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**The Impact of Financial and Leadership-Driven Motivation
on Operational Efficiency**

A Case Study of an Injection Molding Factory in Saudi Arabia

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الملخص العربي

هدفت هذه الدراسة إلى فحص العلاقة بين الدافعية المالية والدافعية المرتبطة بالقيادة وبين الكفاءة التشغيلية في مصنع قولبة بالحقن في المملكة العربية السعودية. اعتمدت الدراسة على 45 استجابة من مشغلين وفنيين ومشرفين ومهندسين، إضافة إلى بيانات تشغيلية للفترة من 2023 إلى 2025. تم قياس الكفاءة التشغيلية باستخدام الفعالية الكلية للمعدات، والهدر أو الرفض، ووقت التوقف. بلغ متوسط الدافعية المرتبطة بالقيادة 4.07 من 5، مقابل 3.86 للدافعية المالية. كما أظهرت البيانات تحسن الفعالية الكلية للمعدات من 85.75% في عام 2024 إلى 86.41% في عام 2025، مع انخفاض وقت التوقف والهدر. تدعم النتائج الوصفية وجود علاقة عملية بين الدافعية وسلوك الموظفين ونتائج الإنتاج، كما تشير إلى أن الدافعية المرتبطة بالقيادة أكثر استقراراً من الدافعية المالية وحدها. أوصت الدراسة بتقوية الإشراف اليومي، والتدريب العملي، وسرعة الإبلاغ عن المشكلات، وربط التقدير والحوافز بمؤشرات أداء واضحة. ولا تدعي الدراسة وجود علاقة سببية مباشرة بسبب طبيعتها كدراسة حالة واعتمادها على التحليل الوصفي.

الكلمات المفتاحية: الدافعية المالية، القيادة، الكفاءة التشغيلية، الفعالية الكلية للمعدات، قولبة الحقن.

English Abstract

This study examined the relationship between financial motivation, leadership-driven motivation, and operational efficiency in an injection molding factory in Saudi Arabia. The study used 45 valid responses from operators, technicians, supervisors, and engineers, together with operational records from 2023 to 2025. Operational efficiency was reviewed through Overall Equipment Effectiveness (OEE), scrap/rejection, and downtime. Leadership-driven motivation recorded a mean score of 4.07 out of 5, while financial motivation recorded 3.86. The operational data also showed that OEE increased from 85.75% in 2024 to 86.41% in 2025, while downtime and scrap/rejection decreased. The descriptive results support a practical relationship between employee motivation, daily work behavior, and production results. Leadership-driven motivation appeared more stable because employees gave higher importance to supervision, communication, fairness, recognition, and career growth. The study recommends stronger shop-floor leadership, practical training, early problem reporting, and a balanced recognition and incentive system. Because the work is a single-factory case study, the results describe useful patterns but do not prove direct causality.

Keywords: financial motivation, leadership, operational efficiency, OEE, injection molding.

Chapter 1: Introduction

1.1 Introduction

Saudi Arabia is giving more attention to local manufacturing under Vision 2030. The industrial sector is expected to support economic diversification, create jobs, increase local content, and reduce dependence on imported products. Plastic products and injection molding are part of this direction because they serve construction, water systems, consumer products, and many other local markets. For a manufacturing factory, this development creates an important need for stable production, controlled waste, and better use of machines, materials, and manpower.

Operational efficiency shows how well the factory uses its available resources to produce acceptable products with minimum loss. In an injection molding factory, the main results are normally reviewed through output, machine availability, quality, scrap, cycle performance, and downtime. Overall Equipment Effectiveness, known as OEE, combines availability, performance, and quality into one result. Scrap rate shows the loss of material and rejected products, while downtime shows the time lost when a machine should be producing but is stopped.

Factories usually start improvement work from the technical side. They check machine condition, molds, process settings, cooling, raw material, preventive maintenance, and quality standards. These areas are essential, but technical control does not always explain why one shift gives a stable result and another shift gives higher scrap or longer downtime under similar conditions. The difference may also come from employee attention, experience, communication, response time, and the way supervisors manage the team.

Employee motivation is therefore important for production performance. A motivated employee is more likely to follow the standard process, report a repeated defect, support troubleshooting, and take ownership of the final result. Motivation may come from financial factors such as salary, incentives, and rewards. It may also come from leadership factors such as fair treatment, recognition, communication, respect, support, and clear direction. This study reviews both dimensions and connects them with real operational indicators in an injection molding production environment.

1.2 Problem Statement

The common approach in manufacturing is to improve operational results through maintenance programs, process control, technical training, and equipment improvement. In injection molding, the focus is also extended to mold condition, material consistency, process parameters, cooling, and product inspection. Even after these controls are applied, performance differences may still appear between shifts or teams. One shift may react faster to a machine problem, while another shift may continue production for a longer time before reporting the same issue.

This variation can be seen in OEE, output, scrap, downtime, and response time. In some cases, the machine, mold, material, and product are almost the same, but the result is not the same. This means that technical factors alone may not explain the full situation. Employee motivation, supervision, communication, fairness, and willingness to follow procedures can also affect daily production performance. When employees feel that their effort is not recognized, or when the response from leadership is weak, their level of ownership may decrease.

Financial incentives are often used to improve motivation. They may increase effort, especially when the reward is connected with a clear target. However, the effect may not continue if the employee feels unfair treatment, weak supervision, or no opportunity for growth. Leadership-driven motivation may have a different effect because it is present in daily work through communication, coaching, recognition, and support. The main research problem is therefore to understand how both motivation dimensions relate to employee performance and factory results.

There is also limited research that directly links motivation with OEE, scrap, and downtime in injection molding factories in Saudi Arabia. Many studies discuss employee motivation in a general organizational setting, while production studies focus mainly on machines and technical losses. This study connects both areas by using employee responses together with actual production data from the selected factory.

1.3 Importance of the Study

Scientific importance: The study adds a practical connection between organizational behavior and manufacturing performance. It does not treat motivation as a general employee satisfaction topic only. It links financial and leadership-driven motivation with measurable indicators used by production management, including OEE, scrap/rejection, and downtime. This is useful because research on this connection is limited in the Saudi injection molding context.

Practical importance: The study can help production managers understand why performance may vary between shifts even when the technical conditions are similar. It can support better decisions on supervision, training, recognition, incentives, employee development, and daily follow-up. It also gives management a clearer view of where financial rewards are useful and where leadership improvement is more important.

The study is also useful for operational improvement. When the human side is considered together with machines, molds, materials, and methods, improvement actions can become more complete. A factory may invest in equipment and maintenance, but the expected result will not be achieved if employees do not report problems early, follow standards, or cooperate during production issues. For this reason, understanding employee motivation can support more stable performance and better use of existing resources.

1.4 Objectives of the Study

General objective: To examine how financial and leadership-driven motivation relate to employee performance and operational efficiency in an injection molding production environment.

