



Date: 12/03/2024

Acceptance Letter

Dear Fabiola Hermosillo Villalobos, Jorge Luis García Alcaraz, Francisco Javier Estrada Orantes And Omar Celus Gracia

I am pleased to inform you that the chapter "Takt time" has been **ACCEPTED** for publication in the book "Lean Manufacturing in Latin America - Concepts, Methodologies, and Applications." Please make a final review of your chapter regarding structure, format, and citation style.

We thank you for your effort and trust in this initiative to document the impact of Lean Manufacturing in Latin America. Please emphasize the technical approach in your chapter. We strongly recommend the use of original graphic content. Otherwise, it is necessary to obtain permission for non-original material (text, tables, or illustrations that you have incorporated in your manuscript from other sources or previous publications).

Sincerely,

Dr. Guillermo/Cortés Robles
Instituto Tecnológico de Orizaba

Mail: guillermo.cr@orizaba.tecnm.mx

Phone: +52 272 725 7056

Orcid: https://orcid.org/0000-0001-8857-7143















Av. Oriente 9 Núm.852, Colonia Emiliano Zapata. C.P. 94320 Orizaba, Veracruz. Tel. 01 (272)1105360 e-mail: dir_orizaba@tecnm.mx tecnm.mx | orizaba.tecnm.mx



Jorge Luis García Alcaraz Guillermo Cortés Robles Arturo Realyvásquez Vargas *Editors*

Lean Manufacturing in Latin America

Concepts, Methodologies and Applications



Lean Manufacturing in Latin America

Jorge Luis García Alcaraz · Guillermo Cortés Robles · Arturo Realyvásquez Vargas Editors

Lean Manufacturing in Latin America

Concepts, Methodologies and Applications



Editors
Jorge Luis García Alcaraz

Department of Industrial Engineering
and Manufacturing
Universidad Autónoma de Ciudad Juárez
Ciudad Juárez, Chihuahua, Mexico

Arturo Realyvásquez Vargas Department of Industrial Engineering Tecnológico Nacional de México/Institu Tijuana, Baja California, Mexico

Guillermo Cortés Robles

Tecnológico Nacional de México
Veracruz, Mexico

ISBN 978-3-031-70983-8 ISBN 978-3-031-70984-5 (eBook) https://doi.org/10.1007/978-3-031-70984-5

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2025

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

If disposing of this product, please recycle the paper.

Chapter 10 Takt Time



Fabiola Hermosillo Villalobos, Jorge Luis García Alcaraz, Francisco Javier Estrada-Orantes, and Omar Celis-Gracia

Abstract This chapter discusses a lean manufacturing tool named takt time, analyzes its concept, its origin, its importance, the benefits it offers when implemented, and the critical factors for its implementation. In addition, a review of current cases in which methodologies with a central theme of takt time are applied. In addition, a bibliometric review of Takt time concepts in the industry is conducted, identifying authors, institutions, and countries that generate more publications and the most cited ones. Finally, a case study showed the importance of applying the Takt Time Tool in a productive process.

Keywords Takt time · Lean manufacturing · Line balancing

10.1 Takt Time Concept (TT)

Takt time (TT) is a tool that links customer demand with the production process and establishes how much work must flow through a production system in a fixed time. Its application has improved project performance (Mierzejewska et al. 2002). TT is obtained by dividing the available production time by customer demand and determining the time to produce a unit (Blackburn 2012).

F. Hermosillo Villalobos (⋈) · O. Celis-Gracia

Department of Electric Engineering and Computer Sciences, Universidad Autónoma de Ciudad

Juárez, Chihuahua, Mexico

e-mail: al232734@alumnos.uacj.mx

O. Celis-Gracia

e-mail: al232735@alumnos.uacj.mx

J. L. García Alcaraz · F. J. Estrada-Orantes

Department of Industrial Engineering and Manufacturing, Universidad Autónoma de Ciudad

Juárez, Chihuahua, Mexico e-mail: jorge.garcia@uacj.mx

F. J. Estrada-Orantes e-mail: frestrad@uacj.mx