil penelitian dapat dijelaskan oleh siklus PDCA yang digunakan oleh aktivis bisnis teknik mesin lebih ke arah perencanaan dan membaca peluang pasar, manajemen proses produksi, interaksi dengan konsumen dan kualitas produksi mereka ditambah dengan rencana pengembangan bisnis. Semua bisnis teknik mesin menggunakan perencanaan terstruktur PDCA sehingga bisnis yang mereka jalankan memiliki strategi dalam persaingan bisnis dan mempertahankan eksistensi bisnisnya.

**Kata Kunci:** PDCA, Siklus Deming, Usaha Pemesinan

**Abstract:** This study aimed to determine the development of the field of mechanical technique business in the city of Serang by using the PDCA method. Retrieval of data in this study using the method of direct interviews with research subjects is a business entity in the form of UD and CV in Serang City. Analysis of the data used is quantitative descriptive. The results of the study can be explained by the PDCA cycle that was used by mechanical technique business activists more towards planning and reading market opportunities, production process management, interaction with consumers, and the quality of their products coupled with business development plans. All mechanical techniques businesses use PDCA's structured planning so that the business they run has a strategy in business competition and maintains its business existence.

**Keywords:** PDCA, Deming Cycle, Machining Business

### INTRODUCTION

A business that is built requires very good planning so that it can grow and produce profitable profits for its entrepreneurs. Various types of businesses cannot last long against similar business competition because the planning and implementation do not have the right strategy. So, planning a business requires appropriate and comprehensive methods to be able to be a reference strategy in running a business.

Problems in business in the field of machinery are weak in marketing, production technology, business management, finance, and innovation (Karim & AJ, 2014). This problem requires a conceptual solution so that the business that is run can survive and generate more income for further development. From the management side, the problems that often arise in the management of mechanical engineering business in Serang city are never separated from the scope of planning, the work process which includes the management of raw materials, and the duration of time in production and the quality of the products made. This problem determines how the quality of the business sector has an impact on customer satisfaction. Therefore, careful planning using a clear strategy is really needed by business people, especially businesses in the technology sector.

However, planning from one business owner to another business owner has differences that are adjusted to the conditions of each business owner. As one of the planning methods, elements of implementing PDCA (plan, do check, action) by (Moen, 2009). This method is known as the Deming cycle in developing business, especially in the field of technology. In addition, the PDCA cycle is able to test and implement changes to improve the performance of a product, process, or system that has an impact on the future success (Kurniawan & Azwir, 2019).

This Deming Cycle is able to analyze the increase in performance of industry both small, medium, and large scale through continuous improvement. Quality and management are always associated with continuous improvement activities (continuous improvement) in order to win the competition (Radhila, 2013). So, this research was conducted with the aim to find out the development of the field of mechanical technique business in the Serang city by using the PDCA method.

## **RESEARCH METHOD**

The research method used in this research is descriptive qualitative research subjects are entrepreneurs in the field of mechanical technology in the City of Serang with a business form of UD and CV. Selection of research subjects using random sampling techniques, where businesses are randomly selected. The data collection technique used is direct interviews with instruments in the form of questionnaires that have been prepared based on the PDCA method (Deming cycle). The approach used in this research is PDCA with the following stages: (1) Making Plan, (2) Implementing the plan (Do), (3) Checking the results achieved (Check), and (4) Performing adjustments (Action).

The location of the study included 5 lathe and welding workshops in Serang City. Data analysis used quantitative methods where each data obtained was displayed in graphical form accompanied by an explanation so that this study was answered.

## **RESEARCH RESULTS**

The data collection process was carried out by interviewing the subject of his research in the mechanical technique business owner in Serang City. The results of the study of 5 business fields of mechanical engineering, namely CV Komalasari, CV Lathe Las Asia Engineering, CV Lathe Gunung Kawi, UD Hendro Mandiri Teknik, and UD Bubut Jaya Teknik. This business has been legalized in the form of business entities such as CV and UD. The purpose of establishing this business entity is that the business carried out is official and registered with the government. In addition, the use of this official business entity shows an indication that the business being run has entered into the medium business category, which is a productive economic business that is independent, carried out by individuals or business entities that are not subsidiaries or not a branch of a company with more asset values. from 50 million to a maximum of 700 million (Rachman, 2017).

