MACIEJ KRANZ

BUILDING THE INTERNET OF THINGS

IMPLEMENT NEW BUSINESS MODELS, DISRUPT COMPETITORS, TRANSFORM YOUR INDUSTRY

WILEY

MACIEJ KRANZ

BUILDING THE INTERNET OF THINGS

TRƯỜNG ĐẠI HỌC CÔNG NGHIỆP TP. HCM
TRUNG TÂM THÔNG TIN THƯ VIỆN
07 07
03021

IMPLEMENT NEW BUSINESS MODELS, DISRUPT COMPETITORS, AND TRANSFORM YOUR INDUSTRY

GIFT OF THE ASIA FOUNDATION
NOT FOR RE-SALE
QUÀ TẶNG CỦA QUỸ CHÂU Á
KHÔNG ĐƯỢC BÁN LẠI

WILEY

Cover design: Paul McCarthy

This book is printed on acid-free paper.

Copyright © 2017 by Maciej Kranz. All rights reserved

Published by John Wiley & Sons, Inc., Hoboken, New Jersey
Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600, or on the web at www.copyright.com. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at www.wiley.com/go/permissions.

Limit of Liability/Disclaimer of Warranty: While the publisher and author have used their best efforts in preparing this book, they make no representations or warranties with the respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor the author shall be liable for damages arising herefrom.

For general information about our other products and services, please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at http://booksupport.wiley.com. For more information about Wiley products, visit www.wiley.com.

Library of Congress Cataloging-in-Publication Data has been applied for and is on file with the Library of Congress.
978-1-119-28566-3 (hardback)
978-1-119-28567-0 (ePDF)
978-1-119-28568-7 (ePUB)

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

Contents

Foreword *ix*

PART 1 **A Secure and Transformative IoT Now** **1**

Chapter 1 Beyond the Hype—All You Actually Need to Know About IoT for Business 3

Generation IoT Drives Business Survival in the 21st Century *7*

A Revolutionary Economic Opportunity *12*

IoT Background—A Brief History *14*

IoT Today—Digitally Transforming the World *18*

Why Now: Three Driving Trends *19*

A "Perfect Storm" of Technology, the Economy, and Culture *23*

Key Obstacles *25*

Scope of the Book *26*

How to Read This Book *28*

Chapter 2 IoT Is About Change and Transformation 31

Change as the New Status Quo *32*

People, Process, Data, Things *36*

New Conceptual Paradigm *38*

Operational Elements of IoT Success 39
Why Digital Adoption/Transformation? 43

Chapter 3 The Promise of IoT Is Real 47
IoT Creates Opportunities 51
The Growth of IoT 58
IoT Is Just the Beginning 61
Emerging IoT Ecosystem 64
Startups Join IoT Ranks 67
Collaborate at the Next Level 72

Chapter 4 Understanding the IoT Business Value Proposition 75
Delivering Payback and Business Value 78
Building an IoT Cost Justification 82
Components of IoT Payback 85
Helpful Hints 87
Data Data Everywhere 90

Chapter 5 Four Fast Paths to an Assured IoT Payback 95
Steps in Starting an IoT Project 99
Aspirational Payback 116

PART 2 **Making IoT Work for Your Organization** **121**

Chapter 6 Generation IoT Goes to Work 123
More and Different Workers 125
Finding Workers 128
New Positions and Old Positions with a New Twist 132
Interesting IoT Careers 137
IoT Visionaries—Yes, This Will Be a Career, Starting Now 142

Chapter 7 Bringing IoT Into Your Organization—Change Management 147

IoT Solutions 149

Change Management Required 152

Change as the New Status Quo 153

IT/OT Convergence and Other Workforce Issues 155

Changing Roles and Golden Opportunities 158

Learn and Share 159

The Co-Economy 161

Obstacles to Change 163

Exciting IoT Exercise 165

Get in Front of the Coming Change 166

Chapter 8 Mistakes and How to Avoid Them 169

PART 3 **Glimpse Under the Hood of IoT Today and Tomorrow** **179**

Chapter 9 IoT Security Essentials 181

Physical Separation Provides No Defense 182

Security as One More Risk Management Challenge 184

Radical New Security Approach 187

Some Additional Considerations 191

Perspective from the Experts 193

Challenges of IoT Security 197

Privacy 198

Security as Your IoT Foundation 200

Chapter 10 Standards and Technology 203

The Case for Standards 204

Overabundance of Access Technologies 207

Common IoT Framework 207
Business-Relevant Standards Activities 210
New Technology Arrivals 213

Chapter 11 IoT State of the Union 221
New Economy 223
Winners and Losers 224
State of the IoT Union Today 227
Era of Innovation and Disruption 229
IoT and the Co-Economy 234
Unavoidable Fact of Life 237

Notes 240

Glossary 245

Acknowledgments 251

About the Author 253

Index 254