

ROMEO ENGINE PLANT

OCTOBER 14

ACC3200- MANAGEMENT ACCOUNTING



Group Identifier Page

ROMEO ENGINE PLANT CASE STUDY

Unit Code:	ACC3200
Tutor:	PRABHASHI DHARMASIRI
Tutorial Day & Time:	TUESDAY 9AM
Group no. & week presenting:	GROUP 5, WEEK 12

Group Membership

Student No.	Surname, First name (actual/official)
28562143	YANG, RENYI
28394224	WANG, CAN
29152828	XIA, YING
28805925	SIVAKUMAR, POOJITHA
28746287	CLEMENTS, BREEANA

Submission Date:

	No. of words
Whole document	2747 words
(-) Group identifier page	-107 words
(-) Table of contents	-71 words
(-) Executive summary	-200 words
(-) Reference list	-164 words
(-) Appendices (non-essential) marking rubric	-182 words
= Relevant word count ($\leq$ 2500 words)	2086 words

Executive Summary

This report was commissioned to examine the total quality control of the Romeo Engine Plant (REP) and to recommend some approaches to address their major areas of weakness.

The report draws attention to the management control system of REP and evaluate their initiatives and strategies. The horizontal analysis is used to compare the REP with other plants within the industry. The comparison mainly analyses the management control strategies, cost control techniques as well as budget variance to find gaps among different competitors.

The result of analysis indicates that REP applies advanced control and feedback system into manufacturing operation. With the help of these systems, REP is able to achieve overall manufacturing strategy by continuously improving product quality, increasing work efficiency, eliminating waste and lowering cost.

The report also identifies that the REP ignored the necessary costing information and the root cause of the variance. Moreover, REP implements a defective returns policy which might lead to inefficiency and an increase in external failure costs.

Therefore, it is recommended that REP:

- conduct a parallel accounting information system
- combine variance analysis with reward system;
- impose standards or requirements for returns and to charge a penalty for returned engines that are not actually defective

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Introduction

Romeo Engine Plant (REP) is one of six North American engine suppliers of Ford Automobile Motor Company. In 1986, Romeo was chosen to be the new site through a series of strict assessment procedures. The major production capacity of REP was in a building covering over 1.1 million square feet and the cost of goods sold in 1992 consisted of direct material, manufacturing overhead and direct labor occupied around 75%, 23% and 2% respectively.

This report will initially brief examine the primary objective of REP's manufacturing strategy and its initiatives to accomplish the objectives of Romeo's total quality management. Also, in this report we will evaluate the operation and effects of current management control and feedback systems.

Romeo's main objectives

Romeo's main objectives are the core of their manufacturing strategy.



REP focuses on delivering the best products to its customers at the right time at the right place without compromising on quality. At the core of REP's operations, they are committed to reducing the cost while meeting the quality and satisfaction standards. Through this strategy they will be able to retain their current market share and even grow their shares, which would put REP at a competitive advantage. Teamwork is the essence of their success they say, employees are expected to take initiative and solve problems which eliminates the need for a supervisor. Management's work lies in supporting the decisions made by the employees even if they are "wrong" so that they gain an understanding of where they went wrong instead of being told.

Implementation of initiatives

Quality

- Forms speciality teams that are responsible for designing the product and manufacturing.
- REP establishes target levels from consumer expectations and reflects it in the products or processes.
- Selects process control methods that are consistent with the nature of the process and when there is a quality problem an immediate action plan is prepared
- Zero defects policy, eliminates the incoming inspection and rework

Cost Minimisation

- No housekeeping department, each department is expected to clean its own area.
- The use of information systems to eliminate the lag time in communication, in both the production and information transfer.
- The paging system encouraged employees to communicate between facilities at a rapid rate, which increases effectiveness.

Employee Satisfaction

- Level of freedom given to employees on design despite having engineers who have first hand experience .
- All employees wore the same uniform, Romeo Team Work Uniform, with the first name embroidered.
- Barriers to flexible work assignments was eliminated.
- initiative, creativity, and prudent risk taking was encouraged.

