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## Process Cycle Efficiency Improvement Through Lean: A Case Study

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### ABSTRACT

Lean manufacturing is an applied methodology of scientific, objective techniques that cause work tasks in a process to be performed with a minimum of non-value adding activities resulting in greatly reduced wait time, queue time, move time, administrative time, and other delays. This work addresses the implementation of lean principles in a construction equipment company. The prime objective is to evolve and test several strategies to eliminate waste on the shop floor. This paper describes an application of value stream mapping (VSM). Consequently, the present and future states of value stream maps are constructed to improve the production process by identifying waste and its sources. A noticeable reduction in cycle time and increase in cycle efficiency is confirmed. The production flow was optimized thus minimizing several non-value added activities/times such as bottlenecking time, waiting time, material handling time, etc. This case study can be useful in developing a more generic approach to design lean environment.

### KEYWORDS

Lean Manufacturing,  
Value stream mapping,  
Cycle time,  
Task time,  
Cycle efficiency.

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# Process Cycle Efficiency Improvement Through Lean A Case

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### **Process Cycle Efficiency Improvement Through Lean A Case:**

**Proceedings of First International Conference on Emerging Trends in Mechanical Engineering , Advances in Manufacturing Systems** Shailendra Kumar, K. P. Rajurkar, 2021-02-25 This book presents the select proceedings of the International Conference on Recent Advances in Manufacturing RAM 2020 The volume focuses on latest research trends in manufacturing systems such as CAE CAD CAM robotics and automation reverse engineering resource planning and simulation computer integrated manufacturing CIM systems product life cycle management collaborative engineering process monitoring control and traceability technologies supply chain management environment risk analysis and manufacturing systems of renewable energy devices The topics covered also include emerging fields of the fourth industrial revolution such cyber physical systems and cyber security and wireless sensors and sensor networks for manufacturing This book will be of interest to researchers and practitioners interested in latest developments in the field of manufacturing systems

**Recent Trends in Product Design and Intelligent Manufacturing Systems** B.B.V.L. Deepak, M.V.A. Raju Bahubalendruni, D.R.K. Parhi, Bibhuti Bhusan Biswal, 2022-10-05 This book presents select proceedings of the 3rd Innovative Product Design and Intelligent Manufacturing System IPDIMS 2020 held at National Institute of Technology NIT Rourkela 30 31 December 2021 This volume covers the latest research topics in design and manufacturing fields of engineering Some of the themes covered include Industry 4.0 smart manufacturing advanced robotics and CAD CAM CIM This book will be useful for students researchers and professionals in the disciplines of mechatronics mechanical manufacturing production and industrial engineering especially those working on improvements in manufacturing technologies and development of resilient infrastructure in industry

**Supply Chain Strategies, Issues and Models** Usha Ramanathan, Ramakrishnan Ramanathan, 2013-09-12 In the 21st century supply chain operations and relationships among supply chain partners have become highly challenging necessitating new approaches e.g. the development of new models Supply Chain Strategies Issues and Models discusses supply chain issues and models with examples from actual industrial cases Expert authors with a wide spectrum of knowledge working in various areas of supply chain management from various geographical locations offer refreshing novel and insightful ideas and address possible solutions using established theories and models Supply Chain Strategies Issues and Models features studies that have used mathematical modeling statistical analyses and also descriptive qualitative studies The chapters cover many relevant themes related to supply chains and logistics including supply chain complexity information sharing quality six sigma electronic Kanbans inventory models scheduling purchasing and contracts To facilitate easy reading the chapters that deal with supply chain related issues are first followed by studies on inventory scheduling purchasing and logistics This book can be used as a useful resource of supply chain management by academics students and practitioners This book can serve as a helping tool in managerial decision making for investments in collaboration and information exchange to improve forecasts scheduling and inventory management and for supply chain

managers to leverage product and process complexities into competitive advantage Some interesting mathematical models can appeal to students and researchers interested in modeling the impact of information sharing in supply chains

*International Conference on Applied Technologies* Miguel Botto-Tobar, Lohana Lema Moreta, Marcelo Zambrano Vizuete, Sergio Montes León, Pablo Torres-Carrion, Benjamin Durakovic, 2025-05-13 This book constitutes the refereed proceedings of the 6th International Conference on International Conference on Applied Technologies ICAT 2024 held in Samborond n Ecuador during November 20 22 2024 The 25 full papers included in this book were carefully reviewed and selected from 95 submissions They were organized in topical sections as follows Computing E learning Electronics Technology Trends Intelligent Systems Machine Vision and AT for Engineering Applications **ICCAP 2021** A Mohan, D. S. Vijayan, 2021-12-22 This proceeding constitutes the thoroughly refereed proceedings of the 1st International Conference on Combinatorial and Optimization ICCAP 2021 December 7 8 2021 This event was organized by the group of Professors in Chennai The Conference aims to provide the opportunities for informal conversations have proven to be of great interest to other scientists and analysts employing these mathematical sciences in their professional work in business industry and government The Conference continues to promote better understanding of the roles of modern applied mathematics combinatorics and computer science to acquaint the investigator in each of these areas with the various techniques and algorithms which are available to assist in his or her research We selected 257 papers were carefully reviewed and selected from 741 submissions The presentations covered multiple research fields like Computer Science Artificial Intelligence internet technology smart health care etc brought the discussion on how to shape optimization methods around human and social needs **Project Management and Managing Threats to High-Tech Product Development and Manufacturability** Alan D. Smith, 2026-01-21 It has been estimated that over 30 000 new products hit the marketplace annually but less than 95% are actually successful in the long run As global competition increases these numbers will only grow larger In this emerging age of high tech and commercialization at a global scale windows are ever decreasing to be competitively creative as firms are rapidly producing new products Deciding how to stay on track to produce these products while enhancing designs for ease of manufacturing and distribution are essential to have a successful product As ideas move from innovation to commercialization project teams and their successful coordination and integration are important elements in this mix Marketing engineering and other business professionals must navigate the internal and external threats for successful product designs that meet their needs but still enhance their distribution ease of access and manufacturability Using the concepts of dependency and complexity theories combined with human resources and examination of the traditional barriers to productivity in new products design they were empirically tested in the high tech industry namely smart cards and compared to leading research in the discipline **Combining ITIL and Lean. The pursuit of perfection through continuous improvement** Alexandra Arbter, 2022-11-11 Master s Thesis from the year 2015 in the subject

