

# Evaluating The Role of Technology Adoption in Enhancing the Growth and Performance of SAIL Post-Reform

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## Abstract

With the help of modernisation and digitalisation, SAIL has been making efficient use of its resources to maintain sustainability in the domestic as well as global market. The technological reformations taken up by the higher authority with the financial support of the government plays an eminent role in maintaining the sustainability of the organisation. This study critically focuses on the secondary quantitative data collection and statistical analysis to show the performance and growth of the SAIL. This study aims to deliver the information about the SAIL performance after expansion opportunity in the country by the support of government and dents the technology integration importance for developing the potential of competitiveness in the market. Moreover, it explores the knowledge about the safety practice through adoption of technology in the steel plant that helps their employees to get information about safety guidelines and also provides information technology roles that help administration to make decisions. It explores the information about the technology support to enable the high strength steel production.

**Keyword:** *Technology, SAIL, Performance, Automation, Financial*

## 1. Introduction

Development policies and the adoption of technology is much more needed in public sector enterprise like S.A.I.L. (Steel Authority of India Limited) to meet the challenges and tackle those challenges of unemployment, poverty, and the problem of excessive population in the economy. The post reforms like privatisation, and policy-making for the management of the company, gave rise to the SAIL Company to meet globalisation, which has its impact on India being a developing country. After the post-reform period, Globalisation has intensely enhanced the accessibility to technology. Internet networks and communication facilities have enabled the country to gain accessibility to knowledge as well as service from the global world.

This study aims to understand the role of adopting technology in improving the industrial growth and performance of SAIL after reforms. This has led to an increase in the volume of world trade. Several multinational companies are investing in these public sector enterprises to maintain the level of international relations with one another. The SAIL adopted the implementation of research and development specifically to meet the requirements of the company and especially the country. These

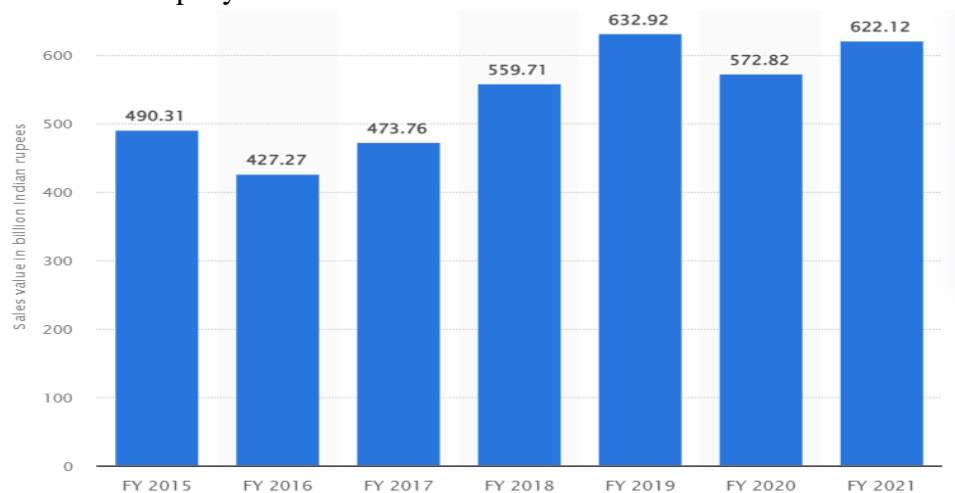
implementations include the adoption of technology which should be efficiently utilised with the low-quality resources which are accessible in the country.

Before the adoption of technology, there used to be a lot of delays and postponements of daily operational tasks which arose as a primary obstacle to the productivity of the company. The government functioned as a back support for the company and has been helping with every need and requirement of the company. The government has been and is still providing financial support to the SAIL management to opt for internationally best as well as proven technology and advised not to make any agreements while carrying out the modernisation as well as proper extension plan.

## 2. Rationale and Objective of the Study

The financial support and assistance of the Indian government in this company's technological adoption made way for the smooth performance flow and growth of the steel industry. However, the main purpose of this study is to analyse the post-reform activities of SAIL Company and evaluate the role of technology adoption that makes a positive influence on the growth and performance of the company (SAIL, 2023). SAIL has made an impact on the increased demand for steel in a cost-effective way with the help of adoption and upgradation in the quality of the product. The objectives of this study are:

- To analyse as well as evaluate the industrial growth and performance of the Steel Authority of India Limited with the process of implementing technology.
- To examine the impact of the internal environment after the adoption of technology, especially in the workplace of the company.



