

palgrave pivot

# DOMINANT DIVISIONS OF LABOR

Models of Production That  
Have Transformed the  
World of Work

Thomas Janoski and  
Darina Lepadatu





## **Dominant Divisions of Labor**

## **Other Palgrave Pivot titles**

Gray Read: **Modern Architecture in Theater: The Experiments of Art et Action**

Bill Lucarelli: **Endgame for the Euro: A Critical Theory**

Robert Frodeman: **Sustainable Knowledge: A Theory of Interdisciplinarity**

Antonio V. Menéndez Alarcón: **French and US Approaches to Foreign Policy**

Stephen Turner: **American Sociology: From Pre-Disciplinary to Post-Normal**

Ekaterina Dorodnykh: **Stock Market Integration: An International Perspective**

Bill Lucarelli: **Endgame for the Euro: A Critical History**

Mercedes Bunz: **The Silent Revolution: How Digitalization Transforms Knowledge, Work, Journalism and Politics wWithout Making Too Much Noise**

Mark Bracher **Educating for Cosmopolitanism: Lessons from Cognitive Science and Literature**

Carroll P. Kakek III: **The Holocaust as Colonial Genocide: Hitler's 'Indian Wars' in the 'Wild East'**

Laura Linker: **Lucretian Thought in Late Stuart England: Debates about the Nature of the Soul**

Nicholas Birns: **Barbarian Memory: The Legacy of Early Medieval History in Early Modern Literature**

Adam Graycar and Tim Prenzler: **Understanding and Preventing Corruption**

Michael J. Pisani: **Consumption, Informal Markets, and the Underground Economy: Hispanic Consumption in South Texas**

Joan Marques: **Courage in the Twenty-First Century**

Samuel Tobin: **Portable Play in Everyday Life: The Nintendo DS**

George P. Smith: **Palliative Care and End-of-Life Decisions**

Majia Holmer Nadesan: **Fukushima and the Privatization of Risk**

Ian I. Mitroff, Lindan B. Hill, and Can M. Alpaslan: **Rethinking the Education Mess: A Systems Approach to Education Reform**

G. Douglas Atkins: **T.S. Eliot, Lancelot Andrewes, and the Word: Intersections of Literature and Christianity**

Emmeline Taylor: **Surveillance Schools: Security, Discipline and Control in Contemporary Education**

Daniel J. Hill and Daniel Whistler: **The Right to Wear Religious Symbols**

Donald Kirk: **Okinawa and Jeju: Bases of Discontent**

Sara Hsu: **Lessons in Sustainable Development from China & Taiwan**

Paola Coletti: **Evidence for Public Policy Design: How to Learn from Best Practices**

Thomas Paul Bonfiglio: **Why Is English Literature? Language and Letters for the Twenty-First Century**

David D. Grafton, Joseph F. Duggan, and Jason Craige Harris (eds): **Christian-Muslim Relations in the Anglican and Lutheran Communion**

Anthony B. Pinn: **What Has the Black Church to Do with Public Life?**

Catherine Conybear: **The Laughter of Sarah: Biblical Exegesis, Feminist Theory, and the Laughter of Delight**

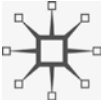
palgrave▶pivot

# **Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work**

▶  
Thomas Janoski  
*Professor, University of Kentucky*  
and

Darina Lepadatu  
*Associate Professor, Kennesaw State University*

palgrave  
macmillan



© Thomas Janoski and Darina Lepadatu 2014  
Softcover reprint of the hardcover 1st edition 2014 978-1-137-37877-4

All rights reserved. No reproduction, copy or transmission of this publication may be made without written permission.

No portion of this publication may be reproduced, copied or transmitted save with written permission or in accordance with the provisions of the Copyright, Designs and Patents Act 1988, or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency, Saffron House, 6–10 Kirby Street, London EC1N 8TS.

Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages.

The authors have asserted their rights to be identified as the authors of this work in accordance with the Copyright, Designs and Patents Act 1988.

First published 2014 by  
PALGRAVE MACMILLAN

Palgrave Macmillan in the UK is an imprint of Macmillan Publishers Limited, registered in England, company number 785998, of Houndmills, Basingstoke, Hampshire RG21 6XS.

Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

Palgrave Macmillan is the global academic imprint of the above companies and has companies and representatives throughout the world.

Palgrave® and Macmillan® are registered trademarks in the United States, the United Kingdom, Europe and other countries

ISBN: 978-1-137-37023-5 PDF  
ISBN: 978-1-349-47849-1

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

A catalogue record for this book is available from the British Library.

A catalog record for this book is available from the Library of Congress.

DOI 10.1057/9781137370235



*Dedicated to Maya and Drew*

# Contents

Preface and Acknowledgments	vii
1 Introduction to Divisions of Labor	1
2 What Was the Old Division of Labor?	5
3 New Models of the Division of Labor—I	15
4 New Models of the Division of Labor—II	33
5 Synthesizing Three Models of the Division of Labor	54
6 Conclusion: What the New Divisions of Labor Mean?	67
References	72
Person Index	84
Subject Index	86

# Preface and Acknowledgments

How do we make sense of the confusion in global production? This short book takes a panoramic view of the candidates for the most succinct theory of the twenty-first-century division of labor that would replace Fordism, Taylorism, and scientific management. The candidates are: post-Fordism, flexible accumulation, McDonaldization, Waltonism, Nikeification, Gatesism and Siliconism, shareholder value, and lean production and Toyotism. It argues that lean production in a somewhat expanded version presents three variations: Toyotism (the strongest form), Nikeification (a moderate form with off-shored plants lacking teamwork), and Waltonism (the merchandising form that presses for off-shoring). They all have strong elements of just-in-time (JIT) production and supply chain management, but they differ in how much teamwork and long-term philosophies are used in their approach. Like the Fordist literature, we also discuss how lean production and Toyotism interact with the political and economic system and link it to neo-liberal politics. Like Fordism before it, the purest model of lean production of Toyotism may be either fully or partially implemented.

We would like to thank Michael Samers of the University of Kentucky, Matt Vidal of Kings College of London, Steven Vallas of Northeastern University, and William Canak of Middle Tennessee State University and the president of the Tennessee Employment Relations Association. We would also like to thank Michael Burawoy of the University of California-Berkeley. Although the first author was not in Burawoy's division of labor seminar



at Berkeley, he discussed it many times with his fellow students over the years. Parts of this project were presented by the first author at the Sociology Department colloquium in the fall of 2011 at the University of Kentucky, and at an economic sociology session at the American Sociological Association (ASA) Convention in New York City in 2013.

We would also like to thank Patricia E. White and Jan Stets at the National Science Foundation for their help on “The Maturing of Lean Production” (NSF-ARRA 0940807) that provided summer support for both authors. We also thank the many managers, current workers, and former workers at Toyota Motors Corporation at Georgetown; Nissan Manufacturing at Smyrna; Honda Motors at Ana, Marysville, Lincoln and Tallapoosa; Ford Motor Company at Louisville; General Motors Corporation in the US and China; Sun Microsystems in China; the Chrysler Corporation in Toledo; and the United Automobile Workers for their willingness to be interviewed and provide valuable information on lean production in the US, Japan, and China.

# 1

## Introduction to Divisions of Labor

► *Abstract: This chapter introduces the concept of division of labor starting with Emile Durkheim and Adam Smith and clearly articulates the purpose of the book, which is to discuss various versions of the division of labor that have emerged from the previous version of Taylorism and Fordism.*

**Keywords:** division of labor, Taylorism, Fordism, lean production

Janoski, Thomas and Lepadatu, Darina. *Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work*. New York: Palgrave Macmillan, 2014. DOI: 10.1057/9781137370235.

In 1974, a remarkable guide to the perplexed about the division of labor was written by a former cooper and steel worker. Harry Braverman's *Labor and Monopoly Capital* reasserted the Marxian concept of the "labor process," and pushed scientific management from the machine shop into the growing service sector with examples of clerical and professional workers. It showed how the separation of mental and manual labor under tightly disciplined management was invading new territories of work. Taylorism went from promoting production efficiency and ergonomics in factories to the industrial engineers examining white collar workers in service work. So Braverman's theory was not just for the machine shop, but it applied throughout the burgeoning clerical, service, and white collar world. In fact, one could wonder what area of social life could they not be applied? The authors of *Cheaper by the Dozen*, who were Frederick Taylor's compatriots Frank and Lillian Gilbreth, applied scientific principles to raising their 12 children and their own family life. While movie goers found this amusing in two films made in 1950 and 1952, workers found little solace in their imposed drudgery. And while scientific management did not take hold of families, its principles of rationality enveloped the world of work. Braverman's book took Taylorism and Fordism to another level with his extension to the higher level of the economy as a whole. And this energized an entire cohort of sociological scholars in the sociology of work, economy, and even theory as part of the division of labor.

But before going further, what is the division of labor? For the most part, we are talking about how work is organized among workers, organizations, and industries. Emile Durkheim (1997/1893) described the division of labor first appearing with farmers begetting bakers of bread and millers grinding wheat. He then showed how actual jobs were divided and organized so that they fit together in solidarity with the larger society. Adam Smith described the division of tasks involved with the making of such a minor item as a straight pin (obtaining wire, straightening it, cutting it, making a point, and putting a head on it). His description of the division of labor involves the organization of different tasks within the firm with greater specialization and repetition of tasks (1976/1776:8–9).<sup>1</sup> In fact, the Germans and many industrial engineers use the term "*takt* time" to refer to the length of a repetitive task (often about 90 to 120 seconds on an assembly line). But the division of labor also refers to reverse trends that bring more tasks together through job rotation and teamwork, so that it need not always be perceived negatively.

In a sense, it refers to how the people in charge organize people to make things and deliver services. In most cases, it simply refers to dividing a project into smaller tasks, but it can also refer to the division of products between organizations (one firm makes pistons, another tie-rods, and an assembler puts them together as a car). Finally, it can refer to country-level divisions of labor where one country produces one product, and another country produces something different. This last point leads into many issues related to world trade and international politics, but every book must set some limits and we set ours here not going into the complexities of trade in the world system.<sup>2</sup> We stay focused on production.

Although we will deal with some politics, our presentation will concentrate on the distribution of tasks among workers and then add sections on politics for the end of various chapters. The division of labor has been seen as the fountain of progress, especially in earlier times, and a tsunami of boredom and alienation in many recent views. Marx viewed it as the source of inequality, and his followers have seen it as a plague descended upon the working people of the world with Taylorism and Fordism. But our focus will be on the division of work tasks in and between organizations for the most part. We leave the battles of empires and nation-states for another time.

We have entered into a new age of the division of labor. It is new not only because it is global, but also because production is organized with much more focus on flexibility and quality. Out of the many different conceptions of the new division of labor, this book will show that the present division of labor is best conceptualized as lean production and Toyotism with two lesser forms of lean production that we call Nikefication and Waltonism (Besser, 1996; Berggren, 1992, 1993). These processes have emerged from the old Taylorism and Fordism, surpassed a variety of competing ideas, and become part of the DNA of global production. So far, lean production has had a muted reception in the general social science literature as it is generally seen as a specialty of the business management and industrial engineering departments. We widen its application and show how it fits into both manufacturing and service industries.

The purpose of this short book is to discuss how different versions of the division of labor have emerged from the previous version of Taylorism and Fordism, and to focus on the muted reception that lean production has received in the sociological literature and among its gatekeepers. So we first review Fordism, then go to post-Fordism and

flexible accumulation, review a number of firm or industry-named models (McDonaldization, Nikeification, Waltonism, Siliconism), examine the finance-inspired shareholder value theory, highlight lean production and Toyotism, and finish with the entirely new and emerging additive or sequential lamination technologies. We discuss which new models seem most appropriate to the present mixtures of flexible and outsourced division of labor.

## Notes

- 1 References to the division of labor are many in history including Plato, Xenophon, Ibn Khaldan, William Petty, Karl Marx, Max Weber, and so on. Historical examples of the assembly line also go far back to include the Venetian Arsenal, the Dutch Ship works, and Eli Whitney's rifle assembly.
- 2 World systems theory covers many of these political issues including war. Our focus will be on the organization of work rather than things like the battle for the core. However, in the last chapter we will look at world systems theory.

# 2

## What Was the Old Division of Labor?

► **Abstract:** *This chapter describes the old models of division of labor that have dominated the twentieth century. It focuses on the principles of Taylorism / Scientific Management / Taylorism and Fordism / Mass Production and analyzes the complex intertwining of social and technical factors of these classical models of production.*

**Keywords:** division of labor, Taylorism, Frederick Taylor, Fordism, Henry Ford

Janoski, Thomas and Lepadatu, Darina. *Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work*. New York: Palgrave Macmillan, 2014. DOI: 10.1057/9781137370235.

## Taylorism and Fordism

Two men dominated the old division of labor. The first, Frederick Winslow Taylor, suffered headaches and poor eyesight so despite having passed the entrance exams to the Harvard Law School, he in 1874 became an apprentice patternmaker and machinist at a pump-making factory in Philadelphia. He went on to become what we would now call a management consultant to the Watertown Arsenal and Bethlehem Steel, and later a professor at the Amos Tuck School of Business at Dartmouth University. That he had poor eyesight is surprising since he and Clarence Clark won the 1881 doubles championship at what is now the U.S. Open, and 19 years later he finished fourth in golf at the 1900 Olympics in Paris. In any event, his unbounded enthusiasm in machinery and factories led to his development of the theory of scientific management. While the industrial revolution with theorization by Adam Smith's pin-making principles and Emile Durkheim's work on the division of labor came before what Taylor had done on the analysis of work, Taylor went further than them in specifying the division of labor's components of time and motion studies and piecework (Kanigel, 1997).

The second, Henry Ford, grew up on a farm and although he had a basic education, he did not consider going to a university. Instead his early life was based on tinkering until he started work for Thomas Edison. This gave him a chance to develop his ideas about automobiles, which was a newly emerging technology of his time. He developed his ideas toward production on the basis of factories that he visited and also the disassembly processes at the Chicago stockyards. There is no evidence that Ford directly used any of Taylor's ideas probably because Taylor died in 1915 at the early age of 59 when Ford's influence was just beginning to climb. Taylor actually visited Ford's early plant before the Rouge facility was build (Ford lived till 1947). Ford was a self-taught autodidact who relied more on observation than books and was even a bit antagonistic toward higher education (and also toward bankers, trade unions, and Jewish people) though he did establish the Ford Trade School. Examples of both assembly-lines and rational production existed as far back as the Venetian boat works, but Ford does not reference them and probably had only a passing knowledge of them at most because he was largely a self-made man (Ford, 1977, 1926).

So these two very different men are forever entwined as the two forceful personalities who shaped the modernist century of machine production in America and the rest of the world.

## **Taylorism and scientific management**

In the Taylorism or scientific management approach, Frederick Taylor felt that the industrial order had been changed. In the past, man had been first, but in the future, the system must be first (Taylor, 1911:2). This system had four principles. First, Taylor's engineers examined the work process in terms of how it was done. Using "time and motion studies," they would study the job by replacing informal or rule-of-thumb methods with scientific study of actual job processes and methods based on the results of a scientific study of a job's tasks. To do this, the engineers conducted experiments with the work process and developed more efficient ways of doing things including the physical movements of the body, thought processes of the mind, and also optimal rest periods. Finally, they would provide "detailed instruction and supervision of each worker in the performance of that worker's discrete task" (Montgomery, 1997: 250).

Second, the engineers, who later became human resources or personnel specialists, would scientifically select, train, and develop each employee rather than passively leaving them to train themselves. They classified workers to see whether they fit the rigors or tedium of the work processes. One didn't want workers whose abilities were limited and thus could not do the job, but they also didn't want abilities to be too high so that workers would be bored with the job and want to do something else. Third, it targeted the wage system to create a payment system that strictly reinforced the optimal way of producing the product. Piecework wages were created that tied the number of products produced in an hour (or day) to increased wage rates if the worker exceeded a certain minimum. And fourth, it targeted the management system by dividing work nearly equally between different types of managers and clerks. The "foreman's empire" of the late 1800s was an anathema to Taylor because the foreman was essentially a subcontractor who had total control of his piece of the workplace. Instead of this, Taylor divided management up into nine different types of bosses or clerks: the route clerk, the information card



clerk, the time and cost clerk, the shop disciplinarian, the gang boss, the speed boss, the repair boss, the inspector, and the overforeman (human resources would evolve from some of the overforeman's tasks). Of course, Taylor's professional engineers also designed the whole process. This was called functional foremanship and to a large degree foresaw the functional divisionalization of organizations—separate supply, human resources, production, quality control, and many other departments—that became much common in the twentieth century.

The end result of Taylorism is the individualization of work so each worker has strong incentives to produce more products in order to get higher wages, and management controlled those incentives. It was a pure stimulus-response system that did not see work as existing beyond the immediate tasks before the worker. Engineers did the thinking about work techniques and designed the piecework system, and workers just followed orders.

While the Tayloristic system of scientific management might make sense from the perspective of a rare single-minded individual worker who wanted to make the most money possible, it didn't work for most workers. First of all, Taylorism removed thinking from the workers' purview and actually sought out dull workers.

One of the first requirements for a man who is fit to handle pig iron as a regular operation is that he should be so stupid and so phlegmatic that he more nearly resembles in his mental make-up the ox than any other type. (Taylor 1911:59)

This was exemplified in Taylor's testimony to Congress where he described the brawny Swede Schmidt who loaded pig iron.<sup>1</sup> He received 61% more pay for moving 362% more pig iron compared to the average worker. Schmidt's case has become legendary, although the evidence shows that no other worker in history could break his record. Taylor's assistants wrote that "other workers broke down after two or three days," showing that Taylor's methods were not so scientific after all (Kanigel, 1997). Although Taylor's pig-iron experiments had proven to be seriously flawed (Wrege & Perroni 1974), Taylor made the point that a "first class worker" selected based on a scientific method can double or triple his productivity if properly motivated. Taylor didn't care about dumbing the work down.

Second, the discovery of the informal group in the Hawthorne experiments at Western Electric showed that the social influence of the

group had even more control over worker's performance than manager's exhortations or engineer's piecework charts. Taylor's theory had absolutely no conception of groups or norms except as a negative factor to be expunged. Third, Taylor thought workers would make more money under this system, but managers saw something else in the methods and pressured engineers to change the piecework rates so that when workers achieved high levels of production, the amount of money they actually received was ratcheted downward. Workers thought this was duplicitous and unfair, and labor conflicts led to Taylor's testimony before Congress. Nonetheless, many firms gradually came to adopt many aspects of the Tayloristic processes of work design even if they didn't always implement piecework.

