

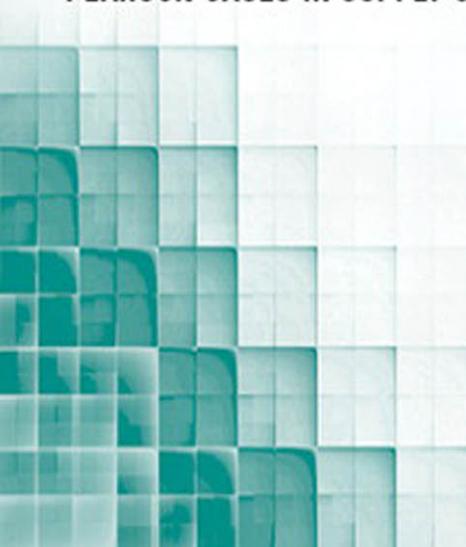
Pizza Station

MATTHEW J. DRAKE

with

Kathryn Marley, Duquesne University
Gopesh Anand, University of Illinois
at Urbana-Champaign

PEARSON CASES IN SUPPLY CHAIN MANAGEMENT AND ANALYTICS



The case is reprinted from
The Applied Business Analytics Casebook
by Matthew J. Drake

Pizza Station

Matthew J. Drake

with

Kathryn Marley, Duquesne University

Gopesh Anand, University of Illinois

at Urbana–Champaign

Vice President, Publisher: Tim Moore
Associate Publisher and Director of Marketing: Amy Neidlinger
Executive Editor: Jeanne Glasser Levine
Operations Specialist: Jodi Kemper
Managing Editor: Kristy Hart
Project Editor: Andy Beaster
Compositor: Nonie Ratcliff
Manufacturing Buyer: Dan Uhrig

© 2014 by Matthew J. Drake

Publishing as Pearson

Upper Saddle River, New Jersey 07458

Pearson offers excellent discounts on this book when ordered in quantity for bulk purchases or special sales. For more information, please contact U.S. Corporate and Government Sales, 1-800-382-3419, corpsales@pearsontechgroup.com. For sales outside the U.S., please contact International Sales at international@pearsoned.com.

Company and product names mentioned herein are the trademarks or registered trademarks of their respective owners.

All rights reserved. No part of this book may be reproduced, in any form or by any means, without permission in writing from the publisher.

ISBN-10: 0-13-382254-0

ISBN-13: 978-0-13-382254-0

Pearson Education LTD.

Pearson Education Australia PTY, Limited.

Pearson Education Singapore, Pte. Ltd.

Pearson Education Asia, Ltd.

Pearson Education Canada, Ltd.

Pearson Educación de Mexico, S.A. de C.V.

Pearson Education—Japan

Pearson Education Malaysia, Pte. Ltd.

Reprinted from *The Applied Business Analytics Casebook: Applications in Supply Chain Management, Operations Management, and Operations Research* (ISBN: 9780133407365)
by Matthew J. Drake, Ph.D., CFPIM

Pizza Station

Kathryn Marley, Duquesne University

Gopesh Anand, University of Illinois at Urbana–Champaign

Background

Established in 1980, Pizza Station is located in the trendy downtown area of Salina, Pennsylvania. Situated within walking distance of Salina State College, the restaurant initially offered in-house dining and a variety of food items on its menu. However, as competition among local restaurants grew, Pizza Station's staff decided to limit their offerings to delivery of pizzas in early 2001. Since then, they have developed a loyal following among customers who have come to expect quick and reliable delivery of good-quality pizza from the restaurant. Nevertheless, in the past two years, manager Tom Smith has noticed that customer complaints have increased significantly. With new pizza outlets and other restaurants opening up in the area every year, Tom is concerned that unless changes can be made quickly, Pizza Station will lose market share, and might eventually have to close its doors permanently.

Pizza Station operates seven days a week. On Sunday through Thursday, the hours are noon through 1 a.m. On Fridays and Saturdays, the hours are noon through 3 a.m. The busiest hours are on Fridays and Saturdays between 9 p.m. and 2 a.m. Demand for pizza

varies throughout the week and times of day. From Sunday through Thursday, the average daily demand is 300 pizzas. Fridays and Saturdays are busier, with average demand increasing to 650 pizzas per day. On these two days, the demand during each busy 9 p.m.–2 a.m. period averages 400 pizzas. Currently, Pizza Station is promising a delivery time of 45 minutes to customers.

Tom recently hired Kate Fox, a business major from Salina State College, to manage the weekend shift. He asked her for assistance in identifying the necessary changes that would enable Pizza Station to decrease complaints, increase customer satisfaction, and win back lost customers. Kate recently completed a Lean Six Sigma training course as one of her business school classes; and, eager to apply some of the things she learned, she sat down with Tom to discuss the situation.

“I don’t know where we went wrong and, frankly, I don’t know where to begin!” exclaimed Tom. “All I know is that our troubles seem to have suddenly multiplied since last January when the students came back to campus. Things started off normally, but over the next three months I noticed a steadily increasing number of complaints.” Tom pulled out a file folder from the bottom of a stack on his desk. Inside were papers of varying sizes with notes scribbled on them. He squinted as he tried to read them. “This customer said the crust was too thin, while this one said the delivery time was too long.” As he read from the stack of mismatched notes, Kate realized that they were going to have to implement a better system for capturing customer feedback—and fast, if they were going to turn this place around.

“Okay, Tom, I get the idea,” said Kate. “Let’s start at the beginning. We need to approach this problem from a systematic process improvement perspective—which first involves figuring out what is the voice of the customer.” Tom looked confused. Kate continued, “The voice of the customer (or VOC) consists of customer requirements, which is what the customer is expecting Pizza Station to deliver. There is no chance that customers are going to keep ordering pizza from Pizza Station if these expectations are not being met. So

you need to capture this information to know where to begin to make changes.”

“Sounds great, Kate,” said Tom. “Let’s get started!”

A customer satisfaction study was commissioned to figure out the voice of the customer (VOC). It pointed to delivery time and crust thickness as being critical to quality (CTQ) characteristics. An analysis of recent sales data revealed that the most commonly ordered crust from Pizza Station was the unique medium crust. In addition, three focus groups with eight customers each revealed that the ideal medium pizza crust was found to be between 4.25 mm and 5.75 mm. To measure what the process was actually producing (voice of the process, or VOP), Kate took a sample of five medium pizza crusts every day over a period of 30 days, and measured their thickness. The data that she collected is provided in Exhibit 1.

Kate’s training in Lean Principles also prompted her to talk with the employees who actually work on the pizza-making line. As she told Tom, people working on the frontlines of any process know the most about how the work is done. From the spirited discussion that Kate had with the staff, it soon became apparent that they believed the task of order-taking had problems. So, she asked them to collect data on this task. For 30 days, they took samples of 50 orders every day, inspected them, and recorded all the errors involved. This data is provided in Exhibit 2.

Next, choosing one of the busiest times at Pizza Station, Kate walked the process to map the value stream for pizza-making and delivery. She explained to Tom that this exercise was aimed at 1) getting some measurements of different tasks in the process, and 2) gaining additional insights into the current length of delivery time. Because the peak demand period for Pizza Station is Friday nights between 9 p.m. and 2 a.m., Kate and Tom walked the process at that time and observed the following steps involved in making pizzas. Their observations are described in the following sections.