

## **A STUDY ON FINANCIAL EFFICIENCY USING PROCESS COSTING OF RAIL WHEEL FACTORY, YELAHANKA, BANGALORE**

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**Abstract**—Indian railway imports more than 55percent of haggles until 1980 due to high expenses in 1970 government had decided to start up the productivity in 1970 and this turned to make more profit, the study is all about the Rail wheel Factory in Yelahanka with regard to process costing and to know the financial efficiency, The main objective of this paper is to know the costing method and productivity and policies of Rail wheel Factory and how it is affecting the financial performance. The study is limited to 5 years. And the findings of paper is valuation is done in historical methods and transfer price is on cost based system and suggested to Rail wheel factory is to start online facilities to reduce a paper work and cost centres are mixed and should be classified properly and concluded Due to the large volumes of production involved in casting processes, small reductions in the quantity of casting defects can bring huge economic benefits. Reliable fluidity data are not readily available for pure and industrial aluminium foundry alloys.

**Keywords**—Cost Based System, Direct Wages, Financial Efficiency, Financial Performance, Process costing.

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### **INTRODUCTION**

Indian Railways had imported around 55 percent of haggles prerequisites until the mid-1980s. Indigenous force at Tata Iron and Steel Company [TISCO] and Durgapur Steel Plant [DSP] was accessible as it were. In fact, the TISCO plant could not meet the advancing haggles details for the new moving stock structures, and creation was suspended. DSP had the option to fulfil just incompletely the necessities of Indian Railways. The expense of imports has been high with world market costs expanding. Import financing, delays in conveyance, and inadequate outside trade accessibility unfavourably influenced cart creation and support of moving stocks. It was in this feeling the Railway Ministry felt the need in the mid-1970s to make another Production Unit for the creation of moving stock haggles as an import substitute. A definitive objective was for DSP and the Rail Wheel Factory [RWF, in the past Wheel and Axle Plant] to have the option to completely meet the necessities of Indian Railways for standard haggles to evade their import. A broad examination was done on the most recent innovation and gear accessible for coordinated effort and remote trade necessities all inclusive. The Rail Wheel Factory idea was imagined in the mid-70s dependent on this investigation with IR consenting to. Receive the cast wheel innovation worked for wheel creation by M/S Griffin Wheel CO., USA. American Railroads utilized cast wheels while European Railways utilized produced wheels for cargo tasks. Reception of cast wheel innovation has been progressively proper, as plant profitability is higher and creation costs lower than fashioned wheels Net investment funds on wheel imports in remote trade were assessed at Rs.8 Crores every year. Long Forging Machine lead pivot manufacturing for specific reason followed by heat treatment heaters with programmed hub transports.

Give pivot making focuses that include profile duplicating machines, uncommon reason stops machining machines, and a wheel set gathering entangled with joined hub overseeing and development designing. The Planning Commission authorized the Rail Wheel Factory Plant task in 1978 at a charge of Rs.146 Crores. Preliminary assembling began during 1983. Late Smt. Indira Gandhi, the then Prime Minister of India officially dispatched the plant on 15 September 1984. To toughen reality that we have a place with the Indian Railways Family and to demonstrate our commitment to substitute with times, the processing plant changed into renamed as RAIL WHEEL FACTORY on 15 February 2003.

An enormous investigation was created from the ultra-current time and hardware accessible all-inclusive chance of coordinated effort and remote substitute necessity. Considering this investigate the Rail Wheel Factory task changed into considered inside the mid-70s with IR discovering to:

## **REVIEW OF LITERATURE**

**Isu Nnenna Maria (2009)** Assessed all the pertinent pieces of a given cost control estimates which have prompt or unusual impact on the advantage of an affiliation and the relationship which exists between, spending plans, cost control, cost decreasing and profitability of the firm. The system used was oral gathering and surveys. It was found that the affiliations grasp cost control measures and this control concurs organization the opportunity to achieve corporate execution and benefit.

**Yakubu Adisa Olawale Ph.D et al (2010)** Planned to perceiving purposes behind expense and time overpowers. The methodology used by them was audit eye to eye interviews. The delayed consequences of this assessment reflect the current viewpoints of the primary experts in the UK.

**Roslan Jamaluddin et al (2012)** Proposed to recognize the cost control methodologies and approach that improvement specialists in Malaysia are at present utilizing. The framework used by him was eye to eye interviews. The results revealed that suitable cost control philosophy, sharpens and procedures are really absent and these are equivalent to rehearses in a couple of countries and that the legally binding specialists seem to get the arrangement of conservatism to the degree cost control is concerned and approve of the conventional method for cost control with limited relationship in information advancement.