While Taylor's proposed principles of standardization and specialization had a tremendous impact on industrial productivity throughout the entire twentieth century, the basic premises of his managerial philosophy have been highly criticized from the beginning. The 1915 review conducted by Robert Hoxie, the special investigator for the US Commission on Industrial Relations of the House of Representatives, on Taylor's management practices, revealed that scientific management was undemocratic because it did not involve workers in the fundamental parts of the production process, such as the setting of task, the wage rate, or the general conditions of employment (Hoxie, 1966). But owners and most managers could care less about workplace democracy. The other major complaints against scientific management allude to the fact that the obsession with efficiency overshadows the fundamental social aspect of work (Mintzberg, 1989) while the increased specialization leads to workers' deskilling, degradation of work, and alienation (Braverman, 1974).

## **Fordism and mass production**

The concept of Fordism - intrinsically tied to Taylorism or scientific management - took the world by storm from 1918 to 1968 (Nye, 2013). Since it uses an assembly line, it cannot make the pace of work the central aspect of payment like Taylorism; nonetheless, it shares many concepts of work design with Taylorism. Fordism consists of both technical and social parts. The technical aspects of Fordism has ten principles. First, parts and processes undergo intensive standardization (i.e., replaceable

parts being exactly the same so they are interchangeable) as a key aspect of this approach. Second, these standardized parts were a natural fit with the assembly line which demanded the repetitive installation of exactly the same parts. Third, the assembly line relied on massive economies of scale to promote productivity in terms of the quantity of cars produced. And this of course also produced higher revenues due to widespread sales based on a lower price for the car. The results were record levels of profitability. The massive vertically integrated plant on the Rouge River, which was largely built after World War I, embodied this massive scale of production (Ford, 1988/1926). Fourth, the standardization of material parts and assembly line technology led to a further standardization of human workers. This involved the deskilling of labor and the end of craft production with its careful fabrication of small numbers of automobiles. Fifth, the production process then created a mass market for homogenized products, whether automobiles or hamburgers, by molding tastes for the same things (Ritzer, 2011). The results led to the spread of automobile dealerships throughout the country with accompanying repair shops and gas stations. Later it led to cookie cutter houses and fast food restaurants. All of this, of course, presumed the creation of a large road system that was capped off by the interstate highway system created by President Dwight Eisenhower. Fast food restaurants and inexpensive motels were then built at every exit.

There are five social and political aspects of Fordism. First, Henry Ford increased wages with his unheard of five-dollar day. Ford argued that he wanted his workers to be able to buy his product (1922, 1926). Previously, automobiles were for the rich and totally unaffordable by autoworkers. Ford's plan lowered the price of automobiles and increased the wages of his workers. But the five-dollar day was exaggerated in terms of who it applied to (i.e., there were moral requirements). Second, the Fordist system became associated with the unionization of the auto industry by the United Autoworkers (UAW), and this led to collective bargaining for yet higher wages and an extensive array of benefits. While Ford and others did not intend to create this part of the Fordist system, it nevertheless became a standard feature in the industrialized north and mid-West. Third, the negotiation of uniform wages based on profits and productivity had a spillover effect on the surrounding industries whether unionized or not. As such, worker demand for products and the production of goods and services increased in these areas and the US in general. And fourth, Fordism is generally associated with Keynesian macro-economic

policies that increased spending through a welfare state that existed along with collective bargaining. Ford's idea that every worker should be able to buy a car parallels the consumer focus of Keynesian economics. And fifth and perhaps most distant to the actual production model, mass educational institutions (i.e., the American high school) providing undifferentiated workers who can be molded by short-term or on-the-job-training (OJT). These workers naturally fit into the semi-skilled demands of the assembly line in manufacturing industries.

While Fordism is viewed as the dominant model of the twentieth century, the actual Ford production process should not be considered the only version of it. Emma Rothschild also refers to "Sloanism" as the combination of Fordism and the multi-divisional structure (M-Form) that combined some aspects of control with marketing (1973; Farber, 2002). GM challenged and surpassed the Ford Motor Company as Henry Ford clung to his mass production model for too long—"You can have any color you want, as long as it is black." General Motors used the same assembly line and production process as Ford, but introduced an element of flexibility through its divisional structure. It produced a greater variety of automobiles with diverse divisions such as the Oakland (1917–31), Pontiac (1926–2010), Oldsmobile (1897–2004), the Winton (1897–1937), Buick (1999–present), Chevrolet (1911–present), GMC (1901–present), and Cadillac (1902–present). As explained by Alfred Chandler (1962), Peter Drucker (1946) and Alfred Sloan himself (1986), the M-form structure used a unified financial system to control profitability but allowed the divisions to produce a somewhat unique car that could be sold in differentiated markets. This approach clearly put GM into the lead and the Ford Motor Company fell to a distant second. It wasn't until Henry Ford II took over the reins of Ford Motor Company after World War II that Ford was able to rebound.

The advantages of the M-form organization faded when GM's financial managers created GMAD or the General Motors Assembly Division. This approach centralized the production of body and engine parts and pushed the Sloanism model back to classic mass-produced Fordism (Moberg, 1978). The result was that the divisionally produced cars—Chevrolet, Buick, Oldsmobile, and Cadillac—started to look the same despite their very different prices. The model was clearly broken when an expensive Cadillac Cimarron (1982 to 1988) looked very much like a much cheaper and bottom-of-the-line Chevrolet Cavalier. In a process called "rebadging" by upgrading seats, dashboards, and chrome,

GMAD paraphrased Henry Ford's statement about "any color as long it is black": "You can get any color car with a wide range of features that you want, but underneath, they are all basically the same." Thus, we should not look at Fordism as invincible even during the high period of its rule (i.e., the 1940s and 1950s), and GM created some flexibility through the M-form organization that was successful for about a quarter of a century. But then it was enveloped again by Fordism.

But Fordism went beyond "the labor process" to create a theory of much wider scope. It described a whole way of life in the 1970s that included critique and some consensus (i.e., on wages and the expanding welfare state). It clearly had a cultural component as it affected consumption, the rise of the big box stores that replace mom and pop stores on the corners, and the mentality that nearly anything could be rationalized so that this imposing discipline of efficiency could produce a nirvana of weekends filled with autos, toys, groceries, and even rational psychotherapies that would make create more efficient personalities (see David Moberg's *Rattling the Golden Chains*, 1978, about the Lordstown GM plant in Ohio). It was the American way. In some ways, Braverman's 1974 book was like the Owl of Minerva who only looks back to the past. Sociologists had not fully recognized the Fordist age until it had peaked and went into decline with the first oil crisis in 1973. The edifice of scientific management would soon be surpassed.

Nonetheless, what is noteworthy is that the technical theory of scientific management led to two themes. First, there was a great excitement and enthusiasm for the theory, and many researchers wanted to apply it to areas of work ranging from clerks to medical doctors. For example, doctors in California even as far back as the 1940s witnessed the beginnings of Fordism in health maintenance organizations (HMOs) through the Kaiser-Permanente Medical System. And second, the theory of scientific management expanded through its extension into Fordism into the rest of society including trade unions, government policy, politics, and educational institutions. Since the decline of the Fordist model, there have been a number of contenders to replace it but none has taken off with the enthusiasm or scope that Fordism did after the Ford Rouge plant was built.

What caused the decline? Although Fordism and to some extent Taylorism are still strong in the third world and in China, these two approaches declined mainly because of the Japanese approach to production that improved quality. In the American automobile industry and

many other manufacturing concerns, the quality of production began to suffer as workers became more and more dissatisfied with the sheer boredom of the production process even though Henry Ford himself said that “repetitive labor is a terrifying prospect” (1922, chapter 8). The mind-numbing process of doing the same thing 50 times an hour for eight or more hours a day led to “human beings” questioning whether this was all there was to most of their conscious lives. And this repetitive vision of the dominating and relentless machine even invaded the unconscious lives of workers when they slept and dreamed. Eventually, demands for the humanization of work in the 1960s and 1970s emerged, though these pressures did not go far as new models of work came upon the scene.

For workers who had been struggling peasants in Europe or the American farm, high wages would be enough for a few decades. But as Americans and others gained more and more education, spending one’s life on an assembly line was a nightmare. At the same time, many companies were pressured in the 1960s and 1970s to employ more disadvantaged workers who had not had the access to decent wages in the past led to social conflicts. The rebellious baby boomers instigated sabotage on the line, and the rise of Marxist groups like the Dodge Revolutionary Workers Movement led to conflicts and lower quality. At the same time, the Japanese used a method of production that stressed thinking and participating blue collar workers and their reputation for quality rocketed Japanese auto sales to take over from American companies by the 1980s. The same thing happened in other industries from mechanical pencils to television sets.

After Braverman extended scientific management to white collar work, the criticism of deskilling and the labor process increased. Michael Burawoy (1979), Richard Edwards (1979), Dan Clawson (1980), and many others publishing important books in work and labor that were quite critical of the Fordist division of labor. But the harshest criticism of Taylorism and Fordism comes from the Japanese. Konosuke Matsushita, founder of Panasonic, looked at Taylorism and Fordism as symbols of a flawed form of Western thinking. The separation of tasks between management and labor was an anathema to him. Matsushita commented on the US commitment to Fordism: “We will win, and you will lose. You cannot do anything about it because your failure is an internal disease. Your companies are based on Taylor’s principles. Worse, your heads are Taylorized too” (quoted in Labovitz et al., 1993:43).

The various criticisms against Taylorism had paved the road to new schools of thought in labor relations that bring the human factor back in the division of labor and propose a balance of the technical and social factors, most developed in socio-technical systems theory. For instance, Swedish and German models are often more friendly to workers with a form of worker empowerment in problem solving and suggestion systems (Berggren, 1992; Turner, 1993).

Again, Fordism and to some extent Taylorism did not disappear, but on high-value added products it went into a slow but consistently downward decline. What replaced it is a complex mix of models, which we will now sift and sort in the next two chapters.

## Note

- 1 The average worker in the pig-iron unit could barely load fourteen tons of pig iron for the pay of \$1.15 a day. Schmidt moved as high as 52 tons for a sum of \$1.70 a day. Rather than the brawny Schmidt, the record setting pig-iron loader was actually Heinrich Noll, a rather small but strong German worker (Kanigel, 1997). The reasons why Taylor changed the worker's name have never been clearly explained. Incidentally, Braverman pointed out that the well-known sociologist Daniel Bell mistakenly stated that Schmidt shoveled 92 pound ingots (1974:106-7)

# 3

## New Models of the Division of Labor—I

► **Abstract:** *This chapter focuses on four new models of the division of labor that developed after Taylorism and Fordism: post-Fordism and flexible accumulation, McDonaldization and co-production, Siliconism and socio-technical Theory, and shareholder value by black-boxing production.*

**Keywords:** Post-Fordism, flexible accumulation, McDonaldization, co-production, Siliconism, socio-technical theory, shareholder value theory

Janoski, Thomas and Lepadatu, Darina. *Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work*. New York: Palgrave Macmillan, 2014. DOI: 10.1057/9781137370235.



Beginning in the 1970s, Fordism and Taylorism faced a sustained assault from eight different conceptions of new and different production systems. In this chapter and the next chapter, we present and analyze the eight claimants to replace Fordism and Taylorism to see which ones can or cannot be synthesized into one overriding model.

The movement to a new model was not heralded by great fanfare, and it was difficult to perceive the movements of these changes for a couple of decades. This chapter begins with a model that was not named after a new firm. It refers to post-Fordism, and then later to flexible accumulation. The next two models are focused on highly successful firms or industries—the fast food industry with McDonald’s, and the computer and electronics industry headquartered in Silicon Valley. As the fourth theory, shareholder value theory doesn’t really present a change in production but rather in the financing of corporations and strategic decisions that are made more on the numbers of finance than by the efficiency or quality of production. These four new models have some interesting and important components, but they do not quite meet our criteria for being in the group that might be considered dominant. This is for a number of reasons: (a) because they actually reflect the Fordism or Taylorism, (b) they are not coherent or prevalent enough, or (c) they do not actually focus on the production process. Nonetheless, they do capture some important aspects of the world of work, and they also help us to sharpen the focus on what is important. Consequently, we look at the following four models of the division of labor: (1) post-Fordism and flexible accumulation, (2) McDonaldization, (3) Siliconism and socio-technical theory, and (4) shareholder value theory.

## Post-Fordism and flexible accumulation

The simplest model is to put “post” in front of the old model, so post-Fordism was the first innovative conception of the division of labor to emerge. Coming out of post-modern theory with Frederick Jameson’s “cultural logic of late capitalism” (1991), it was developed more specifically as a production process by David Harvey in *The Condition of Post-Modernity* (1990:141–72; 2011). Harvey was delineating the impact of the division of labor on cultural systems. Although he avoids using the specific term post-Fordism, his use of post-modernism is quite similar to post-Fordism despite preferring the term of flexible accumulation.<sup>1</sup>

Post-Fordism was the term initially implied in the early development of this theory. Daniel Bell's work on the post-industrial society with the strong movement from manufacturing production to service provisions (1973) was among the first discussions of this shift. More production-oriented works came in the form of work of Michel Aglietta (1979), Robert Boyer, and the French regulation school.<sup>2</sup>

Harvey's work laid post-Fordism largely at the feet of the accumulation crisis of modern capitalism made worse by the oil crises of 1974 and 1980. This energy crisis led to a decline of capital accumulation in the West (though it rose in the Middle East), a rise in inflation and unemployment, and a major reaction by Western capitalists to regain their edge. Therefore, this new labor model emerged to address the past flaws of both Taylorism and Fordism.

The technical aspects of work in Post-Fordism are somewhat general. First, there is a massive shift from manufacturing to service work (i.e., post-industrialism). Second, in the area of manufacturing, mass production is replaced by more specialized production processes, which provide more unique designs and higher quality. Third, specialization requires shorter production runs and even sometimes batch processing, but in either case they are produced by flexible labor arrangements. Fourth, new technologies involving computerization and robotics make flexible production possible and more profitable. Fifth, production is controlled through flexible technical and human systems using computer technology and instantaneous communications. And sixth, large organizations with bureaucratic characteristics are changed into more responsive, flexible, and usually flat organizations with minimal hierarchy. Also associated with post-Fordism is a shift in consumerism such that people now prefer more interesting and unique items. Emblematic of this was the shift from modernist architecture with its straight and shiny lines indicating total functionality (and somewhat contrary to the theory—complete flexibility within the building) and post-modern architecture with buildings with more interesting nooks, crannies, and sometimes surprising juxtapositions of different styles. Post-Fordism went along with the view that all of society was changing in the direction of post-modernity, distancing itself from Fordism with its boredom with standardization in production, imitative products, and cookie-cutter urban landscapes.

Flexible accumulation, though somewhat present in post-Fordism, emerged as a model much more focused on the production process. It

has some of the benefits of coming later with more focus on the current globalization of production and outsourcing. Steven Vallas, in a number of journal articles, has elaborated theories of flexible accumulation and applied them in a more detailed way to the production process itself. Flexible accumulation as a system of capitalism has five features. First, the structures of vertical hierarchy or authority are externalized outside firm boundaries and to some degree flattened or delayed into more flexible ways of accumulating capital. Second, the layering is accomplished by the outsourcing (and by implication, offshoring) of work through subcontracted relationships with other firms. Third, the workings of individual firms themselves are segmented into professional or specialized employees who are privileged and work in teams. Fourth, at the same time, blue collar permanent workers are still subject to work under standardized procedures in more traditional roles, and temporary workers are used as buffers to the regular workforce and provide a disciplining factor by showing that permanent workers could easily be replaced. This conditional and bifurcated treatment of blue collar workers along with attention to professional and technical workers creates a complex arrangement of privilege for some and subjection for others. This is an especially important instance of flexibility. And fifth, flexible accumulation has innovations such as supply-chain management (JIT), computer assisted design (CAD/CAM), and other more flexible processes (Vallas, 1999, 2001, 2003, 2006a,b).

From the technical aspects of post-Fordism and flexible accumulation, we go to the social and political aspects of these models. First, trade unions that are characterized by bureaucratic rules and rigidities of Fordism are no longer used to represent the interests of the post-Fordist work force that is highly differentiated into types of trained employees and professionals with various levels of employment security. A core labor force is then buffered by a temporary work force that is not represented by any group. Second, individualistic bargaining replaces more centralized bargaining procedures, which the flexible accumulation view sees as only producing conflict and resentment. Third, these workers, employees and professions develop different identities and as a result demand more differentiated arrays of cultural enhancements, material products, and diverse lifestyles (e.g., professionals driving a Volvo and blue collar workers driving a 4-wheel-drive pick-up truck). Fourth, the bureaucratic welfare state can no longer meet the needs of this newly diverse (de-massified) population, and “more flexible institutions are

required” (Clarke, 1990:73–74; Gartman, 1998; Lipietz, 1995). And finally, these needs will be fulfilled by more flexible organizations and politics to supply these goods and services in the way that they are needed (Vallas, 1999; Vidal, 2006, 2007, 2011; Clarke, 1990). Most often, these services are divided into high and low paying segments. In large part, post-Fordism and flexible accumulation fit well into the neo-liberal political view of cutting the welfare state and its associated union-busting institutions.

The combination of new production processes and the new lifestyles of post-Fordism, with multiple and complicated identities, presents a highly complex and comprehensive approach to the division of labor. Nonetheless, post-Fordism has a number of weaknesses. Production is said to be flexible in a number of different types of organizations, but not much else is said about the labor process other than production runs are shorter and may use new technologies (Vallas, 1999:74–75, 95). The points about unions no longer being needed and decentralized collective bargaining hardly describe the techniques of union-busting or the hiring of temporary workers, much less offshoring to China and beyond. The welfare state no longer meets workers’ needs, yet it is largely still there along with 401k and 403b plans that have nearly replaced defined benefit plans. All in all, post-Fordism and flexible accumulation leaves one feeling a bit empty. There is nothing as specific as the Occam’s razor of scientific management.<sup>3</sup>

The addition of “accumulation” to “flexible” indicates that this is a capitalist model that extracts surplus value, especially from the semi-permanent and temporary blue collar workers. This goes back to Klaus Offe (1986) and James O’Connor’s distinction (1973) of a legitimation and accumulation crisis in capitalism (see also Berg & Janoski, 2005:62, 76–78). The accumulation crisis occurred with the oil shocks and the rise of inflation, but flexible accumulation largely fixes this crisis for capital. Vallas does not seem to follow this theory especially in terms of a legitimation crisis. Nonetheless, he indicates that the beneficial aspects of the system for workers are largely an illusion. The main approach is to accumulate greater and greater amounts of capital for profits, further investment, and distribution through dividends or increasing stock value.