**Figure 2.1: Industrial technology adoption on the domestic value of sales of SAIL Company**  
(Source: Sun, 2022)

## 3. Research Hypothesis

The adoption and integration of technology with manpower efficiency has been productively helping the company in several ways not only for its welfare but also for the service of other industrial sectors. If the chapter on the research hypothesis is not available, then there will be too much pressure for the researchers to evaluate the significance of technology in the workplace during post-reform.

### H1: Adoption of technology affects the industrial growth and performance of SAIL

Technology adoption plays a supportive role in industrial growth and daily smooth functioning to accomplish the targeted goals. With the help of technology, those tasks which cannot be done or are difficult for the workers are now produced for the machines to do it.

#### **H0: Adoption of technology does not affect the industrial growth and performance of SAIL**

It has been seen that almost all the tasks being handled by machines harm the work life of the manpower in the economy. If this continues, it will lead to a decrease in employment in the steel industry. If sudden malfunctioning of the machinery occurs, then the labourers are needed to resolve the issue.

#### **4. Review of Literature/Research Gap**

**Upgradation of technology to boost the efficiency:** The steel industry primarily depends on the initial energy in the manufacturing sector. Conversely, several heat generated from the production process is wasted and released directly into the environment. Upgradation of technology is much more necessary not only for the company but also for the environment they are living in (**Wang et al. 2020**). To boost efficiency, green technology or energy-saving technology must be applied in SAIL.

**Maintaining a balance between automation and manpower:** The utilisation of manpower or the use of human resources must not be neglected to maintain a smooth as well as efficient functioning of the industrial performance and growth of SAIL. To maintain the sustainability of the company, the management of the iron and steel industry must make sure that automation and manpower must go hand in hand (**Rath et al. 2021**). The overuse of automation should not be adopted.

**Increase in the volume of sales in the SAIL:** SAIL Company produces a huge amount of iron and steel not only for its own sector but also serves as an assistant in other production sectors. These production sectors include aviation sectors, aeronautical sectors, railway sectors, construction and building sectors, shipbuilding sectors, and so on (SAIL, 2023). Because of this service towards other sectors, every there has been an increase in the volume of sales and market share.

#### **Research gap**

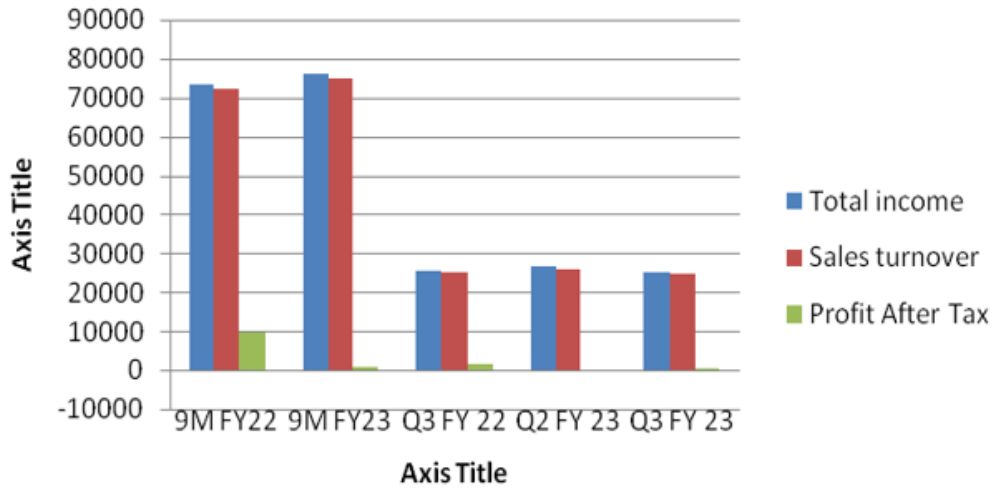
This study puts an emphasis on the better improvement of green technology to maintain sustainability in the growth and performance of SAIL. The Technology Acceptance Model can be used to analyse the effect of technology adoption to show that it can be a good fit and maintain stability in the long run (**Rath et al. 2021**). Hence, the study on adoption of technology in reference to appropriate model serves as a gap in research.