**Nelson Njeru Namu et al (2014)** went for choosing the impact of the cost decline strategies began by various tea modern offices in Embu County. The strategy for look at used by the researchers was sorted out surveys. The assessment indisputably revealed that the cost decline methodology had no positive record on the proportion of tea dealt with.

**Prof. Dipak P. Patil et al (2014)** wanted to control the expense of an endeavor by executing the stock control structure. The system for consider used by the researchers was ABC assessment and EOQ. It was found that if there is proper material organization by then there will be control on cost and in view of EOQ, wastage of material can be controlled.

**Sheriff Mohamed Hafez et al (2015)** went for recognizing reasons for cost invades and the primary goal of this investigation was to exhibit the utilization of Activity Based Costing (ABC) approach as an elective cost bookkeeping framework to the Traditional Cost Accounting System to decide the genuine and exact cost of the ventures. The strategy for contemplate utilized by the analysts was a review. The finishes of the examination demonstrated that the use of ABC prompts better information in delicate valuing, greater capacity to gauge the cost and refreshing costs information. It additionally spares the appropriate data which is important to enter the bidders and to contend to win them.

**Prof. Dipak P. Patil et al (2014)** Planned to monitor the cost of a venture through the execution of the stock control framework. The strategy the scientists used to think about was ABC exam and EOQ. It was discovered that if there is appropriate material administration at that point, cost control will be exercised, and material wastage can be controlled because of EOQ.

**Sheriff Mohamed Hafez et al (2015)** The main purpose of this inquiry was to demonstrate the use of the Activity Based Costing (ABC) methodology as the Conventional Cost Accounting System's elective cost bookkeeping method to assess the true and correct expense of the undertakings. The strategy the analysts used for contemplating was a review. The examination's finishes showed that the use of ABC prompts better information in delicate valuation, greater cost assessment efficiency, and information on refreshing costs. Additionally, it spares the appropriate data that is important for entering bidders and contending to win.

## **STATEMENT OF THE PROBLEM**

RWF implements process costing approach based on time. Research has tried to study the costing method followed in RWF as well as the cost element to suggest effective guidelines to the firm.

## **OBJECTIVES OF THE STUDY**

- To understand railway Wheel Factory costing methods or policy.
- Analysis of the costing element involved in the production process
- To examine the strengths and drawbacks of Rail Wheel Factory's costing approaches

**LIMITATIONS OF THE STUDY**

1. Time: Study duration i.e., 6 weeks was quite insufficient.
2. Due to confidential issues of the organization the cost data provided for the study was limited.

**METHODOLOGY AND ANALYSIS**

In this study the chosen variables like costing elements and other expenses and using the descriptive study, collected the data through secondary form, and calculated the expenses status by using chart and analysis. All expenses factory, administrative, office expenses is calculated for 5years and interpreted the result.

**DATA ANALYSIS AND INTERPRETATIONS:**

**TABLE 1: THE TOTAL UNIT COST OF BOX 'N' WHEEL (IN RS)**

<i>Particular</i>	<i>2014-2015</i>	<i>2015-2016</i>	<i>2016-2017</i>	<i>2017-2018</i>	<i>2018-2019</i>
Direct Material	32980	33948	33976	30602	28968
Direct Labour	1167	1313	1353	2062	1769
Administration Overhead	1957	2272	2418	3438	4513
Factory Overhead	3658	4143	3980	5656	6750
Selling Overhead	840	642	620	10447	1136
Other Overhead	321	238	216	282	312
Total cost	40923	42556	42563	43087	43448

The table above shows a significant increase in the average cost of production during the period 2014-15 to 2018-19 due to year by year rising prices of the required materials such as "Raw Materials, Direct Labour and Overheads".

**TABLE 2: PERCENTAGE CHANGES IN UNIT COST OF DIRECT MATERIALS OF BOX 'N' WHEEL.**

<i>Year</i>	<i>Amount per unit (Rs)</i>
2014-15	32980
2015-16	33948
2016-17	33976
2017-18	30602
2018-19	28968

Based on the above we can state that the average unit cost is very fluctuating due to various reasons but in the year 2015-16 there is a turn in the market or average unit cost as the prices since that period has been dropped/ reduced which is a good symbol to the manufacturers as they can produce two units at the cost of on.

**TABLE 3: PERCENTAGE CHANGES IN UNIT COST OF DIRECT LABOUR OF BOX 'N' WHEEL**

<i>Year</i>	<i>Amount per unit (Rs)</i>
2014-15	1167
2015-16	1313
2016-17	1353
2017-18	2062
2018-19	1769

By analysing the table above, direct labour costs during the period I.e. 2014-15 to 2018-19 can be shown to rise in prices because of their labour price. But not so dramatically as the "Direct Material" or "Average Unit Cost".