The flexible accumulation approach outlined by Vallas (1999) certainly captures the “flexibility of production,” but it does not capture the partially positive aspects of blue collar workers involved with teamwork. This means that flexible accumulation would not apply very well to the

Toyota Production System (TPS). In fact, Vallas tends to avoid discussions of Japanese production and Toyotism, and tends to develop more of a theory that emerges from the natural development of Western capitalist firms.<sup>4</sup> So while flexible accumulation is a useful model that is researched in considerable theoretical and empirical depth, we believe that it has a gap since Toyota and its TPS are strongly personified by blue collar teamwork. Further, while outsourcing is mentioned, off-shoring is not. As a result, the critical models of the East in terms of Japan and China are underplayed. When the division of labor is encountered by Alain Lipietz (1995) including Japan and Mexico, world systems theory is not discussed. This may be an unfair critique since we also do not venture far in this direction, but at the minimum, Vallas should mention offshore production. All in all, flexible accumulation theory tries to ground its theory in the somewhat natural development of Western capitalist processes without specifying exogenous influences.

## **McDonaldization, emotion work, and co-production**

McDonaldization was developed by George Ritzer (1996), and it models itself on the rationalization and standardization of the McDonald's restaurant corporation. Relying on Max Weber's theory of bureaucracy and rationalization, it consists of five parts. First, efficiency experts discover the "best possible means" to produce services, which makes it resemble scientific management in the food industry. Second, calculability is part of all aspects of the restaurant business, especially the timing of cooking, the length of serving, and the designing of take-out windows. Third, efficiency and calculability are somewhat uniquely applied to the rituals of greeting and satisfying customers. Fourth, technology exerts great control over the food production process including the standardization of production (i.e., there are no "custom hamburger orders" making it antithetical to post-Fordism). And fifth, irrationality results from this process because it leads to ends that people do not want (e.g., obesity of customers, dehumanization of workers, mass-produced food, and a mind-numbing sameness of the product).

The originality of George Ritzer's concept of McDonaldization is that he takes Weber's principles of efficiency, predictability, control, and calculability from the organizational (meso) to the societal (macro) level, showing the unintended consequences of bureaucratic labor processes

on the overall society. Today, all aspects of advanced industrialized societies from media to banking, housing, entertainment, education, health care, travel, and family are permeated of the rational, and ultimately irrational, principles of McDonaldization. Whereas McDonaldization highlights the homogeneity and predictability of production, a rising countertrend in post-industrial societies is eBayization, which provides variety, adventure, freedom, and risk (Ahuvia & Izberk-Bilgin, 2011). At the same time, a complementary notion to McDonaldization emerged called the Disneyization of society. Though not quite as prevalent, it is based on theming, dedifferentiation of consumption, merchandising, and emotional labor (Byrman, 1999; 2003).

While Ritzer is a critic of McDonaldization, we have to be quite critical of his view of McDonaldization as the new model of the economy, not because it does not exist, but rather because McDonaldization is simply “food Fordism.” All of the first four principles are present in Fordism, except perhaps something equivalent to the “\$5 day” (i.e., pay in McDonaldization is relatively low). Ritzer directly applies Weberian rationality to food preparation, and this flies in the face of the flexibility, limited production runs, and unique and high quality products of the previous two models. While we contend that McDonaldization as a whole is not new, two aspects of this business model can be considered novel.

The first new aspect is the rationalized emotion work involved with friendly greetings and attention to satisfaction concerning customer service. This is new in that good times and “joy” (“I’m lovin’ it”) are engineered into the teachings of the McDonald’s University with locations in Chicago, Sydney, Munich, London, Tokyo, Brussels, and Beijing. But again, even this “emotion” is standardized at every location.

Since emotional labor is regarded as a key feature of McDonald’s, its global expansion brings into question whether a standardized emotional display can be perceived positively across diverse cultures. Byrman (2003) gives examples from the restaurants opened in Moscow and Hong Kong where the happiness and friendliness of McDonald’s workers with customers are treated with suspicion. In fact, workers who are having too much fun on the job are perceived as not working hard enough, thus enjoying themselves too much at the expense of consumers and management (Watson, 1997). Even in the US, the company is struggling to live up to its ideals of happiness and friendly service. As of April 2013, McDonald’s received mounting criticism from customers

that its employees are rude or unprofessional, which made the company to appeal to its employees to fix “their broken service” (Jargon, 2013). Further, crew members make an average of only \$7.68 per hour or \$15,974 per year with cashiers making 5 cents an hour more. Promotions may lead to being a trainer (\$16,869/year) and a shift manager (\$20,113/year) (Glass Door, 2013 with averages based on 1,112 workers reporting). This is among the lowest pay in the industry. Current workers are not saying “I’m lovin’ it.” Instead they are saying “I’m hatin’ it!” And in 2013, this has resulted in demonstrations with many asking for a “living wage.”

The second innovative aspect of McDonaldization involves the term “consumptive labor” that describes the rising category of consumers who perform work tasks from filling their drinks to cleaning their trash in the manner of quasi-employees (Koeber et al., 2012). The expansion of self-service through fast food dining, online and ATM banking, distance education, online shopping, walk-in/walk-out medical centers, and self-check-out at grocery stores brings the consumers as co-producing agents in the new division of labor. Thus, organizations outsource their service to customers in exchange for keeping the costs down.

Similar to Fordism, McDonaldization has two opposite forces in its labor model. On one hand, its bureaucratic principles of efficiency, calculability, control, and predictability ensure that both customers and employees are treated similarly regardless of their gender, class, age, or social class. On the other hand, this excessive organizational rationality creates dehumanizing and alienating workplaces where employees feel like robots working on the assembly line of fast food (Ritzer, 1998). For some, McJobs have become the symbol of low skill, low pay, dead-end jobs (Gould, 2010) with a record turnover rate of 60%, according to a 2010 report of National Restaurant Association (Jargon, 2013). For others, particularly managers, McJobs offer great training opportunities for junior employees, tuition money for workers going to college, employment opportunities for people with disabilities, and a good record of hiring and promoting minorities and senior citizens (Ritzer, 2002).

From the greatest restaurant chain in the world to a symbol of American imperialism, McDonald’s is a fascinating example on how the lowest-paid industry can become the fastest growing industry in the USA. While incorporating a small amount of ethnic food and showing appreciation for local cultures at its worldwide stores, it is also portrayed at the same time as the evil side of globalization. But getting back to the

basics, McDonaldization is simply scientific management aimed at restaurants with two original features—emotional labor and self-service.

## Siliconism and socio-technical theory

Silicon Valley in California has become famous for its technological innovation concerning computers and other electronic products, and with these epoch defining products, it has also become a symbol for a new informal way of working that is seen as especially encouraging creative and innovative work among highly talented people. Gaëtan Tremblay proposes Gatesism (named after Bill Gates, the founder of Microsoft) as a movement toward a new informational or interactive division of labor (1995, 2008a,b; LaCroix & Tremblay, 1997; Stross, 1997). Gary Hytrek (2008) mentions Siliconism as how globalization is transforming stratification. Gatesism and Siliconism two terms that are used to describe this model, but they are less often discussed and somewhat hard to delineate. All in all they represent what is distinctive about how work is organized among the high technology firms of Silicon Valley in California.

In terms of technical and social aspects, there are some mixed features of this approach. The technical aspects of Siliconism include five features. First, the product is often not physical and is more often computer code written into programs such as operating systems, word processing programs, and various applications. But there are some physical products such as Intel's chips or Apple's iPads, but much of the manufacturing of these products may be offshored to China, Taiwan, and elsewhere, whereas the knowledge and design work are done in its high tech hub in Silicon Valley.

Second, most work in the central offices of large corporations in advanced industrialized countries is often creative so workers are organized into semi-autonomous teams solving problems in small groups sometimes having started much earlier in a garage or dorm room. This model generally follows many aspects of socio-technical theory where teams have considerable freedom and leeway to take advantage of their creativity (this also fits flexible accumulation). This has led to a tradition of informality on the Silicon Valley campus-style workplaces with various amenities such as gyms, high end restaurants, coffee shops, and other activities. Dress is often extremely informal and the workplace is pervaded with amenities. The 2013 movie *The Internship* with two



middle-aged and unemployed watch salesmen trying to make it at Google is a good (if slightly exaggerated) description of Google's culture with intern beanies, free food and drink, relaxation pods, and group work (Twentieth Century Fox, 2013).

Third, the organization is directed by professional managers with some residual founders in specialized niche and authority roles. This mix of entrepreneurs and managers is intended to maximize creativity and business acumen. Fourth, employees often work very long hours as a norm, and employees are encouraged to stay late into the night and sometimes even have relationships with each other (e.g., note the number of affairs and divorces due to long working-hours at Kaizen Motors described by Lepadatu and Janoski, 2011). And fifth, pay and benefits are often quite high though job security is not always guaranteed. Workers may move fluidly between companies on different sorts of projects. In its more organizational form, it consists of project teams of highly skilled programmers and scientists working together on new and innovative projects. Some have referred to this as the home of the "protean worker" where job switching and learning new skills are the norm rather than the exception (Hall & Mirvis, 1995).

The socio-technical aspects of Siliconism generally follow the work started by Kurt Lewin and furthered by the Tavistock Institute in London along with consultants and various professors working in the US and Europe. This approach emphasizes "semi-autonomous teams" that have a great deal of freedom to pursue their work, which is especially good in high tech and design environments. They are involved in larger operations that involve cross-functional teams with people from many different units. The socio-technical theory approach consists of four points: (1) democratic values involve participation as a basic value because "we are likely to modify our own behavior when we participate in problem analysis and solution" (Weisbord, 2004:89), (2) force field analysis helps us to get out of what appear to be frozen conflicts, especially when we see the driving and restraining forces to any problem; (3) the nature of change is based on learning in organizations by viewing any structure as frozen, unfreezing, moving to a new situations, and then refreezing; and (4) the primacy of group dynamics involves people responding to tasks in groups (see the *Robber's Cave Experiments* where boys in autocratic, democratic, and laissez-faire groups at a camp respond to daily and extraordinary threats) (Sherif et al., 1988). This approach is sometimes known as the human relations approach to work. It assumes that work

is organized in systems; technology and social concerns are optimized together; intrinsic properties of jobs (variety, challenge, autonomy, etc.) are more important than pay; and teams and groups can be rather autonomous with multiple skills.

The implementation of this approach in a changing environment consists of four parts. First, top managers establish the need to redesign the organization, often by visiting innovative workshops and gathering ideas (Weisbord, 2004:314). When they find a window of opportunity they assemble employees and convene a “steering committee.” Second, this committee does a wide-open and comprehensive environmental scan to examine the past, present, and future using fair and open communication. Third, from this scan, the steering committee composed of all levels of the organizations (i.e., stakeholders) manages the goals and values, and appoints a “design team.” Fourth, the design team does a technical and social analysis to come up with the solutions to implementing organizational changes. The design team is a semi-autonomous group that is responsible for new solutions. They do the socio-technical analysis and provide the solutions to problems that the steering committee reviews.

This approach was theorized by Eric Trist and Fred Emory, and socio-technical approaches were validated by the technological change from the long-wall to the short-wall method of coal mining in the UK. They showed that the small teams in the short-wall method proved to be more efficient than the Tayloristic division of labor in the long-wall method of coal extraction (Trist et al., 2013/1963; Trist, 1997). However, the socio-technical theory with its semi-autonomous teams was employed by only a small number of firms, and otherwise ignored until Silicon Valley embraced it (Sachs, 2011; Kenney, 2000).

Along with the more organizational aspects of the work, there are several socio-political aspects that should be considered. First, the Silicon Valley companies thrive on deregulated labor and product markets. They avoid bureaucracy in their organizations but also tend to overlook formal aspects of employee protection, which means that they are often quite antiunion or simply don't see the need for unions since they provide their employees so well with wages, perks, and benefits.

Secondly, these Silicon firms tend to avoid paying very much in taxes by generally using tax havens and loopholes. For instance, Apple, Google, and Facebook are known to use “double-Dutch” or “Double-Irish” tax dodges by putting offices in countries that allow putting

money in Bermuda or the Cayman Islands. Their taxes often amount to 5–12% compared to the corporate tax rate of 35% in the US. A recent Congressional inquiry finds that Apple even claims that its subsidiaries are stateless and “beyond any tax authority’s reach” (Schwartz & Duhigg, 2013). Similarly, web and internet firms have long enjoyed tax exempt status even though they are profit making (e.g., Amazon.com), and recently legislation trying to remove this tax exemption is facing heavy opposition from the Silicon Valley firms. And the CEOs are the stars of these corporations making very high salaries with stock options, while employees make much less (Fitzgerald, 2011; Rao & Scariffi, 2011; Kenney, 2000; English-Leuck, 2010).

Third, more directly connected to politics, Marc Andreessen, a Silicon Valley venture capitalist, sees valley politics as going through three stages: (a) 1970s to 1980s—“just leave us alone,” which tends to embrace a form of libertarianism, (b) 1990s and 2011—“focused narrowly on pet issues,” which involve repatriating profits or getting more H-B1 high tech visas; and (c) most recently from 2012—“equip more Americans for the digital age” perhaps through “Citizenville” and represented by the Mark Zuckerberg-inspired *FWD.us* lobbying organization (Packer, 2013; Newsom, 2013; Johnson, 2013). The past influences have largely been libertarian with liberal support at times, and the practice of Silicon Valley has produced inequality and some embarrassments (e.g., David Sacks’ \$1.4 million “Let Him Eat Cake” birthday party based on a Louis XVI theme). On the whole, the Silicon Valley influence, as represented through their money interests, is rather conservative except on the immigration of high tech workers.

This model is the least cited in the literature because few people have pushed it and it is very specific to Silicon Valley itself (even though Microsoft is in Redmond, Washington). Also, it is restricted to programming activities and as such mainly refers to Silicon Valley with its culture of entrepreneurial start-up and more established firms. It could also refer to scientific discovery processes in drug and chemical, and new model or engineering developments in some other manufacturing companies. In some ways, it is more of a product design or scientific discovery model rather than a production process model (Morgan & Liker, 2006; Kenney & Florida, 1993). But since it strongly resembles Nikeification (to be discussed later), we see it as being an even more high-tech part of that model, which has led to major technological breakthroughs that have been effectively marketed to mass markets.

## Shareholder value theory and black-boxing production

In the 1960s, a broad movement developed around worker participation in management and making jobs more interesting to workers. Much of this was connected to socio-technical theory discussed above. This came to be called stakeholder theory in the sense that many people ranging from workers, customers, and the community were stakeholders in the actions that corporations may take (Freeman, 1984). As part of a neo-liberal conservative reaction to these ideas, shareholder value strategies emerged out of the crisis of “Financial Managerialism” of the 1960s (Davis & Thompson, 1994, Fligstein, 2001:84–86, 147–69; Stout, 2012). Stakeholder theory became “the enemy” (i.e., a literal “stake in the heart of capitalism”). Intense competition from Japan and low profits in the 1970s led to a distinctive strategy that instructed top managers to pay strong and almost exclusive attention to the people and groups who own their stock (shareholders) and not to multitudinous others (stakeholders). One particularly influential group consisted of institutional shareholders. For instance, CALPERS (the California Public Employees Retirement system) accumulated such gigantic assets that it could demand the removal of CEO Robert Stempel from office at GM in 1990.

Especially coming out of Jack Welch’s ideas espoused at GE in the 1980s, shareholder value theory narrowed the constituency of corporations from “stakeholders” to “shareholders.” As such, “shareholder value theory” is composed of six parts. First, CEOs and other corporate managers should concentrate on increasing the value of their stock and also in paying dividends to shareholders because shareholders are their most important, and indeed, their “only” legitimate constituency. In other words, owners come first. The other principles relate on how to achieve this goal. Second, it recommends that corporations sell off overvalued and otherwise diversified assets to boost cash reserves and pay dividends. Third, corporations should “assume debt to keep firms disciplined,” which keeps the stock’s prices and values from being diluted by issuing more shares. While not an original tenet of this model, offshoring soon became part of removing layers of employees by sending work to low cost production facilities in China and elsewhere. Fourth, corporations should buy up or merge with competitors, which increases market share and creates redundant employees, which leads to the next point. Fifth, corporations should “remove layers of management to save money” and layoff or outsource lower level employees to minimize exposure to costly

employee benefits and other responsibilities toward workers. And sixth, corporations should offer very high wages and bonuses to CEOs and top executives through stock options in order to align managerial incentives with the value of the company's stock (quotes from Fligstein, 2011: 85; see also Davis et al., 1994).<sup>5</sup>

Shareholder value approaches mainly involve higher level management strategies and do not directly concern production processes. There is no actual model of quality control, production scheduling, or supplier organization. However, we include this Wall Street-focused theory as being responsible for intensifying "short-term management thinking" focused on stock prices, and thus being antithetical to the "long-term thinking" that characterizes Toyotism. Thus, shareholder value theory's major points do little to specify a production process. Within its framework, production can be severely strained by (a) the infighting of disruptive mergers, (b) being divested from a parent company, (c) being milked by managers not approving needed maintenance on plant and equipment, and (d) generally ignoring long-term investment in plant, equipment, and employee loyalty (Dobbin & Jong, 2010). In some ways, shareholder value is an intense backlash to "stakeholder theories" that tried to show how a much wider group of people including workers and the community could have a positive influence on the corporation. It is more of a "division of profits" rather than a "division of labor."

General Electric has been the poster-corporation for shareholder value. Under former CEO Jack Welch, GE downsized, outsourced, and offshored as much of its production as possible. GE as a conglomerate that produces a wide variety of products from light bulbs to dishwashers to air craft engines has a far flung network of products, suppliers, and R&D units. Like its rival Westinghouse it faced hard times in the 1970s and 1980s, and Jack Welch brought the firm back into profitability by pursuing a tough strategy of shareholder value principles. As such, Welch cut, merged, and off-shored production until GE was the *wunderkind* of the 1990s and the new century.

GE began in the late 1890s and often competed with Westinghouse as an appliance and electrical motor manufacturer. It currently manufactures home appliances, consumer electronics, wind turbines, aviation engines, electric motors, lighting, locomotives, software, and certain kinds of weapons. It also produces basic products in terms of water, electricity (nuclear, wind, solar, and gas), wind turbines, gas and oil, and

supplies financial, entertainment, and health services. Currently, about half its revenues comes from financial services with manufacturing providing the rest. GE's history is complicated because the company has transferred as many operations as it currently has in numerous sales, merger and acquisition activities.