Business economics Business Management Corporate Governance grade 1 University of Applied Sciences Burgenland Department Information Technology and Information Management language English abstract An increasing competitive market in service businesses is driving multinational corporations MNCs to implement business improvement philosophies and methodologies in order to address customer requirements for better quality service and organizational demands for rising profit margins through cost reduction The Information Technology Infrastructure Library ITIL has been implemented by various MNCs in full or as per business requirements in order to manage and control their processes more effectively However due to dynamic economic influences in recent years these companies require to step up in their ability to become more agile and continuously improve their processes in order to react in an agile way to shifting market demands Although ITIL stands for a framework of best practices it neglects a clear customer value proposition and provides only limited significance towards change Lean on the other hand is a management methodology that has been suggested as a means to resolve these problems by reducing costs increase productivity and becoming more agile within daily business routines Lean s application within ITIL is becoming progressively popular among researchers but despite the application of Lean approaches to different contexts within manufacturing industries the specifics of Information Technology Service Management ITSM in the services industries remains largely untested Focus of this study is worldwide the service delivery industry of MNCs which present complex process driven industries The aim is to determine in which relation or what kind of potential there is for a hybrid ITIL seven step improvement process and Lean model in order to accomplish a more agile continual service improvement approach

**The Six Sigma Handbook, 5E** Thomas Pyzdek, Paul A. Keller, 2018-09-07 The most important reference to Lean Six Sigma fully updated for the latest advances This thoroughly revised industry standard guide delivers all the information you need to apply Lean Six Sigma techniques and dramatically improve processes profitability sustainability and long term growth Written by two of the foremost authorities in the field the book contains full explanations of the latest lean problem solving and change management principles and methods You will discover how to build the best teams and foster effective leadership while maximizing customer satisfaction and boosting profits The book includes coverage of the recently released Minitab 18 The Six Sigma Handbook Fifth Edition covers Building the responsive Six Sigma organization Recognizing and capitalizing on opportunity Data driven management Maximizing resources Project management using DMAIC and DMADV The define phase The measure phase Process behavior charts Measurement systems evaluation The analyze phase The improve design phase The control verify phase

*Six Sigma Handbook, Fourth Edition (ENHANCED EBOOK)* Thomas Pyzdek, Paul A. Keller, 2014-05-29 This fully revised bestseller integrates Lean methodologies and certification coverage and features bonus videos quizzes and sample files The Six Sigma Handbook Fourth Edition reveals how to realize significant gains in quality productivity and sales in any organization This new edition offers vast improvements to examples and offers videos sample data files for download and online quizzes for all levels of Six Sigma

certification The content features further integration of Lean methods and examples healthcare examples risk management and case studies of various deployment and analysis techniques Includes two sample quizzes for Six Sigma certification one for Green Belt candidates and one for Black Belt candidates Links to five videos that walk you through specific processes such as Minitab functions statistical process control and how to read a Pareto chart Clearly defines the management responsibilities and actions necessary for successful deployment Fully incorporates Lean problem solving and statistical techniques within the Six Sigma methodology

*Flexible Automation and Intelligent Manufacturing: Establishing Bridges for More Sustainable Manufacturing Systems* Francisco J. G. Silva, Luís Pinto Ferreira, José Carlos Sá, Maria Teresa Pereira, Carla M. A. Pinto, 2023-08-24 This book reports on cutting edge research and developments in manufacturing giving a special emphasis to solutions fostering automation sustainability and health safety and well being at work Topics cover manufacturing process analysis and optimization supply chain management quality control as well as human factors and logistics They highlight the role and advantages of intelligent systems and technologies discussing current best practices and challenges to cope with in the near future Based on proceedings of the 32nd edition of the International Conference on Flexible Automation and Intelligent Manufacturing FAIM 2023 held on June 18 22 2023 in Porto Portugal this second volume of a 2 volume set provides academics and professionals with extensive information on innovative strategies for industrial management in the era of industry 5 0

**ASME Technical Papers**, 2000 **Paper**, 2000 **Logistics Management**, 2008 Bulletin of the Engineering Experiment Station, 1923 **Bulletin** Cornell University. Engineering Experiment Station, 1923 Transactions of the American Society of Mechanical Engineers American Society of Mechanical Engineers, 1929 Vols 2 4 11 62 68 include the Society's Membership list v 55 80 include the Journal of applied mechanics also issued separately as contributions from the Society's Applied Mechanics Division *Bulletin of the Engineering Experiment Station* Cornell University, Cornell University. Engineering Experiment Station, 1923 **Proceedings, Annual Convention** Gas Processors Association, 1999 *The Indian & Eastern Engineer*, 1970-07

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