Management control and feedback systems

REP mainly applies machine monitoring system and paging system to implement management control and feedback systems. With the help of these systems, REP is able to achieve overall manufacturing strategy by continuously improving product quality, increasing work efficiency, eliminating waste and lowering cost.

Management systems	Implementation of REP's strategy
Bottleneck operation	MMS improves productivity in production process. MMS is a real time system that alerts when machines break down and prepares report to help work team identify bottlenecks in current operation and rank cause for shutdowns at bottleneck. Fault codes enable to determine bottlenecks through analysing the number of occurrences and the time lost per occurrence. By accurate determined the bottleneck and pareto analysis, REP can easily find the breakthrough of the problems. It saves time for managers to investigate the causes of problems and allows REP to emphasize productive issues. Besides, quick and correct identification of the bottleneck locations lead to an improvement in the operation management of utilising manufacturing resources, increasing the throughput, and minimising the total cost of production (Li, Chang & Ni, 2009).
Paging System	Paging system promotes work efficiency by effective internal communication. Machine can automatically page to related staff and different level of managers based on different problems. Managers could program system to automatically send hourly page and report critical information. Timely reminder enables to reduce downtime and help machine quickly return to normal. Team managers could also use the paging system to facilitate authorization of purchase or maintenance which can efficiently gather and deliver information.
Scrap	MMS helps REP to improve product quality by analysing and eliminating defect causes. MMS removes items from inventory when defect information entered into

	the system and generate scrap report for each team. Based on results from the report, teams are able to perform pareto analysis on the defect causes and focus on attacking the major 3 causes. From the analysis of pattern generated by MMS, team can trace to supplier defects and bill back to suppliers. By identifying defect causes and trend analysis, REP can reduce and eliminate defects so that to improve product quality.
Checkbook System	Checkbook systems assists REP to control costs by authorization. This financial system assigns authorised spending calculated based on daily production and send weekly report on total overhead expenses to departments. Checkbook system helps to track team's spending against target and generates authorised spending. Clearly displaying the daily budget limit in the system encourages each team to do cost reduction activities consciously.

Difference between Romeo and other plants

Management control can be defined as “the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization’s objectives” (Anthony, 1965). Management control strategies encourage cooperation among collectives of individuals or organisational units in which they expend their efforts towards a specified set of organisational objectives, instead of their own, autonomous goals (Langfield-Smith, 1997). In the case of Romeo Engine Plant, a unique range of management control strategies, particularly informal, have been implemented:

Team-based structure

Romeo Engine Plant is considered a ‘work team organisation’, in which the company is decentralised. The organisation is divided into different teams that act as autonomous business units, with their own team manager and support staff, and are given the authority to make their own decisions. Each team is allocated to a different production area with a corresponding engine component or assembly operation. Unlike other traditional engine plants, workers are expected to use their expertise to problem solve and continually improve processes, rather than operate the machines. Within each team, management

encouraged initiative, creativity and risk-taking to ensure that teams could continually improve and grow their capabilities.

Flexible work assignments

Typical engine plants could have more than 200 labour classifications and at least 8 skilled trades classifications. In contrast, Romeo had only 11 labour and 2 skilled trades classifications, removing barriers to flexible work assignments and reducing any sense of hierarchy within the organisation. The separation between labourers and management that may exist in traditional engine plants has also been reduced at Romeo, with all employees interacting and working together despite their role.

Use of Information Systems

Romeo heavily invested in information technology resources to increase efficiency. One of great importance to the organisation was the Machine Monitoring System (MMS), which signalled when a defective piece had been produced or when a machine had stopped. The organisation's paging system would then automatically communicate this information, as well as other important updates throughout the plant. In addition to the automatic pages sent in response to a machine failure, each team manager could also program the system to send a page every hour and report critical information. The MMS provided employees with a fault code, which indicates what is wrong, summaries of the number of occurrences and the time lost per occurrence. Every employee had been trained on the MMS and was provided with easy access to the system. As a result, the plant as a whole was able to operate more efficiently due to time savings, increasing productivity.