In 1981 Jack Welch became the youngest CEO at GE, and he cleaned the house with an emphasis on shareholder value. He was intent on reviving the company by making its many divisions first or second in the industry or by dropping them. His nickname of "neutron Jack" came from cutting over 100,000 employees or about 25% of the company by 1985 (some by selling businesses and others by straight cuts). Welch took three steps to make GE more profitable: (1) Welch changed the focus of overall operations to financial services, which he viewed as being more profitable, and in the process he cut unprofitable divisions and companies; (2) Welch adopted six sigma quality programs in manufacturing in 1995; and (3) in the 1990s he offshored and outsourced manufacturing whenever he could.<sup>6</sup> In 1980 before he was CEO, GE had revenues of \$27 billion and a market value of \$14 billion, and the year before he left GE those revenues had increased by a factor of five to \$130 billion and GE's market value skyrocketed by nearly 30 times to \$410 billion. *Fortune* magazine named him the "Manager of the Century" (1999). At the end of his tenure at GE, Welch was widely regarded as a management genius (Slater, 1999; Lane, 2008; O'Boyle, 1998).

Two processes hurt manufacturing employment in the United States but boosted profits for GE. First, the financialization of GE drew resources away from manufacturing, especially as Welch cut basic research within the firm. Second, Jack Welch's "70-70-70" rule was to outsource 70% of production to other firms, off-shore 70% of this outsourcing to low wage countries, and send 70% of this to India (Carmel & Tija, 2005:110). In a comment made to his business managers, he said that GE should "put factories on barges" so that they can be moved around the world in search of the lowest wages available has also become legendary or infamous depending on your values. Some of GE's manufacturing would be difficult to offshore such as military equipment and especially jet engines (Stevenson, 1992). However, a large amount of electronic manufacturing was off-shored to Asia and GE recorded record profits on these items, especially large appliances (refrigerators, washers, coffee pots, etc.). In 2011, 154,000 of GE's total workforce of 287,000 workers were in China and Asia (Uchitelle, 2011).<sup>7</sup>

However, shareholder value theory has little to say about how production is organized on the shop floor. Welch has indicated little concern about teamwork, long-term employee loyalty, and investing for the long-term. Six-sigma is an approach to quality but it does not actually entail teams and can be quite management-centered with top people getting their black belts in quality control but shop floor workers contributing little. Downsizing and outsourcing fly in the face of developing employees for the long-term. He instituted a year-by-year policy of cutting the bottom 10% of the company as indicated by performance evaluations. While some view Toyota's practice of getting unproductive workers out of the way—giving them desks by the windows to look at the scenery—as extreme loyalty, cutting the bottom tenth every year is also draconic and detrimental to what Besser (1996) refers to a “community of fate” that contributes to team work. Like shareholder value theory in general, it is hard to glean information about teams or the organization of production based on Welch's shareholder value approach.<sup>8</sup> Welch most likely has little interest in the internal operations of his off-shore subcontractors. While semi-autonomous teams could occasionally be used internally for R&D like Silicon Valley high tech companies, Welch got rid of most of GE's basic research, deeming it “unprofitable.” By 2011, GE had more plants offshore than in the US (230 to 219) as 53% of its revenues came from overseas manufacturing (Uchitelle, 2011). While more evidence would be helpful about teamwork and employee loyalty at GE, one can fairly conclude that GE and shareholder value theories have little concern for these issues. As indicated above, Welch was named the “manager of the century” by *Fortune Magazine*, and still has a strong influence on GE and most of corporate America to this day.<sup>9</sup> And shareholder value theory is a mainstay of Wall Street, many institutional investors, and some corporate boards.

## Notes

- 1 Although Harvey does not use the term “post-Fordism,” we still put him in this category for two reasons. First, his major statement on the topic comes from developments in the mid-1980s which focused on the early development of the concept. And second, his work is strongly associated with post-modernity, even though he is continuously seeking rapprochement between post-modernity and Marxism. As we will see with our explanation

of the related concept of flexible accumulation, Steven Vallas has less concern with post-modern concepts or reconstructing Marxism. Instead, he is squarely focused on the development of the production process and the division of labor.

- 2 Further works on the French regulation school and post-Fordism include Aglietta (1979), Boyer (1993), Boyer and Saillard (2001), Jessop (1990), Jessop and Sum (2006), and Peck (1996).
- 3 Vallas goes into much more detail in his critique of post-Fordism. He specifically criticizes this model for not recognizing a tension between power and efficiency, its multiplicity of market adaptations, and its failure to recognize the dualism inherent in the workforce (1999:74–76).
- 4 For instance, “the two distinct strains of flexibility theory” that Vallas identifies is “post-hierarchical models of work,” which go back to the McGregor and Hertzberg studies of the 1950s and 1960s, and “flexible specialization” of Piore and Sabel that we will discuss under our last model (1999:70–73). It is interesting that he avoids citing Robert Cole, Jeffrey Liker, or Terry Beshar though he does cite Paul Adler on New United Motors Manufacturing, Inc. (NUMMI) and Laurie Graham on Subaru-Isuzu. However, this avoidance of Toyota and discussion of Japan in general helps to distinguish this approach from the lean production view to be discussed later.
- 5 This aligns with principal-agent theory that is strongly concerned with how an owner (principal) controls their managers (agents). This was implemented by paying CEOs with shares of stock, which increases the CEOs interest in increasing the value of the stock (Jensen & Meckling, 1976).
- 6 Six Sigma is a quality control process that was developed by Motorola in 1986. It seeks to improve the quality of products by removing the causes of defects and minimizing variability in manufacturing processes. Each Six Sigma project is carried out with a defined sequence of steps with financial targets, and it certifies employees with a green to black belt system. Six Sigma itself refers to six standard deviations from the mean.
- 7 Jeff Immelt became CEO after Jack Welch, and he has pursued a number of different policies even though he came up under Welch. One important difference is that Immelt has renewed support for R&D (Magee, 2009). Secondly, Immelt became an advisor to President Obama on jobs, which signaled a change on offshoring. In the past two years under Immelt, GE has moved the manufacture of refrigerators from Mexico to the US and invested in producing a new hybrid water heater in Louisville. There is also some evidence of lean production methods that may involve quality control (Uchitelle, 2011). But GE still has a massive offshore investment in Asia. It is not clear at this time whether the firing of the bottom tenth still goes on.
- 8 One incident shows Welch’s approach to teams and Japanese methods. Jeff Depew was a GE executive in charge of electrical goods in Asia. He was



negotiating a joint venture with Mitsubishi Electric. Depew knew Japanese production and negotiation practices well, and he had set up a deal to bring GE and Mitsubishi together to dominate this market in Asia. GE would also enter into the Mitsubishi *keiretsu* (business group). The long process was planned out with Mitsubishi CEO Moriya Shiiki. But Welch ignored the carefully drawn out plan and said “let’s agree to do this deal right now” and “make elephants dance.” This basically violated Japanese principles of *nemawashi* (slow consensus decision-making) and interfered with Shiiki’s negotiations to extract Mitsubishi from deals with some other companies. Mitsubishi dropped the plan, Welch blamed Depew, and two months later Depew was gone (O’Boyle, 1999:4–12).

- 9 Welch has written a number of books, edited a column on management in *Businessweek* with his third wife, taught at MIT, and put his name on MBA programs at two small universities.

# 4

## New Models of the Division of Labor—II

**Abstract:** *This chapter describes other four new models of the division of labor: lean production and Toyotism, Nikeification and offshoring, Waltonism and merchandising, and additive technology and new flexibility.*

**Keywords:** lean production, Toyotism, Nikeification, offshoring, Waltonism, additive technology

Janoski, Thomas and Lepadatu, Darina. *Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work*. New York: Palgrave Macmillan, 2014. DOI: 10.1057/9781137370235.

While the previous four models had considerable merit, especially flexible accumulation, we believe that the four models in this chapter hold the keys to the present and future functioning of the division of labor. Three of these models can be synthesized into a more general model of lean production with some significant variations. The fourth model of additive production is entirely emergent at this point in time, and it is difficult to predict its organizational and social direction. Nonetheless, the technology or hard aspects of this method are on the horizon. Japanese production methods gave this model its start; however, it has gone beyond Japanese methods to two methods that fully embrace production in China more or less using whatever works. The fourth method of the division of labor is more of a wild card that awaits further development before its features can be discerned. Thus, in this chapter, we discuss what we believe to be the dominant divisions of labor: (1) lean production or Toyotism, (2) Nikeification, (3) Waltonism, and (4) additive technology through 3-D printing. In presenting these models as critical to the functioning of the world economy on the shop floor and between organizations, we are not saying that they are the only models. Nor are we saying that they present a hopeful or utopian end point. Despite some similarities, they clearly differ in their consequences for managers, workers, consumers, and society as a whole. What we are saying is that these models are critical to how production and service provision will develop in the next half century.

## Lean production and Toyotism

Although the term is largely not used by the Japanese who invented it, “lean production” is a term that stuck throughout the world. “Lean production” was first used by John Krafcik (1988) at Massachusetts Institute of Technology (a graduate student then and now the CEO of Hyundai-America) to describe the Japanese methods of production that had been successfully applied in manufacturing and service firms world-wide. Christian Berggren (1992) uses the term “Toyotism” to specifically target the system used at Toyota called the Toyota Production System. Lean production had also been described as a system of production that focuses on minimization of waste, continuous improvement (*kaizen*), and obsession with quality (Womack et al., 1990; Fujimoto 1999, 2007). Interestingly enough, the *kaizen* concept had become popular in Japan

after the quality control training series offered by American management experts to help rebuild the Japanese industry after World War II. The Emperor of Japan awarded the 2nd Order Medal of the Sacred Treasure to Edward Deming in 1960 for his efforts to spread the *kaizen* philosophy in Japan. Deming is celebrated as having had more impact on Japanese management than any other individual not of Japanese descent, and the Deming Prizes are awarded annually for achievement in quality in Japan (Petty Consulting, 1991).

But two Japanese men went beyond Deming's original statistical control ideas and formed the core of the lean production breakthrough. At Toyota, Taiichi Ohno is credited with just-in-time inventory, and breaking down the varieties of waste at work (*muda*). Although the idea was in Henry Ford's writings, Ohno found it not at a Ford plant but at the Piggly-Wiggly grocery stores. He was then the first to apply it to manufacturing (1988a,b). And Kaoru Ishikawa at the University of Tokyo discovered the fishbone diagram method and quality control circles (Kondo, 1994), which then laid the basis for strong teams in lean production. So in formalizing lean production for manufacturing, teamwork and just-in-time inventory were largely indigenous Japanese ideas.

Continuous improvement is the mantra of the Toyotism. Even after the Toyota Motors Corporation had become the world's largest automaker in the world in 2007, its President Katsuaki Watanabe was quoted saying that the Toyota DNA is to wreck your brain until you find a solution to problems:

We've never tried to become number one in terms of volumes or revenues. Being the number one is about being the best in the world in terms of quality on a sustained basis. As long as we keep improving our quality, size will automatically follow. (Stewart & Raman, 2007)

Lean production can be summarized as follows: (1) company decisions are based on a long-term philosophy because managers want leaders and exceptional workers who thoroughly understand their work and company philosophy; (2) tasks are standardized on an assembly-line making them amenable to visual control using thoroughly tested technologies and processes; (3) just-in-time inventory systems create a production process with continuous flow, which will bring problems to the surface especially through a pull rather than push system; (4) a trusted network of suppliers is integrated into the planning, design, and production process including JIT; (5) team cultures produce quality the first time but stop

the production process to fix problems using consensus to make slower but more implementable decisions; (6) permanent employees are buffered by temporary employees who fill in for sick or injured team members and are let go during times of economic recession (Liker, 2004; Liker & Ogden, 2011; Lepadatu & Janoski, 2011; Besser, 1996; Fujimoto, 1999).<sup>1</sup>

While the word *lean* connects to points 3 on JIT and 6 on buffering, the points about long-term philosophy, job rotation, and flexibility, and quality control teams do not denote anything particularly connected to the word “lean.” As a result, lean is not the best description of Toyotism processes. Perhaps “lean, long-term, and loyal” (LLL) would be more appropriate, but since lean has such strong hold on the literature, we use it. Lean production is different from Fordism in two additional ways. First, job rotation, cross-training, multiple skills, and teamwork show the lean model as being antithetical to the rigid division of labor of Fordism (Jaffee, 2001). W. Edwards Deming (1982) sees lean production as being totally different from Fordism since one of its main tenets is to “drive out fear,” which allows the criticism of ineffectiveness without being afraid of losing your job. Second, lean production in the US is accompanied by a weakening of labor unions and the development of labor flexibility. Whereas lean production was invented in Japan in the context of job security and life-time employment, in the US the system seems to be sustained through the long-term employment of its core labor force of associates but also an expansion of precarious labor through temporary workers (Lepadatu & Janoski, 2011; Bernier 2009). There are more details to the six tenets of lean production. First, base company decisions on long-term philosophy and not on short-term goals like price or getting the cheapest items. They use this long-term philosophy to develop thoroughly Toyotized leaders and exceptional workers who thoroughly understand the work, philosophy, and teaching methods of their system (Liker, 2004: items 1,9, & 10). Long-term philosophy also applies to stock prices and investment, which avoid short-term reporting pressures, and hence, dividends are low. Second, standardize tasks on an assembly-line and make them amenable to visual control using thoroughly tested technology for their people and processes. But at the same time reduce the number of job descriptions so that workers can rotate jobs and do many different tasks (Liker, 2004: items 6 & 8 with job rotation coming from elsewhere). Third, use just-in-time inventory to create a production process that has continuous flow, which will bring problems to the surface. This creates a pull system oriented toward customers to avoid over

production and to level out the work (i.e., you don't produce a product until you are sure that you have an order). It also leads to flexibility and customization of products (Liker, 2004: items 2–4). Fourth, create a respected network of suppliers and partners and integrate them into the planning, design, and production decision-making process including the JIT system (Liker, 2004: items 2–3, & 11). Fifth, make a team culture that produces quality the first time and stopping the production process to fix problems. Make decisions slowly by consensus, and implement them rapidly. Manage by walking around (MBWA) and going to see for yourself. (Besser, 1996; Liker, 2004: items 5, 10, 12–13). Sixth, buffer your permanent employees with temporary employees who can easily be let go when they are no longer needed. This requires a non-union or a company-dominated union environment. While the word “lean” connects to points 3 on JIT and 6 on buffering, the points about long-term philosophy, job rotation, and flexibility, and quality control teams do not denote anything particularly connected to lean. Again, we reiterate that “lean” is not the best description of the Toyotism process, but since it has such currency, we use it.

To extend this model into political economy, we push the lean production model just as Fordism was extended into the more social and political aspects of society. Lean production and Toyotism can be seen as entering into larger contexts to make a social model of the division of labor. The following social and political points are added to six technical points discussed above. So seventh, lean production fragments trade unions by dividing them with a differentiated labor force of subcontracted, out-sourced, contingent, and permanent workers. Its Japanese transplants also favor non-union locations. Eight, it provides uneasy support for the welfare state with declining tax revenues for the welfare state as more conservative (i.e., “lean”) governments gain office (Clarke, 1990:73–74). And ninth, lean production requires local and regional governments to provide heavy incentives for corporations to locate in their area (i.e., exemptions from ten years of taxes and subsidies for land, education, or other matters), but supports more permanent employment and tends not to off-shore (though it outsources) production.

The completion of these tenets may leave advocates of lean production somewhat unsettled. We are sure that they would prefer to leave these social and political points out of the lean model, but just as the Fordist model led to a strong unions and a social welfare state in the US and social democracy in Europe, the “lean” or Toyotism model tends

to link up with neo-liberalism and disciplining workers throughout society. And in fact, the metaphor of “lean” has been extensively used by neo-liberal politicians who are intent on cutting worker benefits and state regulations (but not employer subsidies).<sup>2</sup> Again, our innovative extension of “lean” into the world of politics may be controversial with lean advocates, but we would be remiss as social scientists if we did not mention it.

In evaluating the specifics of lean production, there are positive and negative aspects for workers and society. Ritzer, in a quick summary, says that lean production was “tarnished by the precipitous decline of Japanese industry in the 1990s” and “there are great problems with these systems and they may even serve to heighten the level of exploitation of workers” (2001:304–5). One could add the safety issues that emerged in 2009 to 2010. But we take a more balanced view than Ritzer. In terms of problems, lean production exerts a great deal of pressure and stress on workers, especially with mandatory overtime and exacting requirements concerning quality and cycle or *takt* times (i.e., the seconds that it takes to do a repetitive task). The work, despite job rotation, can be quite repetitive and carpal tunnel injuries are common, along with occasional back injuries and accidents. But while there have been some safety issues at Toyota (e.g., the death of a worker in 2011 and the brake problems in 2009), we believe that Ritzer is wrong in saying that lean production has declined in any way. Nonetheless, it is clear that lean methods can lead to higher stress.

On the positive side, workers in Japanese transplants appreciate the teamwork approach, the equalization of perks, and the job security (for permanent but not temporary workers) that this type of lean production offers to them. The recent book by Toyota worker Tim Turner and his fellow employees (2012) is a rather surprising account of the pride of Toyota workers around the country telling their own stories to the world.<sup>3</sup> This is not an account of exploitation. Lepadatu and Janoski (2011), in their account of diversity in a lean production auto transplant, found out that workers are generally quite satisfied with their jobs. To a certain degree this is quite surprising and Lepadatu and Janoski (2011) noted the lack of criticism of the company. To be sure, there is stress, but the long hours and intense teamwork create a hold on workers that is not present in many other work environments. In other words, the team becomes the center of many of their lives. The strongest down-side appears to come from workers who receive injuries, who are often pressured to get back

to work, and the temporary workers who do not have the promised job security that other permanent workers prize so much. Also at one company presentation with a worker panel, a number of workers criticized the working hours. But given these stresses and conflicts, sociologists at this point need to recognize there are both positive and negative aspects of this new form of the division of labor.

But all lean production is not Toyotism. In Janoski and Lepadatu (2009) National Science Foundation (NSF) study of the varieties of lean production, we find that there is a great deal of variance involved. Not all companies use teams, and teamwork is usually the first item of lean production that drops out of the model. In particular, Nissan and Ford have many of the aspects of lean production outlined above but they do not use particularly strong teams. At this point, lean production starts to look like flexible accumulation but we cannot see it as neo-Taylorism because of the other elements of the system.<sup>4</sup> Further, when looking at Nike, Apple, and the many computer and phone manufacturers, the off-shore production facilities in China and elsewhere do not use much in the way of teams. They use sophisticated just-in-time inventory procedures, standardization and continuous flow, but not teams. On the other hand, the creative design teams of Silicon Valley at Microsoft, Intel, and Apple use cross-functional teams that are stronger teamwork programs than Toyotism. These teams are closer to the “semi-autonomous teams” of socio-technical theory, but they also exist within a lean production environment. One thing to keep in mind is that the implementation of industrial models of the division of labor is always attenuated by culture. The implementation of Taylorism and Fordism only partially took hold in Germany (Nolan, 1994), Japan, and even the Soviet Union (i.e., Stakhanovism based on heroes of production). Each country has its twists on each production method even though they praised the methods as a way to increase productivity. So the same sorts of variances should be expected with lean production.