Specific objectives:

1. Measure the level of financial motivation and leadership-driven motivation among employees in the selected production environment.
2. Review operational performance through OEE, scrap/rejection, and downtime using available factory records.
3. Examine the practical relation between employee motivation, daily work behavior, and production results.
4. Compare the stability of leadership-driven motivation with financial motivation.
5. Provide practical recommendations that production management can apply without creating an overly complex system.

1.5 Research Questions

1. What is the level of financial motivation and leadership-driven motivation among the selected employees?
2. Is there a practical relation between employee motivation and production results such as OEE, scrap/rejection, and downtime?
3. Why may employees or shifts give different results under similar technical conditions?
4. Which motivation dimension appears more stable in supporting performance over time?
5. What actions can managers use to improve employee motivation and operational results?

1.6 Hypotheses

H0: There is no clear relation between financial and leadership motivation and injection molding factory results.

H1: Financial and leadership motivation have a relation with employee performance and production results.

H2: Leadership motivation may give more stable effect compared with financial motivation.

1.7 Theoretical Foundations

The study uses three theories that support the main research idea. Herzberg's Two-Factor Theory explains that salary, benefits, and working conditions can reduce dissatisfaction, but they may not be enough to create strong motivation for a long period. Recognition, responsibility,

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achievement, and growth can support deeper motivation because employees feel that their contribution is valued (Herzberg et al., 1959).

Vroom's Expectancy Theory explains the connection between effort, performance, and reward. An employee is more likely to make extra effort when he believes that the effort can lead to good performance and that good performance will lead to a valued reward (Vroom, 1964). This is relevant to production because targets are normally clear and employees can see the result through output, quality, and downtime.

Bass (1985) explains how leadership can improve employee commitment through communication, support, recognition, and clear direction. In daily production, the supervisor is close to the operator and technician. The supervisor can encourage early reporting, proper follow-up, teamwork, and respect for the standard process. These leadership practices may support more stable performance than a financial reward alone.

1.8 Conceptual Model

The conceptual model treats financial motivation and leadership-driven motivation as the independent variables. Financial motivation includes salary, incentives, bonuses, and the connection between performance and reward. Leadership-driven motivation includes supervision, communication, recognition, fairness, respect, support, and employee involvement.

Operational efficiency is the dependent variable and is represented by OEE, scrap/rejection, and downtime. Employee behavior is shown as the practical link between motivation and operational results. This includes ownership, early problem reporting, quality attention, teamwork, and response to production issues. Employee behavior is used to explain the relationship, but it is not measured as a separate statistical variable in this study.

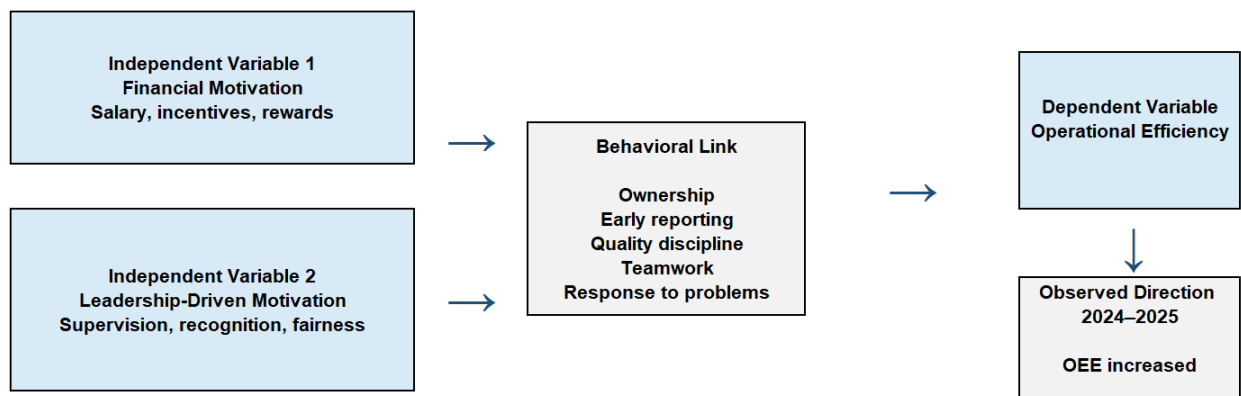


Figure 1.1: Conceptual Model of the Study

Chapter 2: Literature Review and Theoretical Framework

2.1 Introduction

This chapter reviews the main concepts needed for the study. The discussion starts with operational efficiency because it is the dependent variable. It then explains financial motivation and leadership-driven motivation as the independent variables. The chapter also reviews the main ideas from Herzberg, Vroom, and Bass, and explains how the present study differs from earlier work.

The literature review is kept focused on the research problem. It does not repeat every general definition of motivation or manufacturing performance. The main purpose is to show how employee motivation may be reflected in practical production behavior and how this behavior may influence OEE, scrap, and downtime in an injection molding environment.

2.2 Dependent Variable: Operational Efficiency

Operational efficiency means producing the required output with stable quality while using machines, materials, manpower, and time in an effective way. A factory may produce a high quantity, but the operation is not efficient if the output includes high rejection, frequent machine stops, unstable cycle time, or unnecessary material loss. For this reason, operational efficiency must be reviewed through more than one indicator.

In injection molding, production depends on repeatable cycles. The machine, mold, material, cooling, and process settings must remain stable. Small changes can create flash, short shots, burning, deformation, dimensional variation, or visual defects. These problems can reduce quality, increase scrap, slow the cycle, or stop the machine. Operational efficiency is therefore closely related to process stability and the speed of response when an abnormal condition appears.

2.2.1 Overall Equipment Effectiveness (OEE)

Overall Equipment Effectiveness is a common indicator used to measure how effectively production equipment is used. It combines availability, performance, and quality (Nakajima, 1988). Availability shows whether the machine is running during planned production time. Performance shows whether the machine is running near the expected cycle speed. Quality shows the percentage of accepted output.

OEE is useful in injection molding because it combines the main production losses. A machine may be running, but if it runs slowly or produces rejected parts, the result is still weak. Employee behavior can influence OEE through fast reporting, correct startup checks, response to alarms, process discipline, and proper separation of rejected parts. The indicator is not controlled by motivation alone, but motivation can affect how employees respond to the losses that reduce OEE.

2.2.2 Scrap Rate

Scrap rate represents rejected products or wasted material generated during production. Scrap has a direct cost because it uses material, machine time, energy, and manpower without producing a saleable product. In injection molding, scrap can result from machine problems, mold wear, material variation, incorrect settings, unstable cooling, poor handling, or delayed detection of a repeated defect.

The human side is important because quality control requires continuous attention. Operators need to check the product, report repeated defects, and separate suspected parts. Technicians and supervisors need to respond before the loss becomes larger. When employees feel ownership of the result and receive proper support, they may report the issue earlier and reduce the amount of repeated rejection.

2.2.3 Downtime

Downtime is the period when a machine is not producing during planned production time. It may be caused by a breakdown, mold problem, material issue, changeover, quality hold, process adjustment, or delay in technical support. The cause may be technical, but the duration of the stop is often affected by communication, escalation, and coordination between production, maintenance, tooling, and quality teams.