Unit Costs versus Labour & Overhead Reporting

At Romeo, work teams focus on actual costs, believing that labour and overhead reporting is contrary to the company's 'continuous improvement philosophy'. The L&OH system is considered by the company to be a time-consuming process, believing it prevents teams from making improvements. The traditional system, that is implemented by many other plants, puts pressure on teams to stay within the budget, directing them to focus on variance percentages rather than taking corrective action to any issues.

REP's Cost control techniques

Romeo's cost control technique focuses on actual costs, rather than budget-variance analysis, which is widely used amongst other plants. Management believe that actual costs act as a better indicator in comparison to Labour and Overhead reporting, which can stifle the company's 'continuous improvement' philosophy. In a traditionally organised plant, most of the focus is allocated towards comparing actual costs to budgeted costs, which is a timely process. This focus on budget-variance analysis can encourage employees to either reduce actual costs or increase their budget to avoid unfavourable variances. However, at Romeo, management believe that this system puts teams under pressure to stay within their budget, instead of identifying any problems and making improvements. L&OH reporting is contrary to the company's aim to continuously improve, as teams may choose to avoid taking corrective action in response to a problem due to budget constraints.

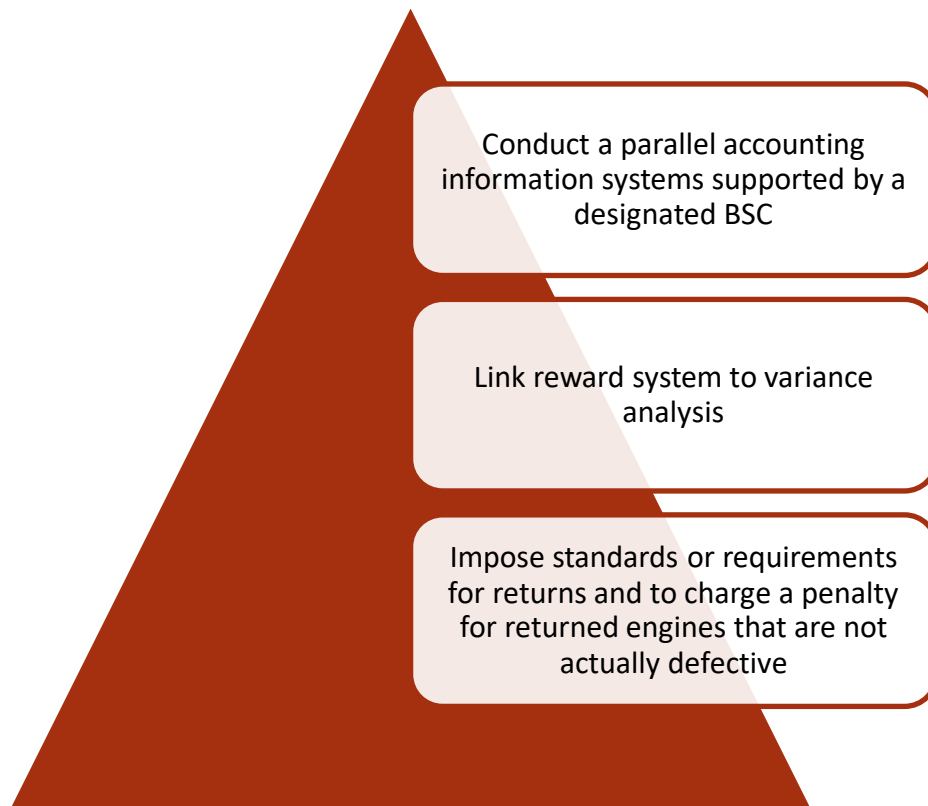
As such, Romeo has implemented a Unit Costing system, where teams can spend less time tracking actions, and instead focus on improving actions. Instead of focusing on variances, Romeo encourage teams to problem solve and enhance line productivity with this costing technique.