In a similar way, there is also a huge variation in how lean production has been adopted throughout the globe (Kochan et al., 1997). Whereas higher involvement work practices are possible in some countries, others have strong union cultures that protect the workers from the lean pressure. Mediterranean lean production, for instance, is more hierarchical, granting team leaders a stronger role in the system, whereas the German lean model has to push for a stronger team culture (Turner, 1993). Aoki (2008) shows that even for Japanese transplants in China, transferring



lean production methods can be a challenge. What goes on in Foxconn factories that make Apple products without direct Japanese management is much more Fordist than anything else. But overall, we are living in a mixed Fordist and lean production era, where firms do not choose anymore between the mass production or the lean production model, but rather implement parts of each system (Kochan et al., 1997). From the lean production consultant perspective, this would be the fault of a company not being able to achieve a “true lean” production system.

What makes a strong case for lean production and specifically Toyota methods is that it is spreading to the service sector. When doing interviews at Ford Motor Company in Louisville, we found that the lean production consultants had moved on from manufacturing to most of the big hospitals in the area where they were doing intensive consulting. Currently, the VA hospital is using lean production, led by the efforts at the Pittsburgh VA (Grunden, 2008). Other works show how lean production is being used in hospitals where quality control can make great strides (Grabau, 2009; Challice, 2008; Bhatia & Drew, 2006; Kenney et al., 2009).

An overall conclusion about the lean production system requires a combination of critical and praiseworthy points. On the one hand, criticism comes from lean production exerting a great deal of pressure and stress on workers, especially with mandatory overtime and exacting requirements concerning quality and cycle times. Work under lean production can be very repetitive even with job rotation and team work, and carpal tunnel injuries are common, along with occasional back injuries and accidents. On the other hand, workers in Japanese transplants appreciate the teamwork approach, the equalization of perks, and the job security that this type of lean production offers to them (but this does not apply to temporary workers). In their account of diversity in a lean production at a Japanese auto transplant, Lepadatu and Janoski (2011) show that workers are generally quite satisfied with their jobs and infrequently criticize the company. There is stress, but the long hours and job intensification create a team culture that is not present in the Fordist environment. The strongest downside appears to come from injured workers who are often pressured to get back to work, and the temporary workers who have no job security. But given these stresses and conflicts, scholars need to recognize both the positive and negative aspects of this new and dominant form of the division of labor.

On the national political front, the Toyotism version of lean production tends to follow the lead of the domestic industry or have a rather low profile. In American politics, Toyota does not make many demands

(Ransom, 2010), but the fact that transplants even exist in the US is due to political decisions to restrict imports from Japan and exert more force on domestic content of what is produced within country. Toyota occasionally lobbies in Congress, though its CEO Akio Toyoda was called to testify before a Congressional Committee when the brake scandal occurred in 2009 (Toyoda, 2010). On the other hand, the Japanese transplants have strongly pressured state governments for lower taxes, low cost, and sometimes free land, and other forms of favored treatment. This is not unlike a whipsaw strategy that pits states against states in ratcheting up subsidies and other benefits. They have also largely decided to locate in non-union states, and they often imply that they may move to another state if unionization presents a real challenge (Besser, 1996). So this approach does have a strong antiunion position, even though these same companies have their enterprise unions in Japan. Other companies and hospitals that have adopted lean production processes have their own interests in Medicare and other government programs, and often, they are unfriendly to unions. However, their position toward union-like professional associations is much more accommodative.

At a deeper cultural level, the Japanese had little intent to apply lean to politics. However, the American translation of the Toyota Production System led to elevating “lean” to the dominant term (Krafcik, 1988). This has been taken from industry and applied to government with the idea that “lean” means to aggressively cut budgets, pay, and any other costs (with the exception of CEO salaries). This then has a certain amount of “frame resonance” with neo-liberal, conservative, and even Tea Party politicians. The odd thing about this is that Toyotism often has more employees than it needs overall, has a commitment to job security, and takes a long-term view rather than a short-term “just balance the budget.” So in the words of the Lean Production Program, “true lean” is definitely not the same as “political lean” or “budgetary lean.” Nonetheless, one cannot ignore how some but not all (e.g., teamwork, long-term philosophy, job security) aspects of lean have seeped into the political culture of the US and other countries.

## **Nikeification and offshoring**

Nike emerged out of the initial low cost production advantage of Japanese production of shoes in the early 1960s to become the leading

world-wide producer of athletic shoes and apparel. After a brief initial attempt to produce in the US, Nike moved to the lower wage area of Japan and then to other factories in Asia. Nike came out of Oregon with Bill Bowerman, a coach for the University of Oregon track team, and Philip Knight, a runner turned entrepreneur after getting an MBA from Stanford. Knight wrote the marketing plan to sell Tiger running shoes manufactured in Japan with low-wage labor to compete with Adidas in the US. In 1962, after visiting the Onitsuka distribution center in Kobe, Japan, Knight became their distributor in the US. Bowerman and Knight became partners and they placed more orders for shoes.

As the heads of Blue Ribbon Sports, Knight and Bowerman started producing shoes on their own in Japan and then moving in 1974 to Korea, Taiwan, and Maine (for only two years). Knight subcontracted numerous factories to keep up with the rapid change in technology with each factory producing different products. The production wage difference between the US and Asia at that time was \$8–11 an hour versus a mere \$1. As a result, the New Hampshire and Maine assembly plants were closed. In 1979, they changed their company name to Nike and went public (though Knight keeps the company under his control through special stock arrangements).

Nike is a “donut corporation” with no production facilities actually existing in the US, where most of the sales and advertising actually take place. This is not flexible production with teams. Nike corporation itself produces different sized shoes but not different widths (i.e., the promise of flexibility is limited). However, it is constantly producing a wide variety of shoe designs, colors, and new materials that make the shoe constant news in advertising. The system uses an elaborate system of supply chain management, so its supply system is as sophisticated as its marketing. But the production methods used overseas are rather primitive compared to teamwork standards in lean production.

There have been several investigations into Nike production and exploitation, and monitoring groups have been set up to improve working conditions. However, in the end, Nike factories resemble Fordist sweatshops (Anner, 2012; Chang, 2008; Lee, 2007; Silver, 2008). Nonetheless, its design and marketing facilities in the US use teamwork (close to self-managed teams in socio-technical theory) to maximize creativity.

Their comparative advantage is two-fold: (1) create cutting edge technology with the marketing of the shoes around famous athletes,

and (2) produce the shoes at a very low cost in Asia. According to the *Fortune 100* (2006), Nike employs more jobs within the US than outside of the states. Nike's headquarters in Beaverton, Oregon has nearly 8,000 workers most of whom are quite well paid (average \$100,000), but the overwhelming majority of Nike's employees in the US are part-time. In East Asia, production factories have many more workers and a number of controversial issues - physical and verbal abuses, working conditions and hourly wages (Todd et al., 2008a, b). These subcontractors who make the shoes are not included in the official Nike employment statistics, but the company now has a staff of 90 employees to monitor them.

Marketing and advertising along with R&D comprise the largest portion of Nike operations in the US. Using star athletes like Michael Jordan, Tiger Woods, and Ken Griffey Jr., Nike spent more than \$2.7 billion on marketing in 2012, which includes sponsorship contracts, especially on hard edge "just do it" television spots and extensive promotions (*Sports Business Daily*, 2012). Nike also moved from independent marketing agents in the field to corporate sales within the company. By the late 1980s, Nike created a specific product for each sport and outfit for each team with their individualized production. Nike provided these employees with higher salaries and health benefits, but cut their commissions drastically. Each territory in the US is equipped with at least two footwear and two apparel-representatives (Geisinger, 2012).

Nike's worth is largely due to their ability to offshore production. They create a product that is manufactured by low-wage labor in overseas plants that are not officially part of Nike. In doing so, Nike subcontracts with three different types of factories (Donaghu & Barff, 1990). First, it has quality partners that were first set up in Japan, but are now in Taiwan and South Korea. They make the top quality shoes in smaller batches (25,000 or less per day), and are more likely to collaborate in innovations with Nike. Quality partners may also use second and third tier subcontractors. Second, it has volume partners that are large factories producing large batches of standardized, lower-priced footwear (70,000–85,000 pairs a day). This production may serve companies other than Nike. They tend to own their own leather tanneries and rubber factories, but they are not particularly innovative.<sup>5</sup> And third, it has new partners that are located mostly in Thailand, Indonesia, and China because of their low labor costs. These factories are often joint ventures with Nike, Taiwanese, or South Korean firms. Each of these partners has

an ability to meet the needs of Nike on an individual basis. Numerous partners allow for flexibility within the market, especially with innovations in technology and design. While wages in these Nike factories are extremely low, they have increased by 18% in the ten year period from 2001 to 2011 (Holmes, 2007; Walters, 2007; Townsend, 2011). Nike also reported in 2007 a new emphasis on sustainability and corporate responsibility (Nike, Inc. 2007).

To keep innovation going, R&D is a key to competitive advantage. Knight's plans for the future require that new designs have to be finished a year in advance to let retailers review new product lines before committing to the six-month lead time orders. R&D also invents new technologies to maintain their high price premium lines (air cushions and spring pumps, Dri-FIT, and AirFree). Part of this technological shift to new materials is to avoid US taxes because rates on these new products are often based on the percentage of leather in each pair of shoes. The end result is that Nike is almost in the public relations business with the Oregon football team being in the lead of the current revolution changing football uniforms.

Nike became a model for other firms that have decided to offshore their production. For instance, computer and electronics firms such as Dell, Apple, and nearly all TV manufacturers adopted offshore production by the mid-1990s. As a result, Foxconn or its parent company Hon Hai Precision Industries became one of the largest non-state employers in the world with over a million employees. They produce nearly all the iPad, iPhone, and iPod products for Apple, not to mention other corporations and products. As such, even though it wasn't particularly technologically complex, Nikefication became the model for offshoring production, especially in China.<sup>6</sup>

Nike has offshored its physical production facilities for shoes, and Apple has done so for its physical production of i-products. But what explains the offshoring of administrative and technical services (ATS) and innovative research? Andy Grove (2010) warned that production expertise would soon lead to research expertise such that comparative advantage would shift to the off-shored production facilities. But Lewin and associates (2009) say that innovative work is now offshored as an attempt to gather the world's talent into one organization. This seems to go a bit beyond the Nike model, but it may be hard to stop given Grove's comments. In any event, the Nikefication model can have some rather far-reaching implications.

The political model of Nikeification largely resembles what was discussed earlier with Siliconism—largely free market economics; however, the large dose of offshoring has some strong political implications for the degradation of labor standards in these offshore locations. Nikeification involves avoiding the politics of the long-standing International Labor Organization (ILO), and the creation of their own weaker organizations, such as the Fair Labor Association (FLA), which has been the most prominent player in human and labor rights issues with clothing manufacturers (e.g., Nike, Liz Claiborne, Reebok, Patagonia, etc., but not Walmart). But it also involves Apple and other electronics manufacturing firms. Started in 1997, the FLA often operates by what we call *regulation by scandal*, in which the corporations react to media reports of labor abuses by instituting new forms of labor rules or standards—but most often these new rules are merely half-measures, ineffective, and usually unenforced. The FLA process—a contemporary form of “muckraking”—usually starts with a reporter visiting a factory or meeting with the workers of a multinational corporation and collecting their stories of abuse and exploitation. Naturally, these workers are taking quite a risk to talk to these reporters, but many cooperate. The reporters then write stories and supply pictures to document abuse and exploitation to American and European media audiences on television, radio, or the Web. For instance, Apple didn’t enter into the agreements with the FLA until its scandal with Foxconn intensified in 2010.

The FLA is mostly financed by their corporate members, but some money also comes from universities because their apparel licensing contracts can be quite lucrative (e.g., Oregon, Michigan, etc.). The FLA’s tripartite board is composed of corporations protecting their product image, university administrators protecting their school logos on T-shirts and sweatshirts, and the NGO itself which is actually interested in protecting workers. The ultimate power in the relationship is the corporate brand’s leverage to discipline subcontractors. But the process requires generating media publicity, so that reporters can “shame” The parent corporation into working with the FLA in their investigation to correct the abuses of workers in the international production of their highly successful products.<sup>7</sup>

There are some incredible deficiencies in the FLA’s “scandal” approach to labor standards. First, the FLA is supported by multinational employers and universities who sell athletic apparel. This means that the FLA is a “captured” agency (i.e., a company union). When news

outlets episodically report FLA results, pressure is put on multinational corporations to discipline their subcontractors. Without this publicity, enforcement can be ignored. Second, the firm voluntarily complies with the proposed resolution and in order to find out whether or not it is followed, the FLA or other organizations have to investigate periodically to see whether any corrections have been made.

Third, China, Vietnam, and a few other countries have laws against collective bargaining or strikes by organized labor. Consequently state enforcement of employee protection does not have much pressure from labor. In China, a few foreign companies (notably Japanese corporations) have been forced by the Chinese government to treat their employees better (e.g., the aftermath of Toyota and Honda strikes with government enforcing wage increases). But for most workers, there is little or no impact on internal labor standards. For instance, after major labor problems at Foxconn, Apple's own labor responsibility report for this year reports "Core Violations Found and Actions Taken – None" (Apple Inc., 2013:37).

Fourth, the pressures brought about by reporters are highly episodic and this means that most labor violations are ignored and unregulated. And fifth, many corporations do not belong to the FLA and place little emphasis on enforcing labor or human rights. In sum, labor standards exist mainly to protect corporate reputations especially when they are exposed to public scrutiny. Labor regulations at the national level have actually declined in recent years, and the UN, while it supports the ILO, has provided little guidance or leadership in this area (Anner, 2012). So it is clear that these failures of labor standards are endemic to the Nikeification model.

## **Waltonism and merchandising**

After working for J.C. Penney, Sam Walton purchased a Ben Franklin Franchise store in 1950 modeled on the "Five and Dime" stores of Woolworth and Kresge that emerged a half century earlier. After some success in Arkansas, he transformed this into the Walmart Discount City stores that eventually spread to rural areas in the South. The model was so successful at keeping prices low that by 1980 Walmart had bested their top competitor, K-Mart (K for Kresge), even in the urban areas where K-Mart had reigned supreme. Now, Walmart and the sister bulk store called Sam's Club (for Sam Walton) became the largest non-state employer in the US with more than 2.2 million employees in 2010 (*Fortune*, 2012).

Matt Vidal (2010) and Nelson Lichtenstein (2002) call this model *Waltonism*, and its unique contribution to the division of labor is represented by the intense bargaining process between Walmart and its suppliers. Waltonism is generally seen to have six parts. First, in its bargaining process with suppliers, it puts intense pressure on them to offer the lowest prices on products to sell at big-box stores. This hard-bargaining with suppliers offers large volume sales through the Walmart empire to promise very high revenues but somewhat lower profits through large volume sales. Second, this hard-bargaining tends to push production to off-shore locations with lower wage workers in China, Vietnam, India, Pakistan, and Bangladesh. Third, meanwhile the Walmart employees themselves in the stores get low wages and benefits, and Walmart even hires many temporary workers that get fewer benefits and wages. So Waltonism is a completely opposite strategy than that of Ford, who had doubled the pay for a work day at the beginning of the century. Fourth, Walmart uses heavy union avoidance tactics (though some union demonstrations are currently going on). And finally, Walmart generates high revenues with low margins based on very high operating volume. This model is intensified since Walmart is now the largest employer in the US and is growing overseas by leaps and bounds. Consequently, the Waltonism model has a strong impact on global production because of its domestic and growing number of foreign stores, and also especially concerning its off-shore locations.

Walmart is a merchandising firm, which means that their main task is to purchase goods from other suppliers and manufacturers, and then resell them in a retail store. Since they do not produce any physical products (other than the big box buildings), their manufacturing story is nil. Their main point is the supply chain network with their own satellites, which is perhaps the most effective just-in-time supply chain management system in the world (Vidal, 2010; Kharif, 2007). The major point about Walmart is that their bargaining process offers a big payoff—a national and even worldwide contract for producing millions of units—and a major downside—Walmart’s purchase of these products is at a very low price. Walmart is relentless in pursuing this low price and this has caused them to largely abandon suppliers in advanced industrialized countries and pursue low wage production in less developed countries, especially but not restricted to China (Walton & Huey, 1993; Bair & Bernstein, 2006; Vidal, 2010; Abernathy et al., 1999; Lichtenstein, 2006; Fishman, 2006; Gereffi, 1994; Gereffi et al., 2005).



Walmart invites suppliers to come to Bentonville, Arkansas or negotiation centers in Asia to bargain about the prices of the goods that suppliers would like to sell to Walmart. The incentive is large because it gives suppliers access to Walmart stores all over the world (e.g., Walmart sells more in one day than Lowe's, a major hardware store and lumber supplier, sells in a year). However, the price-cutting pressure that Walmart exerts on these suppliers is massive. *Frontline* (2005) tells the story of how Rubbermaid, a major supplier of US kitchen and household ware refused the Walmart price pressure and how they were almost put out of business. At the opposite end, Charles Fishman illustrates how Vlasic, an upscale producer of Kosher pickles, accepted a deal by which it would sell a gallon of Kosher Dills for \$2.97 which is less than what they charge for a quart of the same pickles in other grocery stores (2003:79–83).

Walmart's use of the just-in-time philosophy extends not only to inventory, but to labor as well. According to Kris Maher (2007), Walmart's computerized scheduling and labor optimization system makes employee work schedules much less regular and predictable for workers. The software improves efficiency for the store and improves short-term profits by determining how many employees are needed based on demand and store traffic. In this system, employees get the short end of the deal as they will be "on-call" and have to come into work when business surges or sent home when there is a lull. For the low-paid hourly employees at Walmart, reductions in hours and sporadic work schedules increase stress and financial burdens on employees. This is a stark contrast to Toyotism, where employees are kept and trained for long-term and given competitive wages and benefits. But for Walmart, the pressure to cut labor costs is due in part to Walmart's low-cost business model. The low margins that they receive on sales and the high volumes required to make a profit necessitate cutting costs elsewhere, so labor costs need to be kept as low as possible (Vidal, 2010). With the quantity of laborers they employ, Walmart effectively sets the minimum wage for the US (Vidal, 2010; Hamilton, 2006).