The business of mechanical engineering interviewed has been legalized in the form of CV and UD. The results showed 60% were businesses with business entities in the form of a CV. While the remaining 40% are business entities in the form of UD. Businesses that have entered this middle category are then examined the use of the PDCA method through direct interviews with business owners as resource persons. The elaboration of the results of the study are as follows:

### **Planning (Plan)**

The stage of the plan consists of several steps, which must be determined which processes need to be improved in relation to the mission and demands of consumers or customers, determine what improvements will be made to the selected process, and determine the data and information needed to choose the process that is most relevant to the institution/company (Riyantini, 2017). The planning process carried out by mechanical engineering business activists entirely departs from basic skills in accordance with the line of business, namely mechanical technique. Armed with this skill, business activists then read market opportunities from the mechanical technique business in Serang City.

According to business activists, market opportunities from business in the field of the mechanical technique are experiencing an increase amid industrial progress. Many repair shops have been established with the support of increasing the housing business in Serang City, which requires welding shop services. Engineers needing initial capital ranging from 70 million - 700 million. The data obtained by an average entrepreneur requires 400 million to set up a business in mechanical engineering. Furthermore, the business activists determine the products produced in the form of turning and welding services coupled with the recruitment of workers according to production needs ranging from 4 - 12 employees.

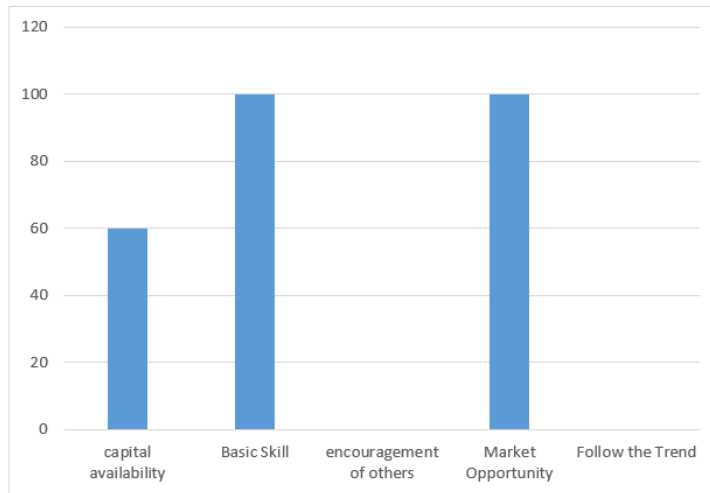


Figure 1. Background of Business Establishment

### Production process (Do)

Stages of Do are a series of processes of work implementation (Dewi, Nugraha, & Listyorini, 2014). The process of running a business is inseparable from the flow of production and interaction with consumers. The order flow is applied by various business activists, starting from providing a product catalog (for welding shops), to custom design according to customer desires. To complete orders from customers, business activists apply working hours for 8-12 hours and are tentative without shift changes. The entire production process is carried out at the business location and only the welding workshop receives call services or does work at the customer's place.

The duration of the process of completing an order of each business actor is also different and depends on the level of difficulty of the work which ranges from 1-3 days depending on the level of difficulty of the work. From the interviews regarding the number of employees employed, 80% of business owners use 2 employees in 1 job order. The remaining 20% uses 1 employee in completing job orders.

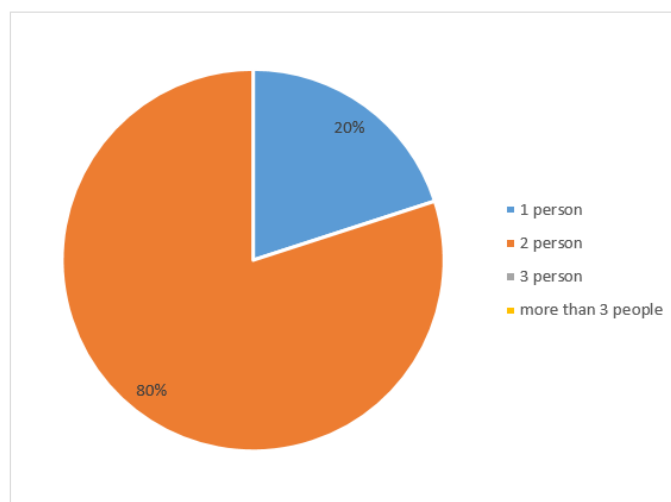


Figure 2. Number of Employee Participation in a Work Order

### Checking

The check stage is the process of checking the results of work performed (Surijanto, Margianto, & Lesmanah, 2009). After the processing is complete, the inspection process needs to be carried out to ensure the quality of production results and their compatibility with the customer's

wishes of the five business activists studied, only two business activists rarely conduct checks (conditional). The remainder conducts regular inspections starting from checking the materials used to examining the quality of the work to ensure compliance with the expectations of service users. As for when the work results are not in accordance with the business activists to receive complaints from consumers.

