

Jack Buffington

# Frictionless Markets

The 21st Century Supply Chain



Springer

## Frictionless Markets



Jack Buffington

# Frictionless Markets

The 21st Century Supply Chain

 Springer

Jack Buffington  
Industrial Marketing  
Royal Institute of Technology  
Stockholm, Sweden

ISBN 978-3-319-19535-3      ISBN 978-3-319-19536-0 (eBook)  
DOI 10.1007/978-3-319-19536-0

Library of Congress Control Number: 2015945025

Springer Cham Heidelberg New York Dordrecht London  
© Springer International Publishing Switzerland 2016

This work is subject to copyright. All rights are reserved 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, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made.

Printed on acid-free paper

Springer International Publishing AG Switzerland is part of Springer Science+Business Media  
([www.springer.com](http://www.springer.com))

*To Dad, you've always been my hero.  
To Kate and Marin, may this future be yours,  
Love Dad.*



# Contents

<b>1 Friction= Jobs</b>	1
The Problem of Technological Unemployment	1
“18 Computers” and “Bullshit Jobs”	4
The Friction Paradox and ‘the Two Big Os’	7
Frictionless Markets...Terrifying Concept?	9
What This Book Is About	10
Bibliography	11
<b>2 An End to (Twentieth Century) Growth?</b>	13
Germs and Bugs	13
Oil: The Superlubricant	15
The Elementary Particle of Business	17
Twentieth Century Lottery Tickets, Labor and Standards of Living	19
The Party’s Over...the End of <i>Big Os</i>	21
Bibliography	22
<b>3 Nature’s Approach to Design</b>	23
God, Nature, and Supercomputers	23
Nature Beyond the Metaphor	24
The Software of Life	26
Man’s Limitations in Product Design	26
An End to (Human Centric) Design	28
Material Genome and Generative Customization	30
Bibliography	35
<b>4 Frictionless (Good) Materials</b>	37
The Revenge of Malthus	37
The Twentieth Century of Synthetic Stuff	39



Good and Bad Materials .....	42
Future (Good) Materials .....	43
Bibliography .....	47
<b>5 The Future of Manufacturing: An End to Mass Production .....</b>	<b>49</b>
Brain Center at Whipple's .....	49
Manufacturing Greatness: The U.S. Story .....	50
The Curse of Deindustrialization .....	51
Should Manufacturing Matter? .....	54
An End to Mass Production? .....	55
The Transition Stage from Mass Production .....	58
The Future of Manufacturing .....	60
2025: What Is Your Strategy? .....	63
Bibliography .....	64
<b>6 Frictionless Markets: No Supply Chain Required .....</b>	<b>67</b>
The Balance of Nature and Supply Chain Myth .....	67
The History of the Supply Chain .....	68
The Apocalypse: The Obliteration of the Supply Chain .....	71
The Future: Emergence of Frictionless Markets .....	73
Bibliography .....	76
<b>7 2030: Frictionless Markets .....</b>	<b>79</b>
2030: The New Market Structure .....	79
2030: 3D Mart .....	82
2030: Printed Food and Drink Markets .....	84
2030: Virtual Service Mart .....	87
2030: University of P2P and Meeting Plexes .....	87
2030: Virtual Physical Communities (and <i>Vice Versa</i> ) .....	89
Bibliography .....	90
<b>8 Economic Possibilities for My (Not Keynes') Grandchildren .....</b>	<b>91</b>
Introduction .....	91
Reason #1: The Prosumer: Self-organizer of Supply and Demand .....	91
Reason #2: Multiplier Effect Between Economy and Environment .....	93
Reason #3: <i>Small P</i> Centric Economy, Not <i>Big O</i> Structures .....	95
Reason #4: Global Market Balance Through Glocal .....	96
Reason #5: Technology as an Enabler of Peer to Peer Emergence ( <i>Small P</i> ), Not Planned Activity ( <i>Big O</i> ) .....	97
Conclusion .....	98
Bibliography .....	99

# Chapter 1

## Friction = Jobs

### The Problem of Technological Unemployment

No issue has been more on the minds of Americans in the twenty-first century than the economy, and more specifically, that of jobs and unemployment. As is shown in the U.S. Gallup Poll data in Fig. 1.1 (Gallup 2014), the economy and jobs are the top issue, with no other issue even close in importance. Some aspects of the economy are doing rather well: financial markets continue to ascend to high levels, with the Dow Jones Industrial Average reaching record levels, surpassing 18,000 at the time of this writing in February of 2015, versus fewer than 8000 in 2009 during the recession. Why are the stock market and other financial indices rising while wages are falling, lowering the average person's standard of living? The answer is clear, but not very well known: accelerating advancements in technology continue to provide greater benefit for businesses to invest in capital rather than labor.

This issue of technological acceleration and its adverse impact on labor is nothing new; at the onset of the Great Depression of 1929, John Maynard Keynes wrote an essay titled, "Economic Possibilities for our Grandchildren" to address this economic imbalance that he considered only a "temporary maladjustment." To Keynes, the problem "of our discovery of means of economising the use of labour (is) out-running the pace at which we can find new uses for labour", which led to "a new disease of which some readers may not yet have heard the name, but of which they will a great deal in years to come—namely, *technological unemployment* (Keynes 1963)". Keynes began writing this essay prior to the start of the Great Depression in 1929, noting an "economic problem" caused by technological change and economic structural instabilities. At the time, there was a path of technological innovation without an ample economic structure to lead to stability in market activities that was a major reason leading for the 1929 Crash. Through the proper use of policy, Keynes believed that a new economic structure could lead to a future (that of his grandchildren, who are us) where technology would be the solution, not cause of the *economic problem*. The economic possibilities for us, Keynes' grandchildren, would be a scenario "when these needs are satisfied in a sense that we prefer to devote our energies