Walmart's treatment of its own employees has been a constant source of criticism. First, US employees are rarely if ever organized into quality teams with effective input into the merchandizing process (Fishman, 2003; Harney, 2008; Vidal, 2010; Ingram et al., 2010). However, they do use a form of pep rallies that praise the firm and worker dedication. Second, Walmart reaps record profits while offering full-time employees wages that average \$17,659 a year for greeters and \$18,428 for sales

associates (Glassdoor, 2013). These wages are so low that a report prepared by the Democratic Staff of the US House Committee on Education and Workforce in 2013 showed that full-time Walmart sales associates and cashiers needed an average of \$5,815 in medical and other welfare benefits (USHR, 2013). Assistant store managers made \$44,634 a year on average so presumably they would not need government assistance. But the workers in other industries that have become unemployed when their employers are forced to go offshore receive even more government assistance. All in all, there is a strong element of immiseration in Waltonism.

Foreign employees of the subcontractors that Walmart uses are subject to constant human rights violations that the company supposedly corrects, but which they constantly tolerate. The teamwork elements of production in foreign subcontractors are often advertised but not actually implemented. Their involvement with the Tarzeen Fashions Ltd fire in 2012 when 112 garment workers died and the Rana Plaza fire that killed 1,129 workers in Bangladesh are horrific examples (Gross, 2013; Yardley, 2013; Claeson, 2012)). In the aftermath, however, Walmart is not cooperating with other retailers in the FLA or other watchdog groups because they claim that they are establishing their own monitoring system that will expel suppliers from their network if they do not comply (Baja, 2012; Yardley, 2012). So much for an independent monitoring system (even one financed by employers like the FLA).

However, despite the maltreatment of employees at home and abroad, our main point here is that Waltonism is a unique supply-chain model that exerts tremendous pressure on suppliers to cut costs. As such, it does not employ much in the way of long-term philosophy in its employment system or closely knit and highly trained teams as we shall see in the lean production model. For instance, lower-level employees at Walmart are not empowered for problem solving as they are in Toyotism. Their bargaining model with suppliers has led to greater reliance on offshoring because this has proven to be a very effective way to cut costs, which is the *raison d'être* of Walmart.<sup>8</sup>

## Additive technology and 3-D flexibility

Additive technology is on the horizon of industry. It moves from subtraction (e.g., the drilling and cutting of the Tayloristic machine shop) to a third dimension beyond our conception of an ink-jet printer spraying

toner onto a white page (i.e., two dimensional printing). Instead of subtracting material, 3-D printing technology is guided by a computer program in adding layer-upon-layer of resins until it builds up a three dimensional object with physical volume. To some degree this is as futuristic as the move from fission (e.g., breaking atoms apart) to fusion (e.g., adding atoms together), but it shares fusion's problem in that it is not quite there yet. Nonetheless, major strides are being made in the fabrication of materials from resins and powders (Lipson & Kurman, 2013; Anderson 2012; Marsh, 2012; *WSJ*, 2013). The main innovation is the possibility of 3-D printer technology making the component parts for larger assemblers. For example, an auto manufacturer having a 3-D printer could produce all the bolts or metallic wheel rims that they need, exactly when they need it and without having any outside suppliers. On the other hand, some companies might just produce a final product and sell it directly to consumers (e.g., basketballs or cups and saucers). This could have as big an impact as lean production, but we have to stress that it has not transformed the division of labor at this point in time.

The direction that this might take is unpredictable. One model of production is that it could be subsumed under lean production so that large factories replace their supply networks with flexible fabricating machinery that makes whatever parts that the manufacturer wants at exactly the time and with the design that works in the production process. This would resemble lean production with its supply chain shrunk and presumably much less need for offshoring since transportation would be an expense that could be eliminated. A second model is that many suppliers could adopt additive technology and simply supply parts sooner and faster according to the original manufacturer's design specification. In this second model, additive technology would have a small effect on the division of labor.

A third model is almost anarchistic. Chris Anderson, in *Makers* (2013), describes it as totally open design thrown out to the web community as shareware so that anyone could use a community printer to make whatever they want (e.g., this has already occurred with plastic firearms). This model depends on very low cost 3-D printing (\$500 to \$2,000 per printer), laser cutting hardware or machines to create other manufactured components with similarly low cost, and flexible robots to assemble various products. The social implications of this model lie in an open organization without boundaries where even piracy is welcomed. For example, Anderson (2013) gives the example of a Chinese web pirate

who copied Anderson's product but then improved the design code to create an even better product. Each community would have their own additive facilities and they would be open to all. This would go from open sourcing to open manufacturing. The critical question for the economy as a whole is whether these global-web and community-based design and production (open software and open hardware) organizations can scale and produce profits.

Anderson's large scale examples that use some 3-D printing technologies are the Tesla car company and the Ford Motor Company TechShop that increased patent submissions by 30%. However, Tesla has received major government financing and Ford's TechShop patent submissions are not the same as actual production. On the whole, these are interesting developments with incredible potential but it is not clear whether a commune of engineers and programmers will survive as a non-hierarchical movement, or whether they will be bought off just as Apple, Google, Ford, and others have done with promising start-ups. This model deserves attention, but as "a division of labor," its organizational characteristics are not clear as yet.

In some ways, the development of additive production could resemble the "flexible specialization" that existed in the late 1970s and early 1980s. This flexible model focused on the small-scale batch production methods used in special industrial districts such as in Northern Italy and southwestern Germany. Charles Sabel first discussed these small scale but high technology firms run by highly skilled artisans in his book *Work and Politics* (1984). These artisans or craft entrepreneurs operated in decentralized industrial zones and to some degree took skilled workers from the mass production factories that produced automobiles. Charles Sabel and Michael Piore then explored it further in *The Second Industrial Divide* (Piore & Sabel, 1986; Sabel & Zeitlin, 2002), and Gary Herrigel (2010, 1996) described decentralized industrial zones that existed in southwestern Germany. These types of flexible firms naturally fit into the German dual system that produced highly skilled blue collar workers (i.e., master craftsmen) and they were often connected to the *mittelstand* or small family-owned firms that are often credited as being the backbone of the German manufacturing system.

While flexible specialization was largely surpassed by lean production, it does provide a way to view how additive manufacturing might develop in the future. It created a model whereby skilled information technologists would spin off their own businesses (like independent gaming firms

in Silicon Valley). Thus, unlike lean production or flexible accumulation, flexible specialization might be an early version of what additive technology might become—a highly productive “citizenville” form of manufacturing (Newsom, 2013). In Gavin Newsom’s book he asks why is it that people are more engaged than ever with each other because of the web but less engaged with their government? We might ask what would happen if people were more engaged with producing what they need through additive production but less engaged with corporations that make things. Whether this produces “armies of manufacturing Davids who tear down walls” (altering Newsom’s political phrase) or is co-opted by large “Goliath corporations who continually built high and strong fortresses” is yet to be seen.

In terms of politics, this model is too new to predict. It has some affinity to far left, far right, and even anarchist thought. And the more it proves feasible, the more support it will get from mainstream politicians and business leaders. But it is significant to note that President Obama’s National Manufacturing Science Centers with one specifically oriented to 3-D printing in Arkon, Ohio (Miners, 2013).

## Notes

- 1 The Japanese usually speak of this model in specific terms. Toyota uses the term Toyota Production System. Honda has its own name of BP standing for “best position, best productivity, best product, best price, and best Partners” (Nelson et al. 2007). They see Teruyuki Mauro as the father of this process. Darius Mehri (2005) notes a Japanese reluctance to theorize, and this may explain their preference for specific models.
- 2 Neo-liberals pursue tax cuts, reducing bureaucracy, cutting welfare benefits, deregulation, and a general policy of getting the government out of the lives of citizens.
- 3 How should sociologists interpret the book by Tim Turner and colleagues (2012), who are Toyota workers or managers? This book that praises workers’ experiences at Toyota plants around the US is easy to be dismissed as propaganda, but on the other hand, it is hard to imagine a book like this about workers’ “stories” being published by other auto companies. Of course, Darius Mehri’s participant observation in Japan reveals some troubling aspects of Toyotism (2005). Nonetheless, it is relatively hard to elicit criticisms from Toyota workers in the US who have not been injured or fired.

- 4 Hans Pruijt and to some extent Steven Vallas refer to lean production as neo-Taylorism. Rather than a new system, they see lean production as highly Tayloristic with two core principles (the one best way and the problem of systematic soldiering) (Pruijt, 2003). From our point of view, this fundamentally misses the fact that lean production wants workers to think and Taylorism didn't. Further, the job rotation system, flexibility, just-in-time inventory, long-term job security, and long-term perspective of the corporation in general are quite different.
- 5 Being a tanner is one of the main occupations of the *Burakumin* people in Japan, who are a low caste group discriminated against because Buddhism considers working with hides and leather to be unclean. Nike's production in Japan used leather products and may have employed *Burakumin* workers.
- 6 Nike has recently adapted 3-D printing to the production of shoes (*WSJ*, 2013). This process is quite technologically advanced.
- 7 There were stronger watchdog groups and unions that broke off from the more conservative FLA. The Worldwide Responsible Apparel Production has a stronger monitoring system, but corporations are less interested in them.
- 8 We do not repeat the section on ineffective labor standards for Waltonism because they were covered under Nikeification. Since Walmart does not actually produce any product, their responsibility is somewhat indirect. At this point in time, little is known about their monitoring procedures of suppliers.

# 5

## Synthesizing Three Models of the Division of Labor

► **Abstract:** *This chapter compares the models for the purpose of synthesizing three of them—Toyotism, Nikeification and Waltonism approaches—under the more general banner of lean production. The chapter also analyzes the political implications of this model, examines how this fits the global division of labor, and finally looks at the limitations of lean production in the face of emerging additive technology.*

**Keywords:** Post-Fordism, flexible accumulation, McDonaldization, co-production, Siliconism, Sociotechnical Theory, shareholder value theory, lean production, Toyotism, Nikeification, offshoring, Waltonism, additive technology

Janoski, Thomas and Lepadatu, Darina. *Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work*. New York: Palgrave Macmillan, 2014. DOI: 10.1057/9781137370235.

In this chapter, we first compare the models for the purpose of synthesizing three of them—Toyotism, Nikeification, and Waltonism approaches—under the more general banner of lean production. Second, we look at the political implications of this model in terms of national politics, which is something associated with some of these models and not so much with others. Third, we examine how this fits the global division of labor. And finally, we look at the limitations of lean production in the face of emerging additive technology.

## **Synthesizing the models**

It is helpful to systematically compare these eight models. In Table 1 we use five variables to summarize a number of aspects of each model, and then provide an approximate score to compare them. The first variable is strong flexibility in the production-oriented labor force. This is the opposite of the Fordist principle of detailed job descriptions, and most workers engage in cross-training and job rotation. Second, elaborate just-in-time inventory systems consist of complex and well organized supply-chain supplier systems. Third, we look at the existence of strong team work systems that actually make better products and loyal workforces. The model can have teamwork for higher level and blue-collar workers at home or abroad, so this concept can have divided application. Fourth, does the model have a long-term and secure view of jobs that ultimately builds a stronger organization and community? This is often essential for the long-term benefit of the country involved. The most complicated variable is the fifth one. The complete absence of outsourcing is the Fordist model much like Henry Ford's conception of the Ford Rouge Plant that actually made its own steel. In other words, it was vertically integrated and avoided a supply chain as much as possible (albeit, they did not own iron or mines though they did own ships to transport the iron ore). But we are not in that Fordist world. In column 5, outsourcing within a country is a positive feature of this model and so is offshoring for production to a foreign market. However, if offshoring is fully intended for a home market (e.g., as with Apple or Nike), it is a negative factor because it contradicts the inclusive and long-term nature of the previous variable.

In the total score column in Table 1, each of the eight models of the division of labor can reach a score of 100%. If strong flexibility is present



(item 1), the model gets 20 points, and so on for elaborate JIT (item 2), inclusive and long-term employment (item 4). However, two variables are more complicated. With strong teams (item 3), a model could have strong teams in its domestic market but no teamwork at all in its foreign production facilities. This is the case with Apple, Nike, GE, and other companies. As a result, it would only get 10 points. The same applies to item 5. A firm outsources, which gives it 10 points, and if it offshores for consumers in the country in which it is located, it gets another 10 points. However, if it offshores for all of its production it loses 10 points. Thus, Toyotism receives a full score since it outsources within the US and Japan, but it offshores production to China and the US mainly to serve a local market. This is opposed to Nike and Apple, who offshore nearly all of their production. Some aspects of each model are not specified in the theory but they are often clearly implied and we put “implied” in parentheses to indicate this. If they are totally absent, we indicate “not specified.”

The results in the total score show that models can range from 10% to 100%. To start off, since McDonaldization receives a low score of 20%, it is really Fordism. Similarly, shareholder value theory scores only 10% but for a different reason. It is not really a theory of production, so it contains no mention of a number of variables. Nonetheless, it often has strong implications for production firms. Post-Fordism is somewhat low at 40% but that is because some aspects of its theory were not totally filled out (especially outsourcing/offshoring). Four theories are in the range of 50–60%, and they are flexible accumulation at 60%, Nikeification at 60%, Siliconism at 60%, and Waltonism at 50%. These four models tend to lack strong teams and long-term philosophy that includes job security. Lean production based on Toyotism comes in at a 100%. This is not a precise measurement model, but does give us an idea of the strengths and weaknesses of each one of these eight models.

In our choice of which models to synthesize, lean production most clearly represented by Toyotism was included because of its high score. Next, we eliminated Siliconism because although it is a very good place to work if you are in the home country (often the US), it relies on extensive offshoring where people most often have poor working conditions. Also Siliconism is simply too small in its coverage of the labor force since it mainly applies to Silicon Valley and a few other high tech locations. Next we eliminated McDonaldization and Shareholder value theories for perhaps obvious reasons of their very low scores. This leaves

TABLE 1 Comparing the eight models

Division of labor model	(1) Strong flexibility	(2) Elaborate JIT	(3) Strong teams	(4) Inclusive and long-term	(5) Controlled Outsourced Offshore	Total score (%)
1—Post-Fordism, Flexible	Yes	Yes(implied)	No	No	No	40
Accumulation	Yes	Yes	Yes/No	No	Yes/No	60
2—McDonaldization	No	Yes	No	No	No	20
3—Siliconism	Yes	Yes	Yes/No	No	Yes/No	60
4—Shareholder value	No (not Specified)	No (not specified)	No	No	Yes/No	15
5—Toyotism	Yes	Yes	Yes	Yes	Yes	100
6—Nikeification	Yes	Yes	Yes/No	No	Yes/No	60
7—Waltomism	Yes	Yes	No	No	Yes/No	50
8—Additive production	Yes	Yes	Maybe	Maybe	No/No	60

us with the choice of flexible accumulation (a somewhat better choice than post-Fordism), Nikefication, and Waltonism. Flexible accumulation directly contradicted Toyotism on teams, so it was like a failed true lean model. Or to put it another way, it is like Nikefication but with production onshore rather than off. As a result we did not include flexible accumulation because the other models covered most of the specific and important variations of it.

While Toyotism is the strongest model, the Nikefication and Waltonism models are weaker forms of lean production. But the later models represent two industries—high technology production and merchandising—that are of tremendous importance to the economy. The 100% score for lean production does not mean that it is perfect. As previously discussed, there are some strong criticisms of Toyotism with their use of temporary employees who work in their US factories (i.e., workers who are paid less and receive fewer benefits), and in their intense work processes and extensive use of overtime (Janoski & Lepadatu, 2011). And to some degree we had to wince a bit in giving ten points for outsourcing. Nonetheless, we view their approach to teamwork as highly beneficial and not a charade as flexible accumulation indicates. Thus, their long-term view toward employment (with of course the exception of temporary workers) and their approach to teamwork makes the Toyotism version of lean production a strong and desirable aspect of the present-day division of labor. Nikefication and Waltonism embody the hard aspects of lean production (JIT and flexibility) but not the soft aspects (teamwork and long-term employment).

Consequently, we present three varieties of lean production because they have different involvement with teams, offshoring and merchandising. In fact, teamwork is usually the first item that drops out of the lean model (e.g., Nissan has most of the lean production characteristics, but not strong teams). Further, the off-shore production facilities of Apple and others in China do not use teams. And as lean production moves into the service industries (e.g., the VA hospital in Pittsburgh in Grunden, 2008), teamwork is difficult to implement among hierarchical professions (doctors, nurses, and aides). Nonetheless, many aspects of lean production, including teams, are being used in hospitals that are making great strides in quality control (Graban, 2009; Chalice, 2008). Thus, the new global division of labor consists of lean production with Toyotism being the full model with all features listed above, Nikefication being a partial production model that drops teamwork out in its off-shored but

not on-shored plants, and Waltonism being the merchandising model that exemplifies the supply-chain aspects of JIT, but little teamwork.

## **The politics of lean production in America**

To extend lean production into political economy, we encounter five relatively different political forces in the US. First, the Toyotism model favors employment security and long-term relationships. Nikeification has largely severed most of its production facilities from US territories, so they are in favor of continuing the offshoring process and are largely against tariffs and any impediments to the free trade across the Pacific Ocean that benefits them so much. Waltonism has only a minor interest in job security and long-term employment of its workers. Since it pays such low wages, it is unlikely that they would want any legislation on this issue. So in terms of job security, these models are rather mixed.

Second, on the issue of trade unions, all three models of lean production favor the weakening of American trade unions. At present Nikeification industries (e.g., Nike, Apple, Vizio, Nokia, Dell, and other electronics firms) have little interest in unions since their employees are highly paid and not generally subject to the National Labor Relations Board (NLRB) and unionization campaigns. Toyota is not interested in unionization and strongly repels unionization attempts, but actually, these attempts have been few and far between. For Toyota, unionization is largely a non-issue. However, firms in the Waltonism model (e.g., Walmart, Target, K-Mart) have a large number of blue collar employees who could be unionized. In large part, they strenuously fight against unions and both Walmart and Target have had unionization drives that they have so far largely repelled. K-Mart has four distribution centers that are unionized (two UAW, one Unite, and one Teamsters). In large part, Waltonism is the most vulnerable to unionization and offers the strongest resistance to it. The decline of unionization among autoworkers had contributed to the weakening of the most powerful union in America. Meanwhile the overall unionization rate has declined from a high of 35% after World War II to only 11% of employees, and they are mostly in government service (BLS, 2012). The emphasis of lean production with subcontracting, outsourcing, offshoring, and contingent employment makes organizing unions quite difficult.<sup>1</sup>

Third, concerning corporate taxes, Toyota, Honda, Walmart, and Target generally pay their corporate taxes. However, Nike, Apple, and Google are long-term corporate tax avoiders holding large amounts of profits overseas (Duhigg & Kocieniewski, 2012). Steve Jobs in a meeting with President Obama stated that he would only bring Apple's manufacturing jobs back to the US if the president guaranteed the education of 30,000 more engineers and that Apple could bring in its billions of dollars in overseas profits into the country tax free (Isaacson, 2011). Amazon and other internet businesses have long avoided state sales taxes, which could pay for education, but there is an effort to get them to pay taxes to some states based on having warehouses within state boundaries.