**TABLE 4: PERCENTAGE CHANGES IN UNIT COST OF ADMINISTRATION OVERHEAD OF BOX 'N' WHEEL**

<i>Year</i>	<i>Amount per unit Rs</i>
2014-15	1957
2015-16	2272
2016-17	2418
2017-18	3438
2018-19	4513

By analysing the table above, it can be stated that overhead administration costs during the period i.e. 2014-15 to 2018-2019. Is drastically increasing as the price reached by the end of the year 2018-19 three times the rate from the year 2014-15 which is very high percentage even when compared with the change of the "Direct Material" or "Average Unit Cost".

**TABLE 5: PERCENTAGE CHANGES IN UNIT COST OF FACTORY OVERHEAD OF BOX 'N' WHEEL.**

<i>Year</i>	<i>Amount per unit Rs</i>
2014-15	3658
2015-16	4143
2016-17	3980
2017-18	5656
2018-19	6780

By analysing the table above, it can be stated that during the period I.e. 2014-15 to 20182019 the factory overhead costs. Is dramatically the as the price reached by the end of the year 2018-19 twice the rate from the year 2014-15 which is very high percentage but close to the increase in the "Direct Inventory" or "Average Unit Cost" and there is also a small decrease in the overhead of the factory in the year 2016-17.

**TABLE 6: PERCENTAGE CHANGES IN WEIGHTED AVERAGE UNIT COST OF OTHER OVERHEAD OF BOX 'N' WHEEL**

<i>Year</i>	<i>Amount per unit Rs</i>
2014-15	321
2015-16	238
2016-17	216
2017-18	282
2018-19	312

By examining the table above, we can state the overhead cost of the stores during the period I.e. 2014-15 to 2018-2019. Has fluctuated a little or even dropped to as low as '216,' but has risen again in price and is currently at a price of '312,' which indicates that the market has very low interference with overhead price/cost stores.

**TABLE 7: THE TOTAL UNIT COST OF BOX 'N' AXLE (IN RS)**

<i>Particular</i>	<i>2014-2015</i>	<i>2015-2016</i>	<i>2016-2017</i>	<i>2017-2018</i>	<i>2018-2019</i>
Direct Material	54349	54792	51237	44805	48202
Direct Labour	1088	1545	1423	1663	1800
Factory Overhead	3572	4606	4103	4647	5113
Administration Overhead	1991	2673	2575	3015	3756
Selling Overhead	427	507	424	665	730
Other Overhead	354	268	232	272	271
<b>Total cost</b>	<b>61781</b>	<b>64391</b>	<b>59994</b>	<b>55067</b>	<b>59872</b>

By analysing the table above, it can be stated that the average cost of units during the period I.e. 2014-15 to 2018-19. Indicates that the total cost of Box 'N' wheel increases year by year due to increased direct materials, direct labour, and overhead costs. But that had marginally decreased in 2017-18. Because of their low-price demands.

**TABLE 8: PERCENTAGE CHANGES IN UNIT COST OF DIRECT MATERIALS OF BOX 'N' AXLE**

<i>Year</i>	<i>Amount per unit (Rs)</i>
2014-15	54349
2015-16	54792
2016-17	51237
2017-18	44805
2018-19	48202

By examining the table above, it can be mentioned that during the period I.e. 2014-15 to 2018-2019 the direct material costs. Is clearly that in direct material prices which is a positive sign for the producer, because this will result in low wheel production costs.

**TABLE 9: PERCENTAGE CHANGES IN UNIT COST OF DIRECT LABOUR OF BOX 'N' AXEL**

<i>Year</i>	<i>Amount per unit (Rs)</i>	<i>Increase Or Decrease in percentage</i>
2014-15	1088	Base Year
2015-16	1545	42.00
2016-17	1423	30.79
2017-18	1663	52.84
2018-19	1800	65.44

Through examining the table above, direct labour costs for the period I.e. 2014-15 to 2018-2019 can be reported. The table above demonstrates a significant rise in the price of direct labour due to the use of technology that removes manual labour and decreases.

### **CONCLUSION**

Train Wheel Factory is Indian Railways Manufacturing Facility. This factory has three product types including Box 'N' Wheel, Box 'N' Axle, and Box 'N' Wheel Set. The factory is accredited ISO for the provision of quality control and the environmental standards. The company got the National Quality Award for Golden Peacock as runner up in 1997. Overall, studying the costing methods used at Rail Wheel Factory was a good experience and the staff was very cooperative with references to cost in formations for three products namely Box 'N' Wheel, Box 'N' Axle and Box 'N' Wheel Set. The cost could be monitored over a period of 5 years, and suggestions were given to improve the Rail Wheel factory's cost reduction and cost control. Due to the large volumes of production involved in casting processes, small reductions in the quantity of casting defects can bring huge economic benefits. Reliable fluidity data are not readily available for pure and industrial aluminium foundry alloys.

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