REP and Total quality management

Romeo emphasizes on the investment in prevention costs in terms of employee training. In the Life Education Centre, that employees are ensured to complete a minimum of 300 hours of training guarantees both internal and external customers' expectations can be understood and satisfied throughout zero-defect processes. A key element of TQM is employee empowerment (Schonberger, 1989; Ripley and Ripley, 1992; Hogg, 1993; Johnson, 1993; Hassan et al., 1993; Porter and Parker, 1993; Dawson and Palmer, 1995; Abernethy and Lillis, 1995). In Romeo, each autonomous department not only takes the initiative to figure out targeted responses to internal and external quality problems, but to employ tool and quality checks before automated operations of machine; thus, resulting in the reduction of internal failure costs.

However, Romeo's current accounting information system still lays obstacle for creating useful COQ reports, provided that the exclusion of necessary cost information (i.e. the costs associated with processing customer complaints, service callouts, etc.) and opportunity costs hidden in manufacturing overhead cost accounts sparks off bias in reports. Besides, Romeo did not find the root-cause of variance as a result of management manipulation in variance analysis. To make matters worse, the return policy was loose in Romeo. To be more specific, in the returned 1,500 products, there were only 1,000 products that are actually defective, which resulted in the waste of additional costs and time.

Based on the problems illustrated above, the following recommendations should be conducted to improve the quality management of Romeo.



Recommendations

- 1. Conduct a parallel accounting information system which is supported by a specific balance scorecard (shown in the appendix);**

The innovative parallel AIS contributes to offering more costing information through adding new account categories that are related to actual activities rather than usage (Neumann and Jaouen, 1986; Turney and Anderson, 1989; Woods, 1989; Dugdale and Shrimpton, 1990; Turk, 1990). Moreover, the quality of COQ reports will be further improved by the support of the designed BSC which provides non-financial measures for deeper evaluation of accounting figures. Furthermore, it not only is helpful for REP in identifying more costing information, but also provides senior managers with further insights into non-financial areas.

- 2. Link reward system to variance analysis;**

As REP does not find the true reason of variance, it is necessary to link the reward system. This innovated combination is beneficial for stimulating employees to find out the root-cause of variance and corresponding solutions.

- 3. Impose standards or requirements for returns and to charge a penalty for returned engines that are not actually defective;**

There is currently too much leniency with what can be returned. Out of one million products manufactured in 1990, 1500 were returned. However, only 1000 of these were actually defective, adding unnecessary extra costs and time. Therefore, a recommendation for this could be to impose standards/requirements for returns and to charge a penalty for returned engines that are not actually defective. This action provides an incentive for assembly plants and dealers to conduct detailed checks before returning, thus bringing about the reduction in external failure costs;

Conclusion

In conclusion, Romeo has been devoted itself to achieving organizational primary objectives in terms of quality of products, cost minimization and employee satisfaction in the total quality management through conducting a series of advanced management control and feedback systems (i.e. bottleneck operation, paging system, scrap, and Checkbook system). Romeo's innovated management control strategies, focusing on team-based structure, employee empowerment, flexible work assignments and the application of information systems, enabled itself to be one of the six most essential North American engine suppliers of the Ford Motor Company and solidified its market position in the engine industry, although Romeo is still being threatened by certain internal problems in the existing TQM. Our recommendations will serve as a way for Romeo to combat these challenges so as to remain comparative advantages in the industry.