Fourth, lean production is largely compatible with cutting government spending. This leads to large-scale cuts in welfare state services as tax revenues have declined for government services, especially for the welfare state. Lean has been clearly applied to government under conservative terms (Bhatia & Drew, 2006). Generally business supports the view that a centralized welfare state can no longer meet the needs of the country, and each corporation makes some donations to voluntary associations and engages in some philanthropy (Clarke, 1990:73-74). Since some Walmart, McDonald's, and other merchandizing employees rely on government benefits, it would seem that these corporations might support the welfare of their own workforce. However, this is a sore point that they would rather avoid. There is declining support for higher education from individual states. This runs counter to Toyotism and Nikeification interests since they rely on high technology, and Silicon Valley has especially complained about a lack of engineers. Waltonism firms show less interest. Each of these types of corporations makes some contributions to higher education though the amounts are small compared to the need. However, they have not shown much funding support for primary, secondary, or higher education.

Fifth, in terms of creating inequality, there is a complex dialectic between these three models. Nikeification (e.g., Apple, Google, Intel, etc.) promotes high wage earnings in the US, and Waltonism creates a massive amount of very low wage earners. As both Nikeification and Waltonism lead to offshoring, many former manufacturing and other goods producing workers have been unemployed and then have taken jobs in the lower wage sector, which is largely where Walmart, K-Mart, and McDonald's operate. The result is greater and greater inequality in American society, which has seen its Gini coefficient of income inequality go from the

middle of the pack (the mid-.300s) to the most unequal society in the industrialized world (near .420) (US Census Bureau, 2013). In essence, the middle class is disappearing. On the other hand, the Toyotist model leads to many more middle-class jobs with fairly good salaries. Thus, it militates against the move toward inequality. But nonetheless, the forces of offshoring and low wages in Nikeification and Waltonism have led to the largest amount of inequality in the US since figures were first collected. Toyotism does not purposefully aim to create social justice and fairness in the workplace, but the push for teamwork generates less hierarchical and more inclusive jobs.

These points about political influences leave an unsettled picture. The Fordist model led to social welfare and strong unions, but the lean production model looks like it promotes neo-liberalism, inequality, and disciplined and low paid global workers. It appears to be like a globalized corporatist welfare system for a tiny portion of the workforce, and an unprotected privatized system reliant on charity and voluntary associations for the largest number of citizens. The large secondary labor market is left relatively unprotected. Nonetheless, one must recognize that Toyotism in the form of Japanese, Korean, and even German auto transplants are investing in American jobs with new manufacturing plants with good wages. Thus, in the end, job security appears to exist for some, but not for most. This is a macro-politics much more friendly to conservative than more liberal political forces. And while Fordist firms did not campaign for greater equality, their emphasis on higher wages and the unionization that they finally accepted brought a more equitable society. Lean production does not do that, and it is an open question whether these three models will lead to even more inequality.

## **The global and world systems dimensions**

The global structure of the economy is closely related to the political power of the leading nations. The division of labor we have discussed so far in this book has been focused on the production process and how things are made or services delivered. World systems theory has powerful (core) nations that largely determine the politics and the economies of semi-peripheral (developed but often smaller countries) and less developed or much weaker (peripheral) countries, which can be very large in terms of land areas and population. World systems theory

focuses specifically on the world capitalist system and indicates that the core countries largely control most of the wealth and economic development (Wallerstein 1974).

World economic development is unduly influenced by the core countries and this is specifically done through controls over investment, but more specifically through commodity or value chains (Arrighi, 2007; Arrighi & Moore, 2001, Arrighi & Silver 1999; Gereffi, 1994; 2005; Gereffi et al. 2005). Value chains largely involve outsourcing and offshoring arrangements which might be looked at as an inverted telescope. The core countries control the nature of the distribution of income from the product being produced so the largest amounts of money go to the large cylinder, and then each extension of the smaller cylinders of the telescope get smaller and smaller portions of the profits. As a result, the core country corporations pay their employees and stockholders well, and the pay and benefits gets smaller and smaller the closer the value chain is in the less developed country. Wallerstein (1974) developed world systems theory to discover why poor countries tended to stay poor. The process is not unlike the supply-chain concept of lean production. The original equipment producer (e.g., Toyota) gains the higher portion of the profits and wages, the first tier supplier gets a bit less, and the second and third tier suppliers get even less. When this is done within a country, the wage differentials are large but not too great. When this is done between countries, the wage differentials become astronomic and offshore production reveals incredibly low wages.

For instance, the pay of Apple product designers and marketers is hundreds if not thousands of times larger than the pay of the 15- to 30-year-old village girls who assemble iPods and iPhones in the industrial zones of Shenzhen, China. This is the basic logic of Nikeification but a smaller version of it is already in lean production in simple outsourcing. Waltonism takes Nikeification and spreads it to the last elements of the supply chain or value chain. In other words, the making of iron skillet is not particularly technologically advanced and it is really just the last cylinder of the inverted telescope.<sup>2</sup>

China attempts to control the value chain process by insisting that technology transfer be part of the production deal within its borders. Large corporations from the core countries generally have no incentive to engage in technology transfer; in fact, it is largely diametrically opposed to their capitalistic interests in a capitalist world system economy. It doesn't contravene value chains directly, but it represents a gradual

leakage in maintaining strong leverage over wages and profits. Over time workers gain the skills to do better jobs, college trained engineers become more and more adept in doing what it takes to produce these products, and then Chinese scientists and engineers can develop their own competing products. This is largely the last thing a core country corporation wants to see—serious competition from a less developed country.

So why did firms from advanced industrialized countries agree to these joint ventures with technology transfer? There are three reasons. First, the Chinese market will likely be the dominant market of the next century. If you are not in that market, you will be bypassed by those who are in this market. Second, the Chinese government has enough military might and political power to enforce this deal on core corporations by possibly excluding them. This factor does not need a great deal of saber rattling, but it is there. And third, these corporations will get considerable profit in the short run from the incredible wage gap with Chinese production workers. In addition, China is a society with a strong work and education ethic. As a result, the probability of being successful is rather high. So in some ways, this is a tradeoff of short term (one or two decades) versus long term (three to four decades). So why would Boeing give the Chinese air transport manufacturing industry the plans for producing their latest jet? First, they are in the Chinese market selling jets already, and this helps them to sell more. Second, Boeing recognizes the importance of China economically and politically, and wants to stay in that market. And third, they will get their profits now, and they believe that their technology will be obsolete by the time the Chinese are able to put it into production and sell their airliners. Still, this is a somewhat risky bet that favors immediate sales over future prospects.

Other countries in the periphery will not have the advantages that China has. For instance, Vietnam or Indonesia will not become the dominant market of the next century. Neither one has the political or economic power to be a major player on the world economic stage. And corporations may make short-term profits in either one of these countries, but if too much is demanded, corporations will be more than willing to move to a new location. The Middle Eastern countries are in a similar situation, although they have been able to use their collective political power through OPEC to achieve a major redistribution of capital in their direction. However, they do not have a large internal market and their most important resource (i.e., oil) is being diluted by



new discoveries in the US and Canada, and the threat of wind and solar power. Meanwhile, the political tensions in OPEC have reduced its unified power. Further, the work and educational ethic in the Middle East and Indonesia is not up to the level of China. To finish this argument that the other countries do not have the economic and political power of China, consider whether any of these countries could ever make the massive investment foray into Africa that China has recently engineered. It is largely inconceivable that any other less developed countries other than China could do this.

As a result, the core powers and the major ascending power of China will control the direction of foreign direct investment in the next century. They will help manage the levers of the World Bank, the International Monetary Fund, and various United Nations peace-keeping and economic development efforts. But as one can see, this discussion of world systems theory (sometimes called world hegemony theory by political scientists) ventures into the area of international politics and global investment, and gets a bit away from how production is actually organized on the shop floor. It presents a big picture, but this view is so big that it knocks the workers and managers off the shop floor in how they are actually organizing work. In fact, it can operate just as well with a Fordist or Taylorist division of labor as it can with the newer approaches that we have discussed here.

## **The possibly emerging localization of labor**

The emergence of additive technology has the potential to create a new and almost anarchistic structure of production based on local technological parks with 3-D printers producing small batches of incredibly diverse products. For instance, stores could have 3-D printers to produce items on demand for customers. That seems to be the immediate vision of this new technology. And it is highly persuasive. However, it is not easy to project a division of labor on an only emerging development. There are other scenarios.

So if we are forecasting on only a few initial points, there are other scenarios that might develop. First, the development of the best 3-D printers might need a very involved and detailed technology that could require hiring highly paid engineers and scientists. Hence an organization not unlike Apple could emerge that would be highly

secretive about its technology and thus raise the price of high quality 3-D printers to a large sum. Then corporations with large resources would be the only ones who could afford the technology, and indeed over time, might specialize the technology for their particular products. The shape of JIT production might change in that the 3-D printer suppliers might be owned by the original equipment manufacturing (OEM) companies, or the suppliers would need to be very close to the final product assembler. In either case, the vision of many local producers would be replaced by large corporations.

Second, what if the localization of production could be countered by the centralization of the raw materials? In this case it would be the ultra-violet (UV) curing resins that are the raw material from which additive production works. For instance, in the previous two centuries, back yards or communities were not peppered by basic oxygen process or open hearth furnaces to make steel. Instead, steel was produced by very large corporations. The only known example of community steel production was tried by China in the 1960s “Great Leap Forward” and this was such a failure that it helped create a major famine that killed 25 to 40 million people. Currently, these resins are polyester, epoxy, and vinyl resins with glass components. But future resins or molecular raw materials might be of such a technical grade that they can be produced only by large companies with massive resources. For instance, it is rather inconceivable for local communities to have access to rare earths at a reasonable price in order to produce their own smart phones. One might envision in the more distant future a molecular decompiler to use for input into a recompiling 3-D printer. But this is getting into a rather far-off scientific development. At this initial beginning of additive technology, the main point is that it is extremely hazardous to predict the global implications of this new technology. But it promises ample speculation for the next decade on its development.

So we end this chapter with the convergences and divergences of three models of lean production—Toyotism, Nikefication, and Waltonism—within a global context of the world capitalist system, and the speculative wild card of the additive model of future production. Thus, lean production in its three forms is the most accurate model of the current division of labor. It is specific enough to describe the basic operational principles of the system (i.e., not just flexibility), and it shows significant variations from Nike to Toyota to Walmart.

## Notes

- 1 Recent events show that the NLRB has ruled against Target for unfair labor practices, and that Walmart is fighting unionization drives (Jamieson, 2012). Meanwhile, Republican filibusters prevented the appointment of replacement NLRB commissioners until recently. McDonald's is facing demonstrations about low pay and not providing a living wage in Chicago, Detroit, Milwaukee, and Baltimore. And Washington, DC may rule that Walmart cannot build a store there unless they pay a living wage. This does not mean that we are on the verge of organizing this massive low wage sector, but it clearly indicates that the Waltonism model faces labor problems and is totally antiunion.
- 2 These low tech products are produced by township and village enterprises (TVEs) rather than transnational joint ventures or state-owned enterprises.

# 6

## Conclusion: What the New Divisions of Labor Mean?

*Abstract: This chapter summarizes the contradictions and limitations of lean production, concluding that this model emerges as the new dominant model of division of labor.*



**Keywords:** lean production, additive technology

Janoski, Thomas and Lepadatu, Darina. *Dominant Divisions of Labor: Models of Production That Have Transformed the World of Work*. New York: Palgrave Macmillan, 2014. DOI: 10.1057/9781137370235.

Clearly, Fordism has passed its mantle of the dominant form of the division of labor to a more flexible brand of social organization. It has a variety of forms in the workplace with strong teams often giving way to none at all, and in politics it has reinforced neo-liberalism and state budget cutting. But whether one agrees with it all, half of it or a quarter or so, it is a force in our present economy and society. We have made the case that lean production should be considered the new dominant model of division of labor. The blockbuster equivalent of Braverman's book has not been written, but it is waiting in the wings. As with Fordism, we could wait until the model goes into decline and a new model takes off. But why not analyze it and pose some alternatives while the model appears to be at the peak of its power? Osono et al. (2008) show that this model is more complex than currently portrayed, with contradictions and certain dialectical character, but that is what we should expect of a successful model—being opportunistic to develop its own potentiality. Only the most doctrinaire consultants believe that there is only “one right way” to get things done.

## The consequences of the dominant division of labor

Richard Conney asked “Is ‘Lean’ a Universal Production System?” (2002). In sum, we answer “yes,” but emphasize three varieties of lean production that are part of this new and dominant division of labor: (a) *Toyotism* with the full model of lean, long-term, and loyal production; (b) *Nikeification* with off-shored production that jettisons teams but may use teams on-shore for design and marketing; and (c) *Waltonism* with its low-wage merchandizing and hard-bargaining off-shoring supply chain model. One must recognize that the Japanese, Korean, and even German auto transplants are investing in American jobs with new manufacturing plants going up each year. Much of this involves Toyotism. Thus, in the end, the labor process and job security appear by comparison to be the welcomed part of the model, but the stress and overtime are not. Further, the macro-politics of lean production seems to be more friendly to conservative and business circles. In sum, as we synthesize these three models, lean production “is” the new and largely dominant form of the division of labor. However, we note that “shareholder value capitalism,” though not being a production model in-and-of-itself, is antithetical to Toyotism but more ambiguously related to Nikeification and Waltonism.

Thus, we can see that the consequences of lean production in all three of its versions are rather diverse. Not all firms embrace Toyotism, not all firms are like Apple, and not all firms are merchandisers like Walmart. However, the combination of these three types of lean production cover a large swath of the production process in the world today. Nonetheless, Fordism still exists as McDonalidization shows, and most of production in China is largely operated under Fordist principles. Apple's production through Foxconn involves no teamwork or long-term employment prospects for their young village girls, and the consequences for the partially lean models of Nikeification and Waltonism consist of a large amount of off-shored production that have led to higher structural unemployment and the shrinkage of the middle class in the US (Janoski et al., forthcoming).

## Contradictions of the new division of labor

One major problem of the new division of labor generally represented by lean production (Toyotism, Nikeification, and Waltonism) is that it is largely exploitative of labor. Toyotism is the least exploitative in that it largely promotes the skill training of its workers and pays them well, but temporary workers are much less well treated and the major complaints about Toyotism go back to these temporary workers with lower pay, fewer benefits, and little or no employment security. But Nikeification and Waltonism promote large-scale exploitation with little or no worries about injuries or even deaths. The fact that Foxconn had to install suicide nets around their factories in Shenzhen, China shows that they recognized a problem but Apple, when confronted by the media, resorted to the weakest response possible by funding their own NGO to investigate and make changes (Anner, 2012).

Further, Apple and others should recognize that they benefit from the internal *Hukou* system that imposes internal passport restrictions on these workers. This means that the workers who produce Apple's products are second class citizens in their own country and even resemble illegal aliens in the US due to their vulnerability. These non-resident workers do not have basic citizenship rights in the factories where they work because they cannot send their children to the local schools, they are highly restricted in the health care services they receive, and so forth. Their rights reside in the villages from which most of them come. As

a result, they tend to be circular migrants limiting their work in world class factories by eventually going back to their villages, and then returning again.

But the fact is that most American purchasers of Apple iPhones or Nike shoes could care less about the conditions under which these products are made. The fires killing hundreds and the building collapse killing over a thousand carry little weight with Americans' relationship with popular corporations. These tragedies are unlikely to produce any legal convictions of the people directly responsible (i.e., the subcontractors), and the big corporations that sell these products are worming their way out of responsibility. In fact, subcontracting seems to be a near total inoculation against the clear exploitation of workers in third world countries.

## **Limitations of the new division of labor based on lean production**

There are three limitations of this new division of labor based on lean production, and they represent the old and the new. First, although many Japanese firms and a few American and European firms in China use lean production methods, for the most part, Chinese firms rely on a fairly standard form of Fordism in their production process. The same may apply to other Asian countries outside of Japan and Korea, and to most of Africa and Latin America. And of course in the advanced industrialized countries like the US, Japan, and Germany, there are numerous examples of Fordist, Taylorist, and even craft production methods being used in various industries. But even China seeks through its purchase of Smithfield Foods, the largest pork producer in the US, to create factory farms with thousands and thousands of hogs rather than buying a few here and there from small village farmers. Yet, while large producers, especially backed by the state in China, may metaphorically be trying to bring home the leanly produced bacon, small scale batch, craft, and Taylorist production still exists. And in the big electronics factories of Foxconn supplying Apple with all their products, the process is clearly Fordist.

Second, the implications of technology—especially in robotics, automation, and artificial intelligence—imply that many factories and service provision will be done by non-humans. Factories already exist

in Japan that use few if any humans (see Yamazaki Mazak factories). The most extreme position on technology is that of Ray Kurzweil (2005; see also Rifkin 1995) who uses Moore's Law on the exponential increase in the power of computer chips to predict that by 2030 and certainly by 2050 artificial intelligence will be far superior to human intelligence in not just computation but also in pure creativity. At that point in time, which he calls "singularity," human and computer brains will merge, and human labor will largely be unneeded except possibly in historical theme parks which demonstrate how work "used to be done" (perhaps like the Henry Museum and Greenfield Village as a glorification of Fordism in Dearborn, Michigan). Kurzweil's point is that this stage of singularity should not be feared and indeed it should be celebrated.

Third, additive production is the wild card in the world division of labor since it could escape corporations and automation. It has the promise of flexible specialization and the complete flexibility of anyone manufacturing nearly anything they want through 3-D printing. This could lead to a completely open and do-it-yourself economy, or it could be subject to corporate control in a number of not entirely hard to imagine ways. It is naïve to think that corporations will not try to find a way to harness additive production for their own purposes and profits. Some dangers may present themselves such as the already sensational 3-D printing of guns and pistols. Corporations and society in general may impose regulations on additive production, which corporate lobbyists would have strong input. The result could be far different from the nearly anarcho- or democratic-production process that many futurists might imagine. In the final analysis, we simply cannot predict the direction of this new technology and await further evidence on how it might develop. Nonetheless, we hope that it might evolve like the predicted impact of internet technologies into something like "citizenville."