Motivated employees may respond faster, provide clearer information, and follow the issue until the machine returns to production. Weak communication or unclear responsibility can increase the stop duration even when the technical problem itself is not large. For this reason, downtime provides a useful indicator for studying the practical effect of leadership and employee response.

2.2.4 Relationship Between OEE, Scrap, and Downtime

The three indicators are closely connected. Downtime reduces the availability part of OEE. Scrap reduces the quality part of OEE. Slow or unstable cycles reduce the performance part. A weakness in one area can therefore reduce the total operational result. Production managers should not review these indicators as completely separate numbers because they often come from connected production losses.

This connection is useful for the present study. Motivation may influence all three indicators through different behaviors. Financial rewards may encourage ownership of measurable results. Leadership-driven motivation may improve reporting, quality attention, teamwork, and response time. By reviewing OEE, scrap, and downtime together, the study can connect employee views with the overall condition of the operation.

2.3 Independent Variables

2.3.1 Financial Motivation

Financial motivation includes salary, incentives, bonuses, overtime payments, and rewards connected with performance. Employees normally expect fair payment for their work, experience, and responsibility. When a reward system is clear and trusted, it can encourage employees to make more effort and pay closer attention to production results.

In an injection molding environment, financial motivation may support output improvement, quality attention, attendance, and willingness to support extra work. An employee may take more ownership when he knows that good performance is recognized. However, the reward must be connected with balanced indicators. A system based only on output may create pressure to produce more pieces while ignoring scrap, quality, or machine condition.

Financial motivation may also have a limited effect if the employee feels unfair treatment, weak communication, or no career opportunity. Herzberg explains that financial factors are important for reducing dissatisfaction, but stronger motivation may require recognition, responsibility, and growth. This means financial rewards should be part of a wider motivation system rather than the only action used by management.

2.3.2 Leadership-Driven Motivation

Leadership-driven motivation comes from the way supervisors and managers guide, support, and treat employees. It includes clear communication, fairness, recognition, respect, coaching, problem solving, and involvement in work-related decisions. These factors are present in daily work and can influence how employees behave under production pressure.

In injection molding, the supervisor has a direct effect on shop-floor discipline and response. When the supervisor listens to reported problems and gives clear support, operators are more likely to report defects and machine abnormalities early. When employees expect blame or feel that their concerns are ignored, they may delay reporting or avoid taking initiative. This can increase scrap and downtime.

Recognition is also important. Employees often repeat positive behavior when their effort is noticed. Appreciation for solving a repeated issue, supporting a difficult mold change, reducing scrap, or helping another team can increase commitment without requiring a large financial cost. Fair treatment and consistent decisions also build trust, which supports more stable performance between shifts.

Leadership-driven motivation may have a longer effect because it becomes part of the daily work environment. Financial rewards may create a quick response, but leadership can influence communication, teamwork, quality ownership, and employee development over time. This is the

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main reason the study compares both dimensions rather than treating them as the same type of motivation.

The leadership effect can become more visible in a multi-shift operation. Employees may work with the same machine and product but receive different levels of follow-up, coaching, and support. A supervisor who checks the first pieces, follows repeated defects, and coordinates quickly with technical teams can reduce the time needed to control a problem. A weak follow-up may allow the same issue to continue until it creates a larger loss. This does not mean the supervisor controls every technical result, but leadership can influence how quickly the team responds.

Financial and leadership motivation should therefore be reviewed together. A fair incentive can encourage employees to reach a target, while good leadership can make sure that the target is achieved without ignoring quality, safety, or machine condition. When both are aligned, employees receive a clear message about what good performance means. When they are not aligned, employees may focus on quantity only or feel that their effort is not recognized in a fair way.

2.4 Summary and Discussion of Previous Studies

Herzberg, Mausner, and Snyderman (1959) divided workplace factors into hygiene factors and motivators. Salary, benefits, and working conditions can reduce dissatisfaction, while recognition, achievement, responsibility, and growth can create stronger motivation. This supports the idea that financial rewards are necessary but may not be sufficient for long-term performance.

Vroom (1964) explained that employees give more effort when they expect that effort will lead to performance and that performance will lead to a valued reward. The theory is relevant to manufacturing because employees work with clear targets such as output, scrap, quality, and machine performance. The connection between effort and reward must be understood and trusted for the reward to have a motivational effect.

Bass (1985) focused on leadership and showed how communication, support, recognition, and clear direction can improve employee commitment. In a production environment, supervisors are close to daily problems and can influence reporting, discipline, teamwork, and problem solving. This makes leadership a practical part of operational performance, not only a general management concept.

The three sources support the main study idea from different sides. Herzberg helps explain why money alone may not create lasting motivation. Vroom explains why a clear reward can increase effort. Bass explains why leadership behavior can maintain commitment and support employees during daily work. Together, they provide a suitable foundation for comparing financial and leadership-driven motivation.

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The theories also help explain why employees may react differently to the same situation. One employee may respond mainly to a financial target, while another may respond more to recognition, responsibility, or supervisor support. In production, the most useful approach is not to choose one theory and ignore the others. The factory needs a balanced system that gives fair rewards, clear expectations, and daily leadership support.

2.5 Theoretical Framework of the Study

The theoretical framework links the two motivation dimensions with operational efficiency. Financial motivation may influence employee effort, attendance, ownership, and willingness to achieve measurable targets. Leadership-driven motivation may influence communication, early problem reporting, quality discipline, teamwork, and response to production problems.

These behaviors can appear in operational results. Better reporting and response may reduce the duration of downtime. Better quality attention may reduce repeated scrap. Better discipline and teamwork may support stable machine performance and OEE. The relationship is not automatic because technical factors remain important, but employee motivation may strengthen or weaken the way the production system is managed.

The study therefore compares questionnaire results with factory trends. It does not match each employee response with a specific machine result, so it cannot prove direct causality. The framework is used to identify practical relationships and explain why leadership and motivation should be considered when technical improvement alone does not fully explain performance variation.

2.6 Research Gap and Current Study Contribution

Previous motivation studies normally focus on job satisfaction, commitment, or general performance. Operational efficiency studies normally focus on machines, maintenance, process control, quality systems, and lean manufacturing. The two areas are often discussed separately. This separation creates a gap because real factory results are produced through both technical systems and employee behavior.

The gap is more clear in injection molding. Employees are directly involved in machine operation, product checking, mold changes, troubleshooting, and escalation of problems. A delay in reporting a defect or machine abnormality can quickly increase scrap or downtime. However, limited research in Saudi Arabia connects financial and leadership-driven motivation with OEE, scrap, and downtime in this specific environment.

The current study contributes by bringing these areas together in one practical case. It uses employee responses from different production roles and compares them with real factory data. The study also compares financial motivation with leadership-driven motivation to understand which

one appears more stable. This provides practical value for managers who need improvement actions that cover both technical control and employee management.

