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Enhancing Effective Industrial Sustainability through Green Manufacturing Practices by Waste Reduction using Lean Tools in Manufacturing Sector via Productivity Improvement, Economic and Enviro-Economic Perspective

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4304

Abstract

Emerging technological growth and new line globalization in several manufacturing sectors results in a High-Risk environment that leads to increased pollution. Lean Manufacturing tools and green manufacturing process provides an effective solution for all types of organizations to reduce the waste produced and to manufacturing green products. Considering environmental pollution people nowadays started to purchase green products, which in turn providing opportunities for industries to change into green product manufacturing units. Several production processes and materials processing involves hazardous chemicals and raw materials which affects the environment, to reduce and avoid such environmental hazards Green Manufacturing processes are suggested. A Lean manufacturing system enhances product quality and reduces production time through effective utilization of resources, resulting in the reduction of wastes at all stages. The Lean system involves continuous improvement in all stages of production that yields the best results. Green manufacturing is practiced throughout the world by all types of industries in concern with manufacturing green products and Eco-Friendly products. Green manufacturing controls hazardous waste and environmental pollution including recycling and reusing of wastes, regulatory compliance, wastewater treatment and environmental protection and other issues related to it. Research is carried out by implementing various lean tools and green practices in production process that results in eliminating waste and quality improvement. Research details the relationship between green manufacturing practices and lean manufacturing systems in every stage. Attainment of green manufacturing practices in industries is done through waste reduction process using lean manufacturing tools. Research aims in developing a sustainable development of industries that do not make any harm to the environment during any stages of manufacturing process. These strategies such as sustainability and green manufacturing help industries to respond to customers need and demand and also able to respond to dynamic market conditions due to scarcity of natural resources, government environmental policies, etc.

Keywords: Lean manufacturing · Green manufacturing · VSM· Sustainable Development· Waste Reduction Techniques·

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1 Introduction

Lean Manufacturing concept provides industries a sustainable environment through productivity improvement at all levels by reducing waste. Lean tools are used for effective utilization of man, machine and materials. Lean serves as best and better manufacturing tool for industries for several decades in reducing wastes and enhancing the effective utilization of workspace.

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Sustainable development can be obtained through reduction and elimination of wastes that do



Effective Customer Review Analysis Using Combined Capsule Networks with Matrix Factorization Filtering

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Abstract: Nowadays, commercial transactions and customer reviews are part of human life and various business applications. The technologies create a great impact on online user reviews and activities, affecting the business process. Customer reviews and ratings are more helpful to the new customer to purchase the product, but the fake reviews completely affect the business. The traditional systems consume maximum time and create complexity while analyzing a large volume of customer information. Therefore, in this work optimized recommendation system is developed for analyzing customer reviews with minimum complexity. Here, Amazon Product Kaggle dataset information is utilized for investigating the customer review. The collected information is analyzed and processed by batch normalized capsule networks (NCN). The network explores the user reviews according to product details, time, price purchasing factors, etc., ensuring product quality and ratings. Then effective recommendation system is developed using a butterfly optimized matrix factorization filtering approach. Then the system's efficiency is evaluated using the Rand Index, Dunn index, accuracy, and error rate.

Keywords: Recommendation system; customer reviews; amazon product kaggle dataset; batch normalized capsule networks; butterfly optimized matrix factorization filtering

1 Introduction

The development of e-commerce and digital advancements [1] causes every product to be directly or indirectly influenced by digital presence. The product user gives feedback [2] through a different medium that helps to improve the organization's function. The feedback or reviews play a vital role in business to understand the customer acquirement and impressions. Several organizations have different types of customer feedback, such as call logs, social media, and mobile apps [3]. The collected feedbacks are essential to analyze for improving the business presence. Customers are continuously posting tons of feedbacks, reviews, complaints, and advice in their business portal [4]. Therefore, reading and understanding these comments is a difficult and time-consuming task. In addition to this, the feedback has changed in terms of quality and quantity; so, review analysis [5] is a challenging task in business. If the customer gives the feedback in rating form, it can be easily analyzed, but the text best reviews are challenging issues. Then the machine learning (ML) [6] and Natural Language Processing (NLP) [7] are then applied in the field to get the different emotions from the textual feedback. The NLP analysis helps to understand the negative and positive feedbacks using the topic modeling (TM) [8]. The topic modeling is an effective statistical model that helps identify the topics [9] that appeared in the document. The TM discovers the document's hidden patterns and identifies the frequent text presences in the document or feedback [10,11]. This process groups similar words and balances the document analyzing process. However, the influence of fake customers gives fake reviews [12] that affect the company's reputation and product. The fake reviews are mostly like the trust review; therefore, the fake reviews [13] are difficult to identify. The fake reviews are written in normal type, linguistic style, and length, which is tricky to recognize by normal users.

To reduce the bad reviews, fake feedbacks, and bad impressions, it has to be recognized instantly. With the development of techniques, 95% of people purchase the products according to user reviews, ratings, and feedback—the

Twitter Media Sentiment Analysis to Convert Non-Informative to Informative Using QER

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Abstract: The term sentiment analysis deals with sentiment classification based on the review made by the user in a social network. The sentiment classification accuracy is evaluated using various selection methods, especially those that deal with algorithm selection. In this work, every sentiment received through user expressions is ranked in order to categorise sentiments as informative and non-informative. In order to do so, the work focus on Query Expansion Ranking (QER) algorithm that takes user text as input and process for sentiment analysis and finally produces the results as informative or non-informative. The challenge is to convert non-informative into informative using the concepts of classifiers like Bayes multinomial, entropy modelling along with the traditional sentimental analysis algorithm like Support Vector Machine (SVM) and decision trees. The work also addresses simulated annealing along with QER to classify data based on sentiment analysis. As the input volume is very fast, the work also addresses the concept of big data for information retrieval and processing. The result comparison shows that the QER algorithm proved to be versatile when compared with the result of SVM. This work uses Twitter user comments for evaluating sentiment analysis.

Keywords: Sentiments; QER; SVM; bayes multinomial; big data analysis; simulated annealing

1 Introduction

Mind reading is the greatest challenge in sentiment analysis. Generally, the output of such reading results in the information that a user actually wants. Rather than asking others what they feel, instead of reading their mind is rather an interesting task [1]. The challenges in reading online information when compared with the data growth rate that has grown drastically in volumes. While fetching the enormous volumes of data that are both times consuming and have both relevant and irrelevant information. Moreover, the tremendous growth of online users also makes an urge of using sentiment analyzing techniques in order to provide the desired results [2].



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