#### **5. Methodology**

From the methodology chapter, this study will throw back the process of the research through which it will reflect the data that is preferred in the research to obtain the required information. The methodology aims to analyse the required data, statistical interpretation, and procedures that are encouraged in this study. Data is of two types: primary and secondary research data. Primary data is applied when there are very few or no resources found on various platforms. Secondary data is applied when there are several data but the researcher has to summarise it with the help of someone else's research (**Belhadi et al. 2021**). In addition, these data are of two types: Qualitative and Quantitative. Secondary quantitative data will be applied in this study because informati006Fn has been collected and this has helped the researchers to begin their tasks and summarise them properly.

6. Discussions and Analysis

### Financial performance



**Figure 1: Statistical bar representation depicting the increase in gross sales in SAIL**

(Source: MS Excel)

From the above statistical bar figure, it has been depicted that there has been a change in the sales turnover, total income, and profit after tax from the financial year of the ninth month of 2022 till the third quarter year of 2022, considering its modern challenges and opportunities in the economic as well as the business sector. For general explanation, in the given figure, the X-axis represents the quarter of each financial year that the company has been progressing or declining in its sales, total income or revenue, and profit after tax. The Y-axis represents the number or level of revenue, sales, and profit that this company has been making by adopting technological strategies and models to meet the organisational goals and objectives in the economy. In this diagram or figure, the blue bar symbolises the total income, the red bar symbolises the sales turnover and lastly, the green bar symbolises the profit after tax of the SAIL Company.

The level of sales turnover in the diagram is relatively diminishing after four quarters of the financial year. Through this diagram, several assumptions arise out of it which is creating a reduction in all the three elements of the resource. After a thorough analysis by the researchers, it has been found that in the ninth month of 2022, the company adopted technology, and made the best utilisation of it but they drastically neglected the presence of workers or employees from the organisation. Therefore, in the first phase, the overall financial performance was quite high as compared to the present one.

The amount of revenue or income, on the other hand, has been drastically decreasing due to the weak reformations made on the technological corporate managerial policies. Previously in the first phase, the upgradation of technology helped them to achieve new heights by giving them numerous opportunities. But as they made sure that the company no longer needed human resources, in other words, they easily compared the efficiency of machines and humans. Then, it was for sure that it was time to terminate a few employees which led this company to a huge crisis in the company. If by

anyhow, the machines begin to malfunction, then, the workers or supervisors are needed to resolve this issue.

Lastly, the level of profit in the first phase is gradually decreasing. It's decreasing so much that it's almost touching the x-axis. In other words, profit after tax has been gradually decreasing and getting zero profits due to a lack of strategic planning and methods contributed by human resources or manpower. In the current times, people are giving less recognition to this company because of its over-utilization of technological automation. But still, it can be observed that the company will be able to generate much more profits if the other two bars are maintained or taken into account.

The SAIL development in performance indicates the important role of technology integration and robust annual sales. It considers the constant economic growth with a stable business process and identifies that increasing growth in the production has been denoted by Compound Annual Growth Rate (CAGR) of about 9.2%. The demand of the finished steel in the global market is considered around 9.1% of CAGR and it proposed the implementation of the green-field projects. According to the Indian steel producers in earliest times better quality of products has been imported and now the growth of the industry developing high strength steel (HSS) and it is mainly utilised in the already developed world. However, SAIL recognised the *BCG Matrix* for identifying the importance for end-use segments and introducing the climate machinery (**Economictimes, 2021**). Additionally, it includes such advanced technological machinery by considering end users' demand that emphasises to maintain the quality of the product.

Technology has been used in developing the operational activity by integrating chemical machinery and metallurgical machinery as well as cranes to move other elements of the production. It suggested the use of technology helps to drive the improvement in the production capacity and supportive marketing strategy helps to meet the market demands. The involvement of technology increases the growth in the economy and ensures the sustainability of the company for the long term. Through technology support it increases the material strength with minimum energy absorption. Technology develops the potential of the company to overcome the limitations with spanning the supervision activity. The subordinates of the organisation can improve their potential of providing efficient performance. Moreover, BCG Matrix is a type of tool that provides information about the graphical representation to monitor the products requirements of the company. It analyses the efforts requirements and measures the supply of the products in control. Technology drives the option of effective communication to deliver the information by overcoming the challenges.

Technology integration provides an option to generate the high strength steel production as well as production of ultra-strength steel. It is associated with supervision on a certain situation by providing real time information to take initiatives for under control the operational activity.

Technology implements the ability of employee performance and leads the business to improve the operational activities by integrating the information technology. The advanced technology creates an option to deliver the better quality of assistance to their subordinates by providing advanced training. The involvement of technology evaluates the new resources that help to incorporate the employees and efficient engagement of the employees creates greater output in the performance of the company. Technology management indicates the impactful understanding between the technology and business process that also creates a development in the economic factor of the country. However, it generates a manual understanding towards business processes and incorporates internal corporate areas with suggesting strategic plans. The practice of the technology management clarified the view on the

selection process and indicates the stability of organisations current situation as well as future survival. Technology incorporation delivers the overview on financial control and develops efficient human resources with analysing the service futons requirements regarding marketing.

The technology involvement reduces the complexity in the business process with providing solutions and management of technology considers the administrative aspects as the part of it. In addition, the marketing process is also included in the technology management part by ensuring the practice of technological strategy. Through using technology management practice can enable the ability to tackle the product as well as marketing aspects. It recognises the potential of the company in the world competitive market and suggests valuable information to diversify the business strategy. The development of the industrial structure has been possible by determining the technological change as per analysing the requirements and reinforcing the company to initiate the wolly competitive strategy. However, technology integration is able to evaluate the requirement of the corporate area and technological strategy of the company indicates the profitability and meets the goals and specific objectives to establish a sustainable business strategy.

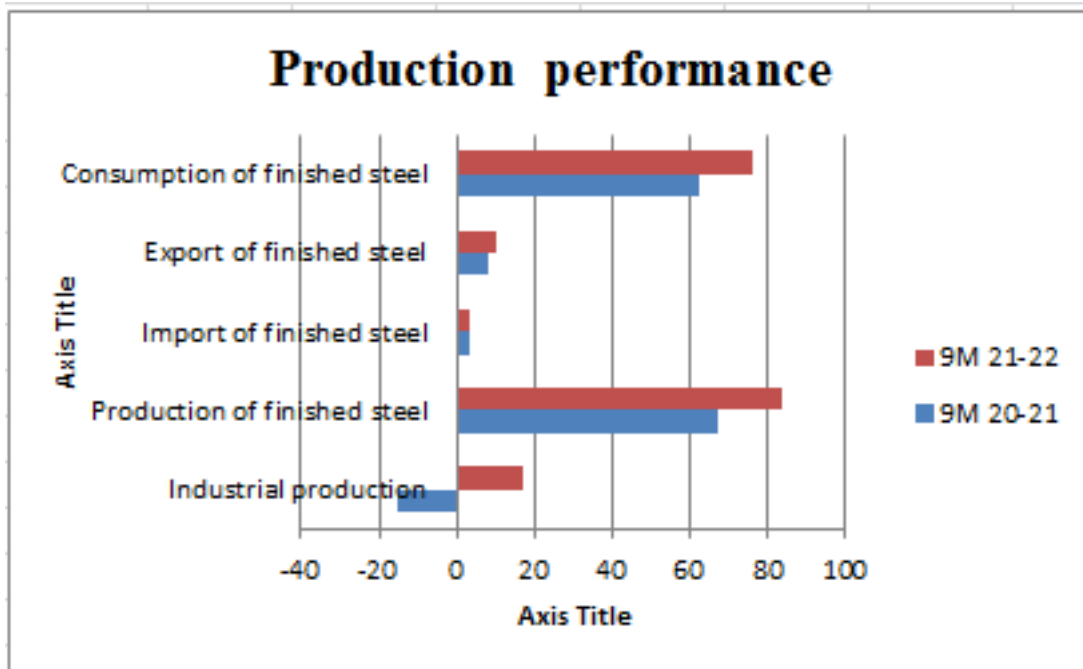
The advantage of the technology integration has potential to drive the business into the next level and supports for constant growth. Technology is used as a competitive weapon in the firm and it directs the value chain to make the manufacturing process more efficient and analyse the valuable activities. The factors that influence technology regarding the steel industry's nature is to evaluate the periodic nature of the steel business and recognise the high level of resources. Therefore it improves the capacity of the firm by including branding processes regarding the steel and indicates the intense competitiveness. Apart from this, technology involvement increases the reaching potential to the new customers with determining the B2C market from the exploring the needs of customers as well as it reaches more than B2B business related customer acquisition (Sail.co, 2022). Obsolete technology has been eliminated by appropriate new requirements with integrating new solutions and analysing the requirements of the raw materials.

Technology adaptation by the company SAIL realises the improvement in the quality with reducing the cost efforts and implementing in short utilisation time.

Technology integration develops the strategy management of the organisation with including the diversification in the human resources creates potential to deliver beneficial information regarding future sustainability. Technology management develops an option for maintaining the business strategy and evaluates the market needs by determining specific technological selection. The financial dimensions are also clearly understood by the technology availability regarding the funds and projection towards investment requirements. The specific technology establishment is able to analyse the required funding structure as well as determine the product modification requirements to optimise costing (Marshall *et al.* 2020). It provides support to develop an excellent performance of the organisation with enhancing the steel plant efficiency. The appropriate selection of the technology helps to recognise the training feedback and make changes for developing the skills of the labours and it generates huge productivity.

The technology increases the quality of the products and services that relate to the implementation of value added products in the competitive market and emphasises the organisation SAIL to serve their product to the niche market. Technology enables the option for the company to analyse the issues in the demand and supply of the product with including a positive impact on the manpower productivity. Technology selection for the development in the organisation performance relates to the improvement in the effective manpower with skill development and generating adequate

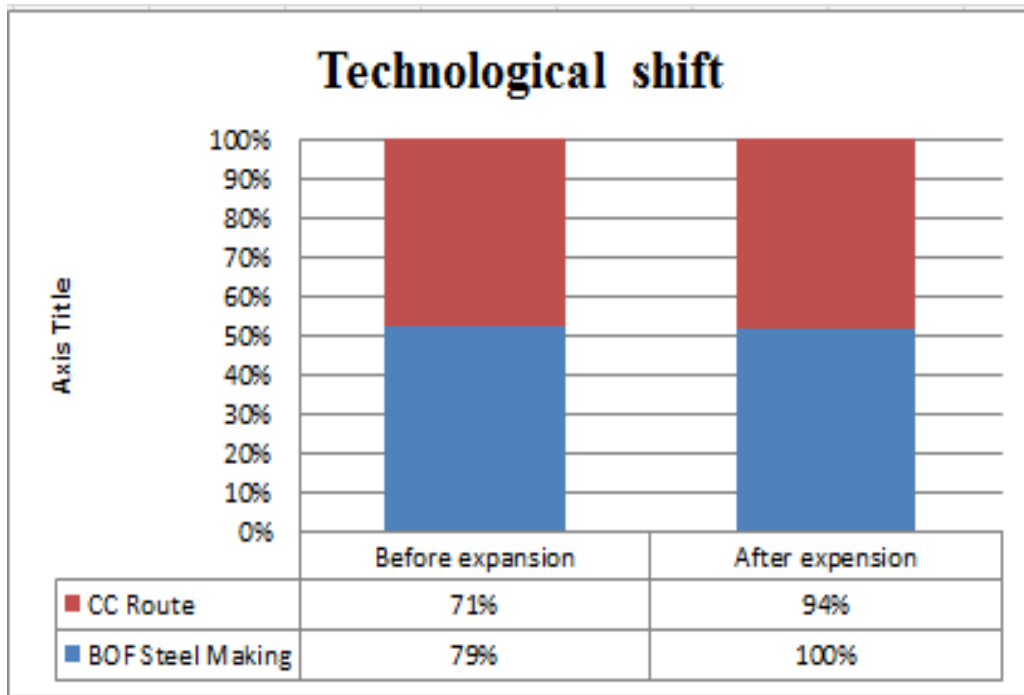
knowledge. It becomes helpful for the steel plant to perfectly maintain the manpower with the guidance of expertise after looking at the technology projection regarding business strategy. Through appropriate utilisation of information technology can enable the awareness of the safety cultures and guidelines to their employees by proceeding with web portals (SAIL, 2020). It helps to deliver the information about safety management and sharing better practice of safety personnel within the steel plant and bringing improvement in the employee performance and engagement.



**Figure 2: production performance of SAIL**

(Source: MS Excel)

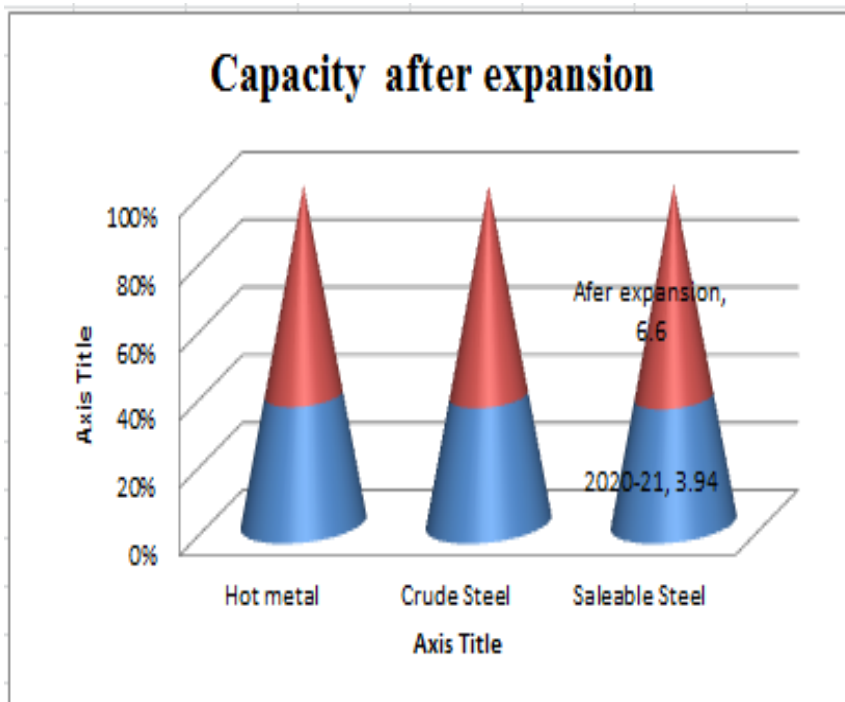
The above diagram suggests the information about the production performance in the year of 2020-21 that includes different aspects, that is production of the finished steel (67.35) and industrial production (-15.5). In addition, it shows that import of finished steel holds (3.21) and export as well that is (8.31) and also competition of finished steel is (62.25). Therefore, comparatively between the year of 2021-22 it regularly increases the performance by denoting the scaling up in each factor including industrial production (17.4) and production of the finished steel becomes (83.81) and further are also increased. Increasing the safety communication among their employees by the use of technology can develop the health as well as work environment of the steel plant as well as it recognising the issues by measuring the operational activities to make changes in the manufacturing process timely.



**Figure 3: Technological shift**

(Source: MS Excel)

The technology involvement in the steel plant has indicated the projection of before expansion that is 79% and after it becomes 100% of the BOF steel making process . Therefore, it has become support for long term in the operational activity of the company and CC route has been enhanced from 74% to 94% after expansion. However, the Board Sub Committee considers a high level of the health quality and maintains the safety culture as well as a working environment that emphasises the improvement in productivity that relates to the profitability.



**Figure 4: Capacity after expansion**

(Source: MS Excel)



The expansion in the capacity after including the Indian government supports it to develop the business potential in the local as well as competitive environment in the international steel industry market. The above picture describes the before and after expansion of the company production including hot metal that improved from 4.6 to 7.5 and crude steel increased by 7 after expansion comparatively to the before expansion that is 4.24. The technology integration plays a significant role in the development of the SAIL performance and profitability.

## 8. Results and Findings

The results and findings are the most significant and crucial chapter in this study to describe how the data from the discussion and analysis was obtained and how it has been interpreted with the help of the secondary quantitative data of the SAIL Company. After using ratio analytical methods like the profit after tax ratio, current ratio, liquid ratio, total revenue ratio, sales turnover ratio and various turnover ratios and other financial ratios have been applied to calculate and evaluate a suitable relationship between them. To find out the approximate sales turnover, total income, and profit after tax of the company, this calculation from various ratios was tested and used up in the calculations with the help of advanced ratio analysis.

Regarding the financial performance, this result was found by obtaining and recording data and information from the internet and with the help of using MS Excel sheets to form a graphical bar representation that depicts changes in total revenue, sales turnover, and profit after tax of the SAIL Company.

## 9. Conclusion

The development and enhancement of modern use of technology in iron and steel industries have made way in speeding up the productive functioning of the employees, the economy as well as other sectors of production. From the overall study in this research, it can be concluded that the improvement and proper use of integration of technology and human resource are needed for maintaining as well as gearing up the growth and performance of the SAIL industry after the reform of corporate managerial policies. In some areas, after the adoption of technological automation, automation is undoubtedly effective but neglecting the use of human resources is not at all acceptable. To diminish this issue, it is highly recommended to maintain integration between technological use and manpower. With the help of technological reformation, a hike in sales and financial performance could be maintained but not in the long-term phase. The data analysis already proves it. So, SAIL Company must look after this issue to re-reform the policies.

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