The Saudi manufacturing environment also makes this comparison useful. Production teams may include employees with different experience levels, backgrounds, and expectations. A simple incentive may not create the same response for every employee. Clear supervision, respectful communication, and consistent rules can help create one working standard across the team. The study therefore gives attention to the local factory context instead of depending only on general organizational findings.

2.7 Summary of Chapter 2

This chapter explained operational efficiency through OEE, scrap, and downtime. It also explained financial motivation and leadership-driven motivation and showed how both may influence daily production behavior. Herzberg, Vroom, and Bass provide the main theoretical support for the study. The review also identified a gap between motivation research and technical production research. The next chapter explains how the study was designed, how data was collected, and how the results were analyzed.

Chapter 3: Research Methodology

3.1 Introduction

This chapter explains the practical method used to complete the study. It covers the research design, data sources, research community, sample, questionnaire, operational data, analysis method, and study limitations. The methodology was selected to answer the research questions in a clear and practical way without claiming more than the available data can support.

3.2 Methodology and Research Methods

The study used a quantitative case-study design. A quantitative approach was suitable because the main variables could be measured through questionnaire scores and operational indicators. The case-study approach was selected because the research focused on one injection molding production environment and used its actual production records.

Two sources of data were used. The first source was a structured questionnaire that measured employee views on financial motivation, leadership-driven motivation, and workplace performance drivers. The second source was operational data covering 2023 to 2025, including OEE, scrap/rejection, and downtime. Using both sources provided a wider view than using employee opinions or factory numbers alone.

The study is descriptive and comparative. It describes the motivation results, compares financial motivation with leadership-driven motivation, reviews the operational trend, and then discusses the results together. The analysis does not claim that one questionnaire response directly caused a specific operational result because the data was not linked at individual employee level.

3.3 Research Community and Sample

The research community included employees working in the injection molding production environment. The main groups were operators, technicians, supervisors, and engineers. These roles were selected because they are directly involved in machine operation, troubleshooting, supervision, technical follow-up, quality control, and production improvement.

A total of 45 valid responses were included in the analysis. The sample contained 18 operators, 13 supervisors, 10 engineers, and 4 technicians. It also included employees with different experience levels. This mix was useful because the study needed both shop-floor and technical or supervisory views. The sample was selected based on accessibility and direct involvement in production work.

The sample is suitable for the selected case, but it is not intended to represent every manufacturing employee in Saudi Arabia. The study focuses on understanding the selected factory and identifying practical patterns that may also be useful for similar production environments.

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3.4 Data Collection Tool and Procedure

The questionnaire included five sections. The first section collected respondent information, including job position and years of experience. The second section measured financial motivation. The third section measured leadership-driven motivation. The fourth section asked about the main factors that affect work performance, scrap, and long-term commitment. The final section allowed employees to give an open recommendation.

A five-point Likert scale was used for the financial and leadership statements: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The statements were written in a simple way so they could be understood by employees at different job levels. Responses were reviewed before analysis, and 45 valid responses were retained.

Operational records were collected from the selected injection molding environment. The data included OEE, availability, performance, quality rate, downtime or TTBD, and process scrap/rejection. The 2023 data covers a limited period and is used only as an initial reference. The main operational comparison is between 2024 and 2025 because these years provide more complete records.

The questionnaire results and operational data were analyzed separately first. After that, the main patterns were reviewed together. This sequence helped avoid treating employee perceptions as direct machine data while still allowing the study to discuss how motivation may relate to operational performance.

The questionnaire was shared with employees who were directly connected with the production environment. Participation was voluntary, and the analysis focused on combined results rather than individual names. This approach was important because employees needed to give their views on salary, leadership, fairness, and supervision without creating concern about personal identification.

Before analysis, the responses were checked for completeness and consistency. The answers were then grouped by job position, experience, motivation dimension, and workplace performance question. Open recommendations were reviewed and combined into common themes such as leadership, training, career growth, recognition, and work procedures. This made the open answers easier to compare without changing their main meaning.

The operational data was also checked before comparison. The 2023 figures were treated carefully because they cover a limited period. The 2024 and 2025 records were used as the main comparison, and the calculations were presented using the same units available in the factory records. This helped keep the analysis clear and avoided mixing incomplete and full-year results.

3.5 Statistical Analysis

The study used descriptive statistical methods. Frequencies and percentages were used to describe job position, experience, multiple-choice answers, and employee recommendation themes. Mean scores and agreement rates were used to summarize financial motivation and leadership-driven motivation. These methods provided a clear comparison between the two dimensions.

Trend analysis was used for the operational data. The study reviewed changes in OEE, availability, performance, quality rate, downtime, and scrap/rejection. The main percentage reductions between 2024 and 2025 were calculated for downtime and scrap/rejection. The analysis also reviewed whether the operational trend was consistent with the motivation results.

Regression, ANOVA, and other advanced inferential tests were not used because the operational results were not available at the individual respondent level. Using these tests could create a false impression of direct causality. The descriptive method is therefore more suitable for the available case-study data and keeps the conclusions within a reasonable limit.

3.6 Research Scope and Limitations

The study is limited to one injection molding production environment in Saudi Arabia and 45 valid responses. It focuses on two motivation dimensions only: financial motivation and leadership-driven motivation. Other factors such as workload, job security, personal conditions, organizational culture, and work-life balance were not examined in detail.

Operational efficiency was reviewed through OEE, scrap/rejection, and downtime. Other indicators such as production cost, delivery performance, energy consumption, customer complaints, and labor productivity were outside the study scope. The questionnaire reflects employee perceptions at the time of data collection, while the operational records cover 2023 to 2025.

Because the study uses one factory and descriptive analysis, the findings should not be generalized to every factory or industry. The results show practical relationships and useful patterns, but they do not prove that a specific motivation factor directly caused a specific operational change. This limitation is considered when the hypotheses and recommendations are discussed.

Chapter 4: Results and Recommendations

4.1 Introduction

This chapter presents the practical results of the study. It starts with the respondent profile, then reviews financial and leadership-driven motivation. It also presents the main workplace performance drivers, employee recommendations, and operational efficiency data. The chapter then reviews the hypotheses and provides practical recommendations for the selected production environment.

The results are presented in a simple way because the purpose of the study is practical. The questionnaire results show how employees view motivation and workplace conditions. The operational data shows the factory performance trend. Both are reviewed together to understand whether motivation may help explain some of the variation in production results.

4.2 Data Analysis

4.2.1 Respondent Profile

Table 4.1: Respondents by Job Position

Job Position	Frequency	Percentage
Operator	18	40.0%
Supervisor	13	28.9%
Engineer	10	22.2%
Technician	4	8.9%
Total	45	100.0%

Operators formed the largest group at 40.0%. Supervisors represented 28.9%, engineers 22.2%, and technicians 8.9%. This distribution gives the study a strong shop-floor view while still including employees responsible for supervision, technical analysis, and troubleshooting. The sample therefore covers the main roles that can influence daily injection molding performance.

Table 4.2: Respondents by Years of Experience

Years of Experience	Frequency	Percentage
Less than 2 years	1	2.2%
2 to less than 5 years	7	15.6%
5 to less than 10 years	11	24.4%
10 to less than 15 years	9	20.0%
15 years or more	17	37.8%
Total	45	100.0%

Most respondents had practical experience in the factory environment. Seventeen employees had 15 years or more, and nine had between 10 and 15 years. Only one respondent had less than two years of experience. This supports the value of the responses because the majority had enough

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exposure to production targets, machine stoppages, quality problems, and different supervision practices.

4.2.2 Financial and Leadership Motivation Results

Table 4.3: Financial and Leadership Motivation Results

Motivation Dimension	Mean Score	Agreement Rate
Financial Motivation	3.86 / 5	72.9%
Leadership-Driven Motivation	4.07 / 5	79.4%

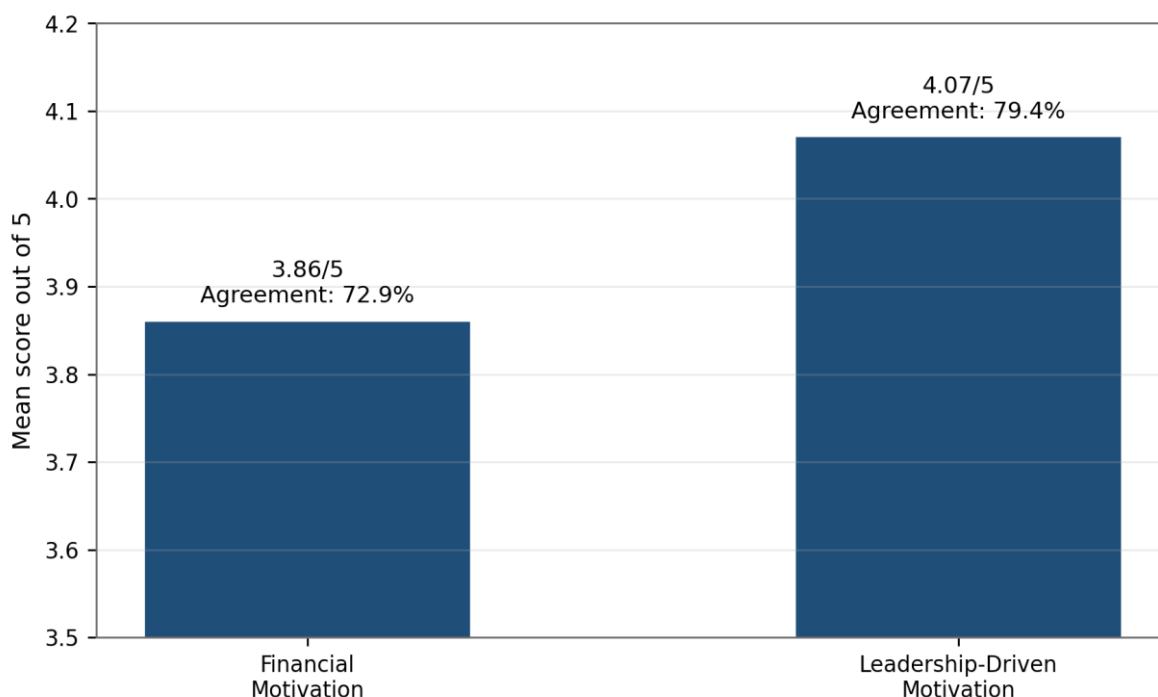
Both motivation dimensions received positive results. Financial motivation recorded a mean of 3.86 out of 5 with an agreement rate of 72.9%. This shows that employees value salary, incentives, performance rewards, and a clear connection between effort and financial outcomes. Financial motivation remains an important part of the employee experience in the selected factory.

Leadership-driven motivation recorded a higher mean of 4.07 out of 5 and an agreement rate of 79.4%. The difference is 0.21 points in the mean score and 6.5 percentage points in the agreement rate. This suggests that employees give stronger importance to supervision, fairness, communication, recognition, respect, and support. It also supports the idea that leadership is present in daily work and may provide a more stable effect than an occasional financial reward.

The result does not mean that financial motivation is not important. Employees still gave it a strong positive score. The main point is that financial rewards appear more effective when they are supported by fair leadership, clear communication, and recognition. A balanced system is therefore more suitable than depending on only one motivation method.

From a production management view, the difference between 3.86 and 4.07 is not very large, but the same direction appears in several other answers. Leadership was selected as a main factor for work performance and long-term commitment, while financial rewards were normally placed behind leadership, growth, or training. The repeated pattern gives more confidence that employees are looking for a complete working environment and not only a higher payment.

Chart 4.1: Independent Variables Mean Score Comparison



Leadership-driven motivation scored higher than financial motivation.

Chart 4.1: Independent Variables Mean Score Comparison

4.2.3 Workplace Performance Drivers

Table 4.4: Main Factor That Would Improve Work Performance

Factor	Frequency	Percentage
Leadership and Supervision	12	26.7%
Career Growth Opportunities	10	22.2%
Recognition and Appreciation	6	13.3%
Financial Rewards	6	13.3%
Training and Experience	6	13.3%
Personal Motivation	5	11.1%
Total	45	100.0%

Leadership and supervision received the highest result for improving work performance, followed by career growth. Financial rewards were important, but they were not selected as the leading factor. Employees appear to need clear direction, fair treatment, and a visible future path in addition to financial support. This result is consistent with the higher score recorded for leadership-driven motivation.

Table 4.5: Main Factor Affecting Scrap and Production Mistakes

Factor	Frequency	Percentage
Training and Experience	25	55.6%
Leadership and Supervision	15	33.3%
Recognition and Appreciation	4	8.9%

Factor	Frequency	Percentage
Employee Experience	1	2.2%
Total	45	100.0%

Training and experience were selected by more than half of the respondents as the strongest factor for reducing scrap, defects, and production mistakes. Leadership and supervision came second. This shows that motivation alone is not enough. Employees also need practical knowledge to identify defects, understand machine alarms, follow startup checks, and respond correctly to process changes.

Table 4.6: Main Reason for Performance Difference Under Similar Conditions

Factor	Frequency	Percentage
Personal Motivation	18	40.0%
Training and Experience	11	24.4%
Leadership and Supervision	9	20.0%
Recognition and Appreciation	4	8.9%
Career Growth Opportunities	2	4.4%
Financial Rewards	1	2.2%
Total	45	100.0%

Personal motivation was the leading explanation for why one employee may perform better than another under similar conditions. Training and leadership were also important. Financial rewards received the lowest result for this specific question. This suggests that daily behavior, experience, and personal ownership can create performance differences even when employees receive similar pay and work with the same equipment.

Table 4.7: Strongest Long-Term Factor for Maintaining Performance

Factor	Frequency	Percentage
Leadership and Supervision	13	28.9%
Career Growth Opportunities	12	26.7%
Financial Rewards	6	13.3%
Recognition and Appreciation	5	11.1%
Training and Experience	5	11.1%
Personal Motivation	4	8.9%
Total	45	100.0%

Leadership and supervision were selected as the strongest long-term factor, with career growth very close behind. This supports H2 because both factors are related to the daily work environment and future development. Financial rewards were still important, but they were not the first long-term choice. The result supports a motivation approach that combines leadership, growth, recognition, training, and fair incentives.

4.2.4 Employee Recommendation Themes

Table 4.8: Employee Recommendation Themes

Recommendation Theme	Frequency	Percentage
Leadership, fairness, and communication	8	27.6%
Training and skill development	6	20.7%
Career growth and clear path	6	20.7%
Recognition and financial rewards	6	20.7%
Other recommendations	2	6.9%
Work environment and procedures	1	3.4%
Total	29	100.0%

The open recommendations gave a similar message. Leadership, fairness, and communication were the most common theme. Training, career growth, and recognition or financial rewards each received the same second-level result. Employees did not ask for one solution only. They described a wider system that includes fair treatment, skill improvement, a clear future path, and recognition for good performance.

The recommendations also show that employees want practical changes. They need supervisors who communicate clearly, training based on real production problems, and a reward system that is connected with actual contribution. These themes can be applied through daily follow-up and do not require a complex new management program.

Chart 4.2: Employee Recommendation Themes

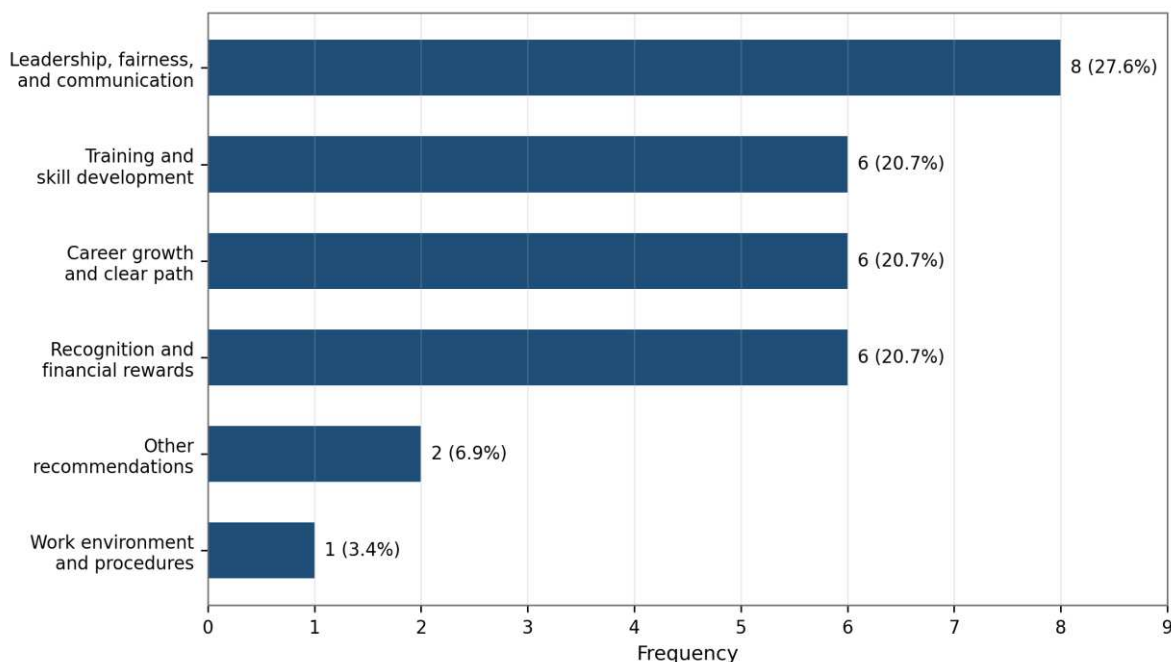


Chart 4.2: Employee Recommendation Themes

4.2.5 Operational Efficiency Results

Table 4.9: Operational Efficiency Summary

Year	Availability	Quality	Performance	OEE	Downtime	Scrap (kg)
2023*	86.17%	97.89%	91.45%	80.60%	5,091.58	8,456.76
2024	83.45%	96.60%	94.77%	85.75%	59,318.72	186,512.69
2025	84.52%	94.36%	95.55%	86.41%	44,159.48	127,210.38

The 2023 data covers a limited period and is used only as an initial reference. The main comparison is between 2024 and 2025 because these two years provide a more complete view. OEE increased from 85.75% to 86.41%. Availability increased by 1.07 percentage points and performance increased by 0.78 points. These changes indicate better use of planned production time and more stable cycle performance.

Downtime or TTBD decreased from 59,318.72 in 2024 to 44,159.48 in 2025, which is a reduction of about 25.6%. Process scrap/rejection decreased from 186,512.69 kg to 127,210.38 kg, which is a reduction of about 31.8%. These are important improvements because they directly affect machine utilization, material cost, and production capacity.

The quality rate decreased from 96.60% to 94.36%, a reduction of 2.24 percentage points. This shows that the operational improvement was not equal in every area. OEE, downtime, and total scrap/rejection improved, but quality control still needs close attention. The result supports the need for practical training, early defect reporting, and stronger follow-up from production and quality teams.

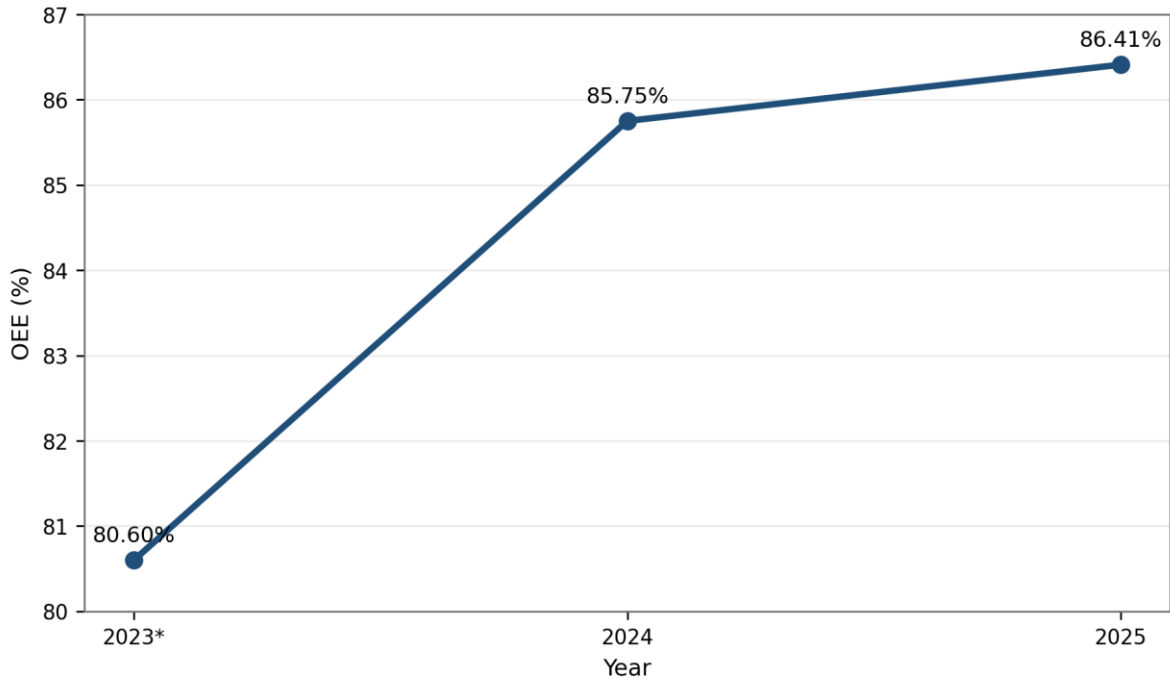
The operational data cannot be linked directly to the questionnaire responses because the records cover historical factory performance and are not separated by each respondent. However, the direction of the results is consistent with the employee feedback. Employees placed high importance on leadership, training, communication, and personal motivation, which are all factors that can support faster response and better production control.