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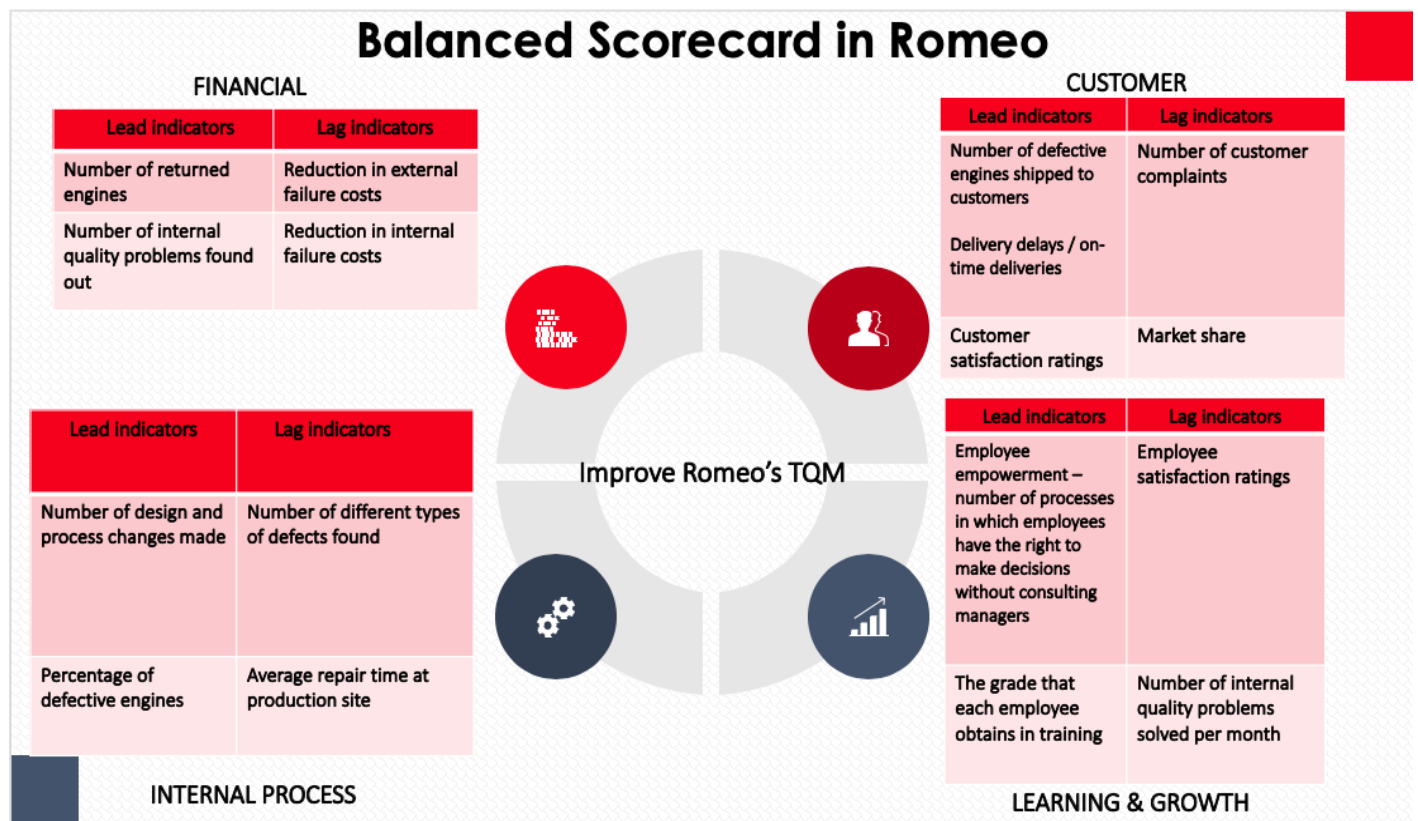
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Appendix

Appendix 1: Romeo's BSC



Appendix 2: Marking schedule



MONASH University

**ACC/ACF 3200 assignment
marking schedule
Semester 2, 2019**

Group no. 5 **Tutorial time and day** Tuesday 9am
Tutor/marker Prabhashi Dharmasiri

KEY AREAS		MARK
1	Executive summary (spend some time on it if you'd like your client to read through the rest!)— 1 page max (generally between ½ and 2/3rd of a page should be enough)	/ 10
2	Analysis and discussion Remind yourself of the following as you write this section How well were the problems of the case diagnosed? How well were the problems analysed and contextualised? How well was prior research assimilated in analysis & discussion? Was good use made of case data to support the analysis? Were appropriate conclusions drawn from the analysis?	/ 70
3	Key Recommendations in bullet points (drawn logically from the analysis and discussion section; avoid suggesting too many or too few ... both can create a problem)— 1 page max	/ 10
4	Overall presentation (report format; professional formatting; error free- spelling & grammar; proper referencing using the Q manual)	/ 10
PROVISIONAL MARK <i>Note: Marks are subject to change/standardisation</i>		/ 100

OTHER COMMENTS: