

Waste Management: Impact of Downtime on Seafood

Abstract

The purpose of this research is to address the impacts of machine downtime on seafood processing machines and to unravel possible ways to overcome this problem. The food processing sector is the 2nd most affected sector in terms of losses due to downtime (Business Industrial Network, 2010). Food has always been given the top priority by every human being. If Industries do not keep up to the rising demands of the consumers then they are under the risk of losing their businesses. Machine downtime has a major role to play in this aspect. Downtime related to machines is invariably perceived as one of the most critical problems faced in today's competitive world and is deemed necessary for the survival of the organisation. Slow and steady improvements in manufacturing operations will not guarantee profitability or survival. Industries must try and improve at a faster rate than their competitors and try to be one step ahead of them. Research was carried out in the form of questionnaires and was directed towards the seafood processing industries. Case studies relating to machine downtime, in seafood industries where also considered in this research work, which provides additional information for conducting this research. The information collected where then compared with secondary research data in order to contrast or concur the findings of other authors.

Many manufacturing companies are striving to push their production equipment for every ounce of capacity while at the same time trying to cut their overhead costs, in essence to lean approach. This has put a strong emphasis on the importance of quality maintenance services used to care for their systems. Maintenance strategies has gained intense importance in industries and hence, implementing an effective maintenance strategy not only helps in reducing production costs, but the cost of maintenance can also be decreased. Overall Equipment Effectiveness (OEE) will prove to be an important measurement tool in the seafood processing industries. OEE will provide industries with a critical methodology that would aim to drive improved efficiency, higher quality and reduced costs. The cost reductions that come with OEE are especially beneficial during these recession times.

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Research Questions

- The research questions are designed in order to fulfil the proposed problem.
- Determining the causes of downtime in seafood processing machines.
- Establish key performance indicators for managing machine downtime.
- Analyse machinery practices that minimise machine downtime

Determining the causes of downtime in seafood processing machines

Seafood industries are being affected by machine downtime which produces a devastating effect to productivity particularly when manufacturing plants tend to operate 24/7. The future has become uncertain, however, many industries hope to survive by cutting costs to boost their competitiveness. The research work has provided useful information regarding the effects of machine downtime in seafood processing industries. The different types of losses due to machine downtime were identified in chapter 1. Research work suggests that the major causes of machine downtime were machine faults, low maintenance, operational errors and overloading/ under loading of machines. It was also found out that downtime resulting from machine breakdown during operations is one of the most unanticipated factors that affect the productivity and organizational performance as a whole. Hence it is necessary for industries to adopt KPI's that identifies these causes and then implement suitable maintenance strategies that would help in minimising downtime.

Establish key performance indicators for managing machine downtime

Maintenance plays a key role, not only in improving machine uptime, but in production and overall plant efficiency. However, it can be difficult to determine the real effectiveness of even the top maintenance crews without a way to measure what they do, how well they do, and how their actions satisfy the company goals. Hence Key Performance Indicators plays an important role in measuring the performance (man, machine, methods, etc). After analysing various indicators such as utilisation rate, asset utilisation, operational utilisation, etc, it was found out that OEE is the indicator which can be implemented for measuring performance and identifying machine downtime. Overall Equipment Effectiveness (OEE) will prove to be an important tool in the food processing industries. OEE will provide industries with a critical methodology that would aim to drive improved efficiency, higher quality and reduced costs. The cost reductions that come with OEE are especially beneficial during these recession times.

Analyse machinery practices that minimise machine downtime

Research work on various maintenance practices (Condition monitoring, preventive maintenance, etc) were identified as discussed in chapters 2 and 4. Maintenance strategies (chapter 2) which are currently being adopted by industries and also different views of authors towards machine downtime were considered and based on the research findings, Total productive maintenance (TPM) proved to be the best maintenance strategy that can be implemented by industries for continuous improvements.

Finally the research discussed about hand held data capturing devices (Tracesoft) which would help industries in recording downtime without much fuss. Automated downtime recording devices (factory pulse) were also discussed in brief which helps in increasing the company's productivity. These devices help in capturing data (downtime, utilisation of materials, etc) automatically from the line, machine, etc. This data can then be analysed for further improvements.

The questionnaires and case studies discussed in chapter 4 added additional support to the proposed objectives.

In summary, it seems to be justified that machine downtime in seafood processing industries is an area of concern. The implementation of maintenance strategies (Total Productive Maintenance) with the identification of KPI's (OEE) for measuring performance both coupled together helps industries to achieve their goals of improved efficiency, higher productivity, less costs and ultimately less machine downtime. New emerging technologies such as hand held data capturing devices (discussed in chapter

2) helps in cutting the technology strings in industries to improve productivity and enhance safety and quality. Machine operators can easily and consistently record machine downtime using these devices thereby increasing the labour efficiency.

In recent years, some organisations have started to add another dimension to the performance of plants. Industries are now started to think not only to reduce machine downtime but they have also started thinking about energy consumption of the machines. Industries who wish to use OEE as their KPI also need to consider how much it costs to run a piece of machinery.

Hence, in future author will be exploring on how to minimise the usage of energy consumption which adds to a completely new dimension of how industries will look at machine performance after they have found ways to minimise machine downtime.

Conclusion

Nowadays, it is even harder to be a world class manufacturer without a world class focus on machine reliability and performance. With the advancements in technologies, machines are becoming more sophisticated and complex, and with the expansion in the operation scale plants, the maintenance functions have been divided into specific areas. Industries are facing problems regarding risks that are accompanied by poor or missed maintenance and further improving our best, day after day has become a daunting task.