The reduction in downtime and scrap/rejection should also be viewed together with the improvement actions already used by the factory. Maintenance, process control, technical support, and quality follow-up remain major reasons for operational improvement. The study does not replace these technical explanations. It adds the view that motivated employees and stronger leadership can help these technical systems work more effectively.

For management, the most important point is the balance of the results. Better OEE and lower downtime are positive, but the lower quality rate shows that one strong indicator does not mean www.midocean.edu.km

every area is under control. A regular review should therefore include availability, performance, quality, total scrap, and the main reasons for stoppage. Employee feedback can be added to this review when the same problems repeat between shifts.

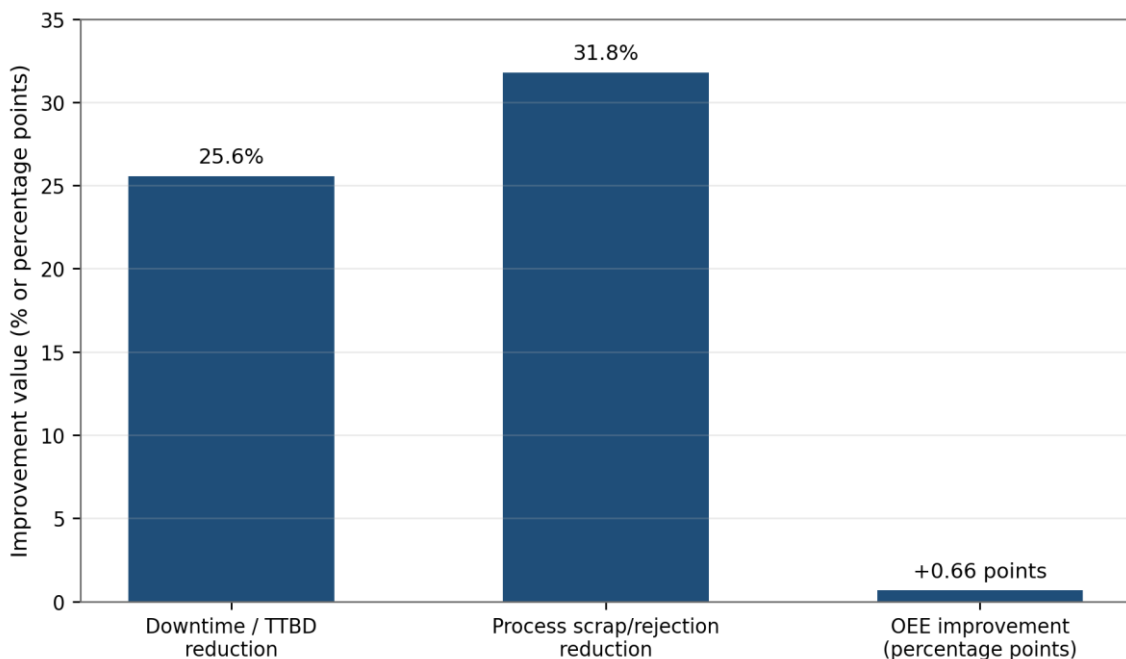
Chart 4.3: OEE Trend (2023-2025)



*2023 data represents a limited period and is used as an initial reference point.

Chart 4.3: OEE Trend (2023-2025)

Chart 4.4: Key Operational Improvement Outcomes from 2024 to 2025



Reductions are calculated as (2024 value - 2025 value) / 2024 value. OEE is shown in percentage points.

Chart 4.4: Key Operational Improvement Outcomes (2024–2025)

4.3 Main Findings and Hypotheses Review

The results show that both motivation dimensions are important. Financial motivation received a positive score, which means employees value salary, incentives, and rewards. Leadership-driven motivation received the higher score and was also selected as a main factor for work performance and long-term commitment. This gives a consistent message across the different questionnaire sections.

Training and experience were the strongest factors for reducing scrap and mistakes. This finding is important because it shows that motivation must be supported by practical capability. An employee may be motivated, but without the correct knowledge, he may still react incorrectly to a defect, machine alarm, mold issue, or process change. Leadership is therefore responsible not only for motivation but also for ensuring that employees receive the right training and coaching.

The operational data showed improvement in OEE, downtime, and scrap/rejection between 2024 and 2025. The quality rate decreased, so the factory still has a clear area for improvement. The combined result supports the view that operational efficiency depends on several connected factors. Technical control remains essential, while motivation, leadership, communication, and training support the way employees use the technical system.

Table 4.10: Hypotheses Review

Hypothesis	Result from the Study	Conclusion
H0: There is no clear relation between financial and leadership motivation and injection molding factory results.	The questionnaire and operational patterns show a useful practical relation between motivation, employee behavior, and production results.	Not supported by the descriptive evidence.
H1: Financial and leadership motivation have a relation with employee performance and production results.	Both motivation dimensions were positive. Employees linked motivation with performance, quality, problem reporting, and long-term commitment.	Supported at the descriptive level.
H2: Leadership motivation may give more stable effect compared with financial motivation.	Leadership recorded the higher mean and was selected as a leading factor for performance and long-term commitment.	Supported at the descriptive level.

The conclusions above are based on descriptive evidence. The study did not use respondent-level operational results or inferential testing. For this reason, the hypotheses are reviewed as practical relationships within the selected factory and not as proof of statistical causality.

4.3.1 Discussion in Relation to the Research Questions

The first research question asked about the level of financial and leadership-driven motivation. Both dimensions were positive, but leadership-driven motivation recorded the stronger result. This means employees generally value financial rewards, while they place slightly greater importance on the way they are supervised, treated, recognized, and supported during daily work.

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The second and third questions focused on the relation with production results and the reason for variation under similar conditions. The survey showed that personal motivation, training, and leadership can influence how employees respond to the same production situation. The operational data also showed changes in OEE, downtime, and scrap. These results do not prove a direct cause, but they support the practical view that human behavior can strengthen or weaken technical performance.

The fourth question asked which motivation dimension appears more stable. Leadership was selected as a main factor for long-term commitment and recorded the higher mean score. Career growth was also highly ranked. These results suggest that employees need a stable working environment, clear direction, and a visible future path. Financial rewards remain important, but they may have a stronger effect when they are supported by these leadership factors.

The final research question asked what management can improve. The answers point to a small number of connected actions: stronger supervision, practical training, early problem reporting, fair recognition, balanced incentives, and clear career growth. These actions are included in the recommendation plan because they can support both employee motivation and operational control.

4.4 Recommendations

The recommendations are based on the questionnaire results, operational data, and the study theories. They are designed to be practical for an injection molding production environment. The actions should be used as one connected plan because leadership, training, recognition, and financial rewards support each other.

Table 4.11: Practical Recommendation Action Plan

Area	Required Action	Main Owner	Expected Result
Shop-floor leadership	Use a short daily supervisor follow-up covering safety, defects, downtime, employee concerns, and recognition.	Production supervisors	Faster escalation and more stable shift performance.
Practical training	Train operators and technicians using real defects, alarms, mold issues, startup checks, and shutdown conditions.	Production, technical, and quality teams	Fewer repeated mistakes and stronger quality control.
Early problem reporting	Use one simple escalation method for repeated defects, machine abnormalities, and long stoppages.	Operators, technicians, and supervisors	Shorter downtime and faster technical response.
Recognition and incentives	Connect recognition and rewards with scrap reduction, downtime recovery, quality discipline, and improvement support.	Production management and HR	Higher ownership and a fairer motivation system.
Career growth	Define clear skill levels and development paths for operators, technicians, and supervisors.	Production management and HR	Better long-term commitment and lower performance variation.
KPI review	Review top downtime causes, repeated defects, and pending actions in regular cross-functional meetings.	Production, maintenance, tooling, QC, and planning	Better accountability and sustained improvement.

First, shop-floor leadership should be strengthened. Supervisors should give clear instructions, listen to reported problems, and follow up actions until closure. Good performance should be recognized during the shift, not only during an annual review. A short daily follow-up can improve communication without adding unnecessary paperwork.

Second, training should be practical and based on real production losses. Operators and technicians should review repeated defects, machine alarms, mold issues, process changes, startup conditions, and product inspection points. Training should be checked through actual performance and not only attendance. This action supports scrap reduction and faster troubleshooting.

Third, the factory should use a simple method for early problem reporting. Employees should know what must be reported, who receives the information, and when escalation is required. A repeated defect or long stoppage should not remain without clear ownership. Faster communication can reduce downtime and prevent repeated rejection.

Fourth, recognition and financial rewards should be connected with balanced performance. Rewards should not depend only on production quantity. They should also consider scrap reduction, quality discipline, safe work, downtime recovery, teamwork, and improvement support. This reduces the risk of increasing output while creating another loss in quality or machine condition.

Finally, employees should see a clear development path. Operators, technicians, and supervisors should understand the skills needed for the next level. Career growth was one of the strongest long-term factors in the survey. A clear path can improve commitment and help the factory retain experienced employees.

The recommendations should be introduced in a simple sequence. The factory can start with supervisor follow-up and early problem reporting because these actions can be applied quickly. Practical training and recognition can then be linked with the main downtime and scrap causes. Career paths and financial incentives may require more coordination with HR and top management. Progress should be reviewed every month using a small number of indicators so the plan remains practical and does not become another reporting burden.

4.5 Summary of Chapter 4

This chapter showed that leadership-driven motivation was higher than financial motivation, while both dimensions remained important. Employees identified leadership, career growth, training, and personal motivation as key factors in performance. Operational data showed improvement in OEE, downtime, and scrap/rejection, while the quality rate still requires attention. The descriptive results support H1 and H2 and do not support H0. The recommendations focus on practical leadership, training, early reporting, balanced rewards, career growth, and regular KPI follow-up.

The overall conclusion is that employee motivation should not be separated from operational improvement. Machines, molds, materials, maintenance, and process settings remain the main technical controls, but employees are the people who observe the process and react when a problem starts. When the team is supported, trained, and treated fairly, the technical systems are more likely to be used in the correct way. This can help reduce performance variation between shifts and improve the stability of production results.

The study also shows that one motivation action will not solve every problem. Financial rewards can support effort, while leadership can support daily discipline and commitment. Training builds the ability to act correctly, and career growth gives employees a reason to maintain performance over time. The recommended approach is therefore a balanced system that connects people management with the same OEE, scrap, downtime, and quality indicators already reviewed by production management.

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Appendix A: Questionnaire

The questionnaire was used to collect employee views on financial motivation, leadership-driven motivation, and workplace performance. The response scale for Sections B and C was: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Section A: Respondent Information

- Job position: Operator / Technician / Supervisor / Engineer.
- Years of experience: Less than 2 years / 2 to less than 5 years / 5 to less than 10 years / 10 to less than 15 years / 15 years or more.

Section B: Financial Motivation

1. Financial rewards motivate me to improve my work performance.
2. Salary and incentives affect my motivation at work.
3. Performance bonuses encourage employees to achieve better results.
4. I feel more responsible for production results when good performance is rewarded.
5. I am more willing to make extra effort when I believe my effort will be recognized financially.

Section C: Leadership-Driven Motivation

1. Good supervision motivates me to perform better.
2. Clear communication from supervisors helps improve my work performance.
3. Recognition and appreciation from management increase my motivation.
4. Fair treatment at work affects my motivation and commitment.
5. Support from supervisors helps employees deal with production problems.
6. Employee involvement in work-related decisions can improve motivation.

Section D: Workplace Performance Drivers

For each question, respondents selected one factor from the available choices: leadership and supervision; training and experience; personal motivation; recognition and appreciation; financial rewards; or career growth opportunities.

1. Which factor would most improve your work performance?
2. Which factor has the greatest impact on reducing scrap, defects, and production mistakes?
3. If two employees receive the same salary and work under similar conditions, what is the most likely reason one may perform better than the other?

4. Which factor has the strongest long-term impact on maintaining high employee performance and commitment?

Section E: Employee Recommendation

In your opinion, what should be improved to increase employee motivation and operational performance?

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Appendix B: Operational Data Summary

The following table presents the operational data used in the study. The 2023 figures cover a limited period and are used only as an initial reference. The main comparison is between 2024 and 2025.

Table B.1: Operational Efficiency Summary

Year	Availability	Quality	Performance	OEE	Downtime / TTBD	Scrap / Rejection (kg)
2023*	86.17%	97.89%	91.45%	80.60%	5,091.58	8,456.76
2024	83.45%	96.60%	94.77%	85.75%	59,318.72	186,512.69
2025	84.52%	94.36%	95.55%	86.41%	44,159.48	127,210.38

The operational figures are factory-level results and are not linked to individual questionnaire respondents. They are used to show the performance trend and to support the practical discussion of motivation and operational efficiency.