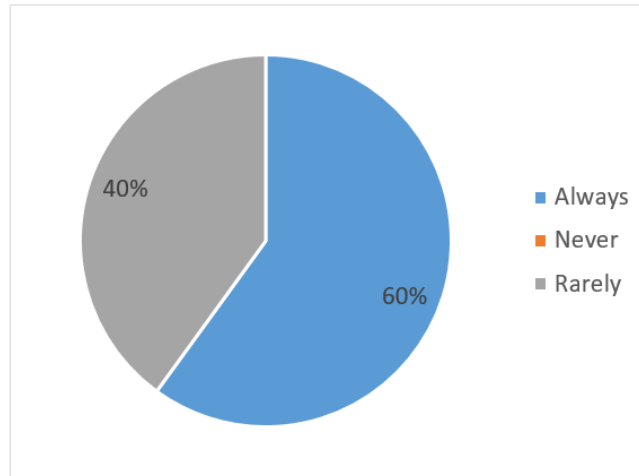


Figure 3. Percentage of Business Owners Who Carry out the Checking Process

### Action (Act)

The Act phase is the stage of implementing follow-up when needed (Handoko, 2017). Business planning using the Deming cycle methodology requires follow-up planning that continues to encourage business activists to develop their businesses. The results of observations in the field, all business activists open after-sales service that accommodates complaints if it is not in accordance with customer wishes. It is hoped that the acceptance of this complaint can reduce the level of customer dissatisfaction because it is not in accordance with the desired quality.

Based on the business development plan, business activists have various development directions, including increasing the number of employees, adding production equipment to opening branches in new places. In this study, the data obtained results that the direction of business development is more likely to add employees and open new branches. Only 20% of business owners are oriented to making new product innovations.

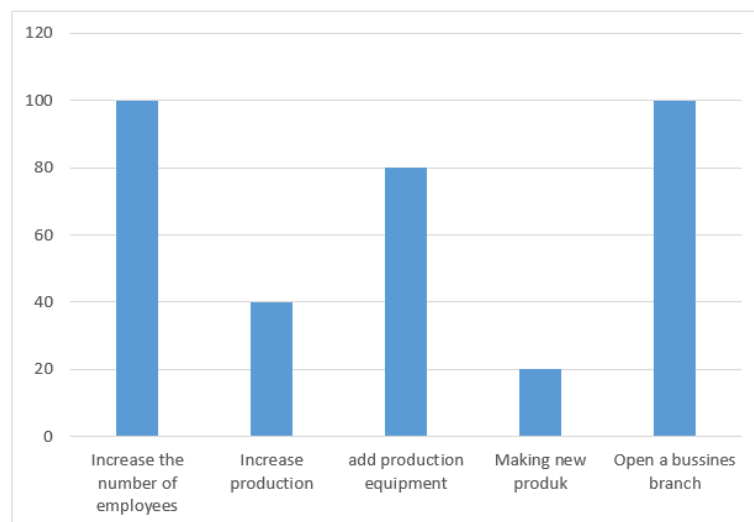


Figure 4. Business Planning

## CONCLUSION

The results of the study can be concluded that the business entity in the field of machinery in the City of Serang with the PDCA method has a variety of ways. The business planning process carried out by business owners includes the preparation of venture capital and the planning of the types of products produced. In the do process, business owners calculate the duration of work time, the number of employees who need to be involved in a job as well as the technical details of the work, the check process is also carried out by checking the material that is the raw material, and ensuring the quality of production is really maximum. At the end of the process, the action of the business owners is to provide after-sales service, receive complaints and claims for products that are not appropriate, as well as compensation for the duration of the product. So, business activists in Serang City in the field of mechanical technique give priority to planning and reading of market opportunities, management of production processes, interactions with consumers, and the quality of their production accompanied by business development plans.

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