So the final answer is that lean production in three versions is the new dominant form of the division of labor. But tomorrow might be a different story.



## References

- Aglietta, Michel. 1979. *A Theory of Capitalist Regulation: The US Experience*. London: New Left Books.
- Ahuvia, Aaron & Izberk-Bilgin, Elif. 2011. Limits of the McDonaldization Thesis: eBayization and Ascendant Trends in Post-Industrial Consumer Culture. *Consumption, Markets & Culture*. 14(4):361–84.
- Anderson, Chris. 2012. *Makers: The New Industrial Revolution*. New York: Crown Business.
- Anner, Mark. 2012. Corporate Social Responsibility and Freedom of Association Rights. *Politics & Society*. 40(4):609–44.
- Aoki, Katsuki. 2008. Transferring Japanese Kaizen Activities to Overseas Plants in China. *International Journal of Operations & Production Management*. 28(6):518–39.
- Apple Inc. 2013. *Apple Supplier Responsibility: 2013 Progress Report*. Cupertino, CA: Apple Inc.
- Arrighi, Giovanni. 2007. *Adam Smith in Beijing*. New York: Verso.
- Arrighi, Giovanni & Jason Moore. 2001. Capitalist Development in World Historical Perspective, pp. 56–75 in R. Albritton, M. Itoh, R. Westra & A. Zuege (eds) *Phases of Capitalist Development*. London: Macmillan.
- Arrighi, Giovanni & Beverly Silver. 1999. *Chaos and Governance in the Modern World System*. Minneapolis: University of Minnesota Press.
- Bhatia, Nina & John Drew. 2006. Applying Lean Production to the Public Sector. *McKinsey Publications*.

- Accessed August 1, 2012. [http://www.mckinsey.com/insights/public\\_sector/applying\\_lean\\_production\\_to\\_the\\_public\\_sector](http://www.mckinsey.com/insights/public_sector/applying_lean_production_to_the_public_sector)
- Bair, Jennifer & Sam Bernstein. 2006. Labor and the Wal-Mart Effect, pp. 99–114 in Stanley Brunn (ed.). *Wal-Mart World*. NY: Routledge.
- Baja, Vikas. 2012. Fatal Fire in Bangladesh Highlights the Dangers Facing Garment Workers. *New York Times*. November 25, 2012.
- Bell, Daniel. 1973. *The Coming of Post-Industrial Society*. New York: Basic Books.
- Berg, Axel van den & Thomas Janoski. 2005. Conflict Theories in Political Sociology, pp. 72–95 in Thomas Janoski, Robert Alford, Alexander Hicks and Mildred Schwartz (eds) *The Handbook of Political Sociology*. New York: Cambridge University Press.
- Berggren, Christian. 1992. *Alternatives to Lean Production*. Ithaca, NY: ILR/Cornell University Press.
- \_\_\_\_\_. 1993. Lean Production – The End of History? *Work, Employment and Society*. 7(2):163–88.
- Bernier, Barnard. 2009. The Expansion of Precarious Labor. A Consequence of the Japanese System of Lean Production. *Anthropologie et Societes*. 33 (1): 229–44.
- Besser, Terry. 1996. *Team Toyota: Transplanting the Toyota Culture to the Camry Plant in Kentucky*. Albany, NY: State University of New York Press.
- Bishop, Todd. 2004. Union says Microsoft work going Offshore. *Seattle Post-Intelligencer*. July 28. [www.seattlepi.com/business/articles/Union-says-Microsoft-work-going-offshore-1150405.php](http://www.seattlepi.com/business/articles/Union-says-Microsoft-work-going-offshore-1150405.php)
- Boyer, Robert. 1993. *L'après-fordisme*. Paris: Styros.
- Boyer, Robert. & Yves Saillard. 2001. *Regulation Theory: The State of the Art*. London: Routledge.
- Braverman, Harry. 1974. *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*. NY: Monthly Review Press.
- Burawoy, Michael. 1979. *Manufacturing Consent: Changes in the Labor Process under Monopoly Capitalism*. Chicago: University of Chicago Press.
- Bureau of Labor Statistics (BLS). 2012. <http://www.bls.gov/news.release/union2.nro.htm>
- Byrman, Alan. 1999. The Disneyization of Society. *Sociological Review*. 47(1): 25–49.
- Byrman, Alan. 2003. McDonald's as a Disneyized Institution: Global Implications. *American Behavioral Scientist*. 47(2): 154–67.
- Chalice, Robert. 2008. *Improving Healthcare using Toyota Lean Production Methods*. Milwaukee, WI: ASQ press.

- Chandler, Alfred. 1962. *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*. Cambridge, MA: MIT Press.
- Chang, Leslie. 2008. *Factory Girls*. NY: Picador.
- Claeson, Bjorn. 2012. *Deadly Secrets: What Companies Know about Dangerous Workplaces and Why Exposing the Truth Can Save Workers' Lives in Bangladesh and Beyond*. Washington, D.C.: International Labor Rights Forum. <http://laborrights.org/sites/default/files/publications-and-resources/DeadlySecrets.pdf>.
- Clarke, Simon. 1990. The Crisis of Fordism or the Crisis of Social Democracy? *Telos*. 83:71–98.
- Clawson, Dan. 1980. *Bureaucracy and the Labor Process*. New York: Monthly Review Press.
- Cole, Robert E. 1971. *Japanese Blue Collar: The Changing Tradition*. Berkeley: University of California Press.
- \_\_\_\_\_. 1979. *Work, Mobility and Participation: A Comparative Study of American and Japanese Industry*. Berkeley: University of California Press.
- \_\_\_\_\_. 1991. *Strategies of Learning: Small Group Activities in American, Japanese and Swedish Industry*. Berkeley: University of California Press.
- Conney, Richard. 2002. Is “Lean” a Universal Production System? *International Journal of Operations and Production Management*. 22(10):1130–47.
- Davis, James & Tracy Thompson. 1994. A Social Movement Perspective on Corporate Control. *Administrative Science Quarterly* 39(1):141–73.
- Davis, James, K. Diekmann & C. Tinsley. 1994. The Decline and Fall of the Conglomerate firm in the 1980s. *American Sociological Review*. 49(4):547–70.
- Deming, W. Edwards. 1982. *Out of the Crisis*. Cambridge, MA: MIT Press.
- Dobbin, Frank & Jiwook Jong. 2010. The Misapplication of Mr. Michael Jensen. *Sociology of Organizations*. 30B:29–64.
- Duhigg, Charles & David Kocieniewski. 2012. How Apple Sidesteps Billions in Taxes. *New York Times*. April 28.
- Drucker, Peter. 2007 (1946). *Concept of the Corporation*. Piscataway, NJ: Transaction Press.
- Durkheim, Emile. 1997 (1893). *The Division of Labor in Society*. New York: Free Press.
- Edwards, Richard. 1979. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. NY: Basic Books.

- English-Leuck, J. A. 2010. *Being and Well-being: Health and the Working Bodies of Silicon Valley*. Stanford, CA: Stanford University Press.
- Fortune Magazine. 2012. *Fortune 500 Companies*. May 21. Accessed August 4, 2013. <http://money.cnn.com/magazines/fortune/fortune500/2012/performers/companies/biggest>
- Grunden, Naida. 2008. *The Pittsburgh Way to Efficient Health Care: Improving Patient Care Using Toyota Based Methods*. Boca Raton, FL: CRC Press.
- Farber, David. 2002. *Sloan Rules: Alfred P. Sloan and the Triumph of General Motors*. Chicago: University of Chicago Press.
- Fishman, Charles. 2006. *The Wal-Mart Effect: How the World's Most Powerful Company Really Works — and How It's Transforming the American Economy*. Harmondsworth, UK: Penguin Press.
- Fitzgerald, Scott W. 2011. *Corporations and Culture Industries: Time-Warner, Bertelsman and News Corporation*. Lexington, CT: Lexington Books.
- Fligstein, Neil. 2001. *The Architecture of Markets*. Princeton: Princeton University Press.
- Ford, Henry with Samuel Crowther. 1926 (1988). *Today and Tomorrow*. NY: Productivity Press.
- \_\_\_\_\_. 1977[1922]. *My Life and Work*. Garden City, NY: Garden City Publishing. <http://www.gutenberg.org/ebooks/7213>.
- Freeman, Richard. 1984. *Strategic Management: A Stakeholder Approach*. Boston: Pitman.
- Frontline. 2005. Is Wal-Mart Good for America? PBS Video. November 16. HYPERLINK "<http://www.shopppbs.org/product/index.jsp?productId=889876&cp>"[www.shopppbs.org/product/index.jsp?productId=889876&cp](http://www.shopppbs.org/product/index.jsp?productId=889876&cp).
- Fujimoto, Takahiro. 1999. *The Evolution of a Manufacturing System at Toyota*. New York: Oxford University Press.
- Gartman, David. 1998. Postmodernism; or, the Cultural Logic of Post-Fordism" *Sociological Quarterly*. 39(1):119–37.
- Geisinger, Scott. 2012. *The Development of Nike Corporation*. Senior Thesis. Sociology Department, University of Kentucky.
- Gereffi, Gary. 1994. The Organization of Buyer-Driven Global Commodity Chains, pp. 95–122 in Gary Gereffi & Miguel Korzeniewicz (eds) *Commodity Chains and Global Capitalism*. Westport, CT: Greenwood Press.
- \_\_\_\_\_. 2005. *The New Offshoring of Jobs and Global Development*. Geneva: ILO. December.

- Gereffi, Gary, J. Humphrey & Timothy Sturgeon. 2005. The governance of global value chains. *Review of International Political Economy*. 12(1):78–104.
- Glassdoor. 2013. Salaries, McDonalds. Salaries, Walmart. Accessed August 5, 2013. <http://www.glassdoor.com/Salaries/index.htm>
- Gould, Anthony. 2010. Working at McDonald's: Some Redeeming Features of McJobs. *Work, Employment and Society*. 24(4):780–802.
- Graban, Mark. 2009. *Lean Hospitals*. Boca Raton, FL: CRC Press.
- Grove, Andrew. 2010. How Americans Can Create Jobs. *Businessweek*. February:60–64.
- Gross, Tandiwe. 2013. Rana Plaza: Private Governance and Corporate Power in Global Supply Chains. *Global Labour Column. Corporate Strategy and Industrial development*. [Http://column.global-labor-university.org](http://column.global-labor-university.org).
- Grunden, Naida. 2008. *The Pittsburgh Way to Efficient Health Care: Improving Patient Care Using Toyota Based Methods*. Boca Raton, FL: CRC Press.
- Hall, Douglas & Philip Mirvis. 1995. The New Career Contract. *Journal of Vocational Behavior*. 4(7):269–89.
- Harvey, David. 1990. *The Condition of Post-Modernity*. NY: Wiley-Blackwell.
- \_\_\_\_\_. 2011. *The Enigma of Capital and the Crises of Capitalism*. NY: Oxford University Press.
- Herrigel, Gary. 2010. *Manufacturing Possibilities: Creative Actions and Industrial Recomposition in the US, Germany and Japan*. NY: Oxford University Press.
- \_\_\_\_\_. 1996. *Industrial Constructions: The Sources of German Industrial Power*. New York: Cambridge University Press.
- Hoxie, Robert Franklin. 1966. *Scientific Management and Labor*. New York: A.M. Kelley.
- Hyttek, Gary. 2008. From Ford to Gates: How Globalization Is Transforming Patterns of Stratification in the United States, pp. 187–214 in Beverly Crawford & Edward Fogarty (eds) *The Impact of Globalization on the United States, Vol. 3*. Westport, CT: Praeger.
- Ingram, Paul, Lori Qingyuan Yue & Hayagreeva Rao. 2010. Trouble in Store: Probes, Protests and Store Openings by Wal-Mart, 1998–2007. *American Journal of Sociology*. 116(1):53–92.
- Isaacson, Walter. 2011. *Steve Jobs*. NY: Simon & Schuster.

- Jaffee, David. 2001. *Organization Theory: Tension and Change*. NY: McGraw-Hill.
- Jameson, Frederic. 1991. *Postmodernism, or the Cultural Logic of Late Capitalism*. London: Verso.
- Jamieson, David. 2012. Target, Union Fight Goes Back to Square One. *Huffington Post*. May 24, 2012. [http://www.huffingtonpost.com/2012/05/24/target-union-ufcw-nlrb\\_n\\_1544030.html](http://www.huffingtonpost.com/2012/05/24/target-union-ufcw-nlrb_n_1544030.html)
- Janoski, Thomas & Darina Lepadatu. 2009. Lean Production in the Auto Industry. NSF Grant ARRA 0940807. Alexandria, VA: Sociology Section of NSF.
- Janoski, Thomas, David Luke & Chris Oliver. (forthcoming). *The Causes of Structural Unemployment: Four Factors That Prevent People from Getting the Jobs They Deserve*. London: Polity Press.
- Jargon, Julie. 2010. McDonald's Tackles Repair of "Broken" Service. *Wall Street Journal*. <http://online.wsj.com/news/articles/SB1000142412788732401070457841490175648>.
- Jensen, Michael & William Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*. 3(1976):308.
- Jessop, Bob. 1990. *The Regulation School: A Critical Introduction*. NY: Columbia University Press.
- Jessop, Robert & Ngai-Ling Sum. 2006. *Beyond the Regulation Approach*. London: Edward Elgar.
- Johnson, Steven. 2012. *Future Perfect: The Case for Progress in a Networked Age*. NY: Riverhead Publishing.
- Kanigel, Robert. 1997. *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency*. NY: Viking.
- Kenney, Martin. 2000. *Understanding Silicon Valley*. Stanford, CA: Stanford Business Books.
- Kenney, Martin & Richard Florida. 1993. *Beyond Mass Production: The Japanese System and Its Transfer to the US*. NY: Oxford University Press.
- Kenney, Martin, Silvia Massini & Thomas Murtha. 2009. Offshoring Administrative and Technical Work: New Fields for Understanding the Global Enterprise. *Journal of International Business Studies*. 40:887–900.
- Kharif, Olga. 2007. Walmart's Latest Sale: Broadband. *Business week*. October 8.
- Kochan, Thomas, R. D. Lansbury, & J. P. MacDuffie. 2007. *After Lean Production: Evolving Employment Practices in the World Auto Industry*. Ithaca, NY: Cornell University Press.

- Koeber, Charles, David Wright & Elizabeth Dingler. 2012. Self-Service in the Labor Process: Control and Consent in the Performance of “Consumptive Labor.” *Humanity & Society*. 36(1):6–29.
- Kondo, Yoshio. 1994. Kaoru Ishikawa: What He Thought and Achieved, a Basis for Further Research. *Quality Management Journal* 1(4):86–91.
- Kracfik, John F. 1988. Triumph of the Lean Production System. *Sloan Management Review*. 30(1):41–52.
- Kurzweil, Ray. 2005. *The Singularity Is Near*. Harmondsworth, UK: Penguin.
- Labovitz, G., Rosansky, V. & Chang, Y. S. 1993. *Making Quality Work: A Leadership Guide for the Results-driven Manager*. New York: Harper Business.
- LaCroix, Jean Guy & Gaëtan Tremblay. 1997. The Information Society and Culture Industries Theory. *Current Sociology*. 45(4):162–83.
- Lee, Ching Kwan. 2007. *Against the Law: Labor Protests in China’s Rustbelt and Sunbelt*. Berkeley: University of California Press.
- Lepadatu, Darina & Thomas Janoski. 2011. *Diversity at Kaizen Motors: Gender, Race, Age and Job Security in a Japanese Auto Transplant*. Lanham, MD: University Press of America.
- Lewin, Arie, Silvia Massini & Carine Peeters. 2009. Why Are Companies Offshoring Innovation? *Journal of International Business Studies*. 40(8):1406–16.
- Lichtenstein, Nelson. 2006. *Wal-Mart: The Face of Twenty-First Century Capitalism*. NY: New Press.
- Liker, Jeffrey. 2004. *The Toyota Way*. NY: McGraw Hill.
- Liker, Jeffrey & Timothy Ogden. 2011. *Toyota Under Fire: Lessons for Turning Crisis into Opportunity*. NY: McGraw Hill.
- Lipietz, Alain. 1995. The Post-Fordist World: Labour Relations, International Hierarchy and Global Ecology. *Review of International Political Economy*. 4(1):1–41.
- Lipson, Hod & Melba Kurman. 2013. *Fabricated: The New World of 3D Printing*. Indianapolis, ID: Wiley.
- Magée, David. 2009. *Jeff Immelt and the New GE Way*. New York: McGraw-Hill.
- Marsh, Peter. 2012. *The New Industrial Revolution*. New Haven, CT: Yale University Press.
- Mehri, Darius. 2005. *Notes from Toyota-land: An American Engineer in Japan*. Ithaca, NY: ILR and Cornell University Press.

- Miners, Zach. 2013. Obama Plays Up 3D Printing's Military Applications under New Manufacturing Plans. *PCWorld*. May 9. <http://www.pcworld.com/article/2038413/obama-plays-up-3d-printings-military-applications-under-new-manufacturing-plans.html>
- Mintzberg, Henry (ed.) 1989. *Mintzberg on Management*. New York: The Free Press.
- Morgan, James & Jeffrey Liker. 2006. *The Toyota Product Development System: Integrating People, Process and Technology*. New York: Productivity Press.
- Moberg, David. 1978. *Rattling the Golden Chains: Conflict and Consciousness of Auto Workers*. University of Chicago, Anthropology Dissertation (unpublished).
- Montgomery, 1997. *The Fall of the House of Labor*. NY: Cambridge University Press.
- Morgan, James & Jeffrey Liker. 2008. *The Toyota Product Development System*. New York: Productivity Press.
- Nelson, Dave, Rick May, & Patricia Moody. 2007. *Powered by Honda: Developing Excellence in the Global Enterprise*. Lincoln, NE: Authors Guild Backinprint.com (originally published in 1998 by Wiley).
- Newsom, Gavin with Lisa Dickey. 2013. *Citizenville: How to Take the Town Square Digital and Reinvent Government*. NY: Penguin.
- Nolan, Mary. 1994. *Visions of Modernity: American Business and the Modernization of Germany*. New York: Oxford University Press.
- Nye, David. 2013. *America's Assembly Line*. Cambridge, MA: MIT Press.
- O'Boyle, Thomas. 1999. *At Any Cost: Jack Welch, General Electric and the Pursuit of Profit*. NY: Vintage.
- O'Connor, James. 1973. *The Fiscal Crisis of the State*. New York: St. Martin's Press.
- Offe Klaus. 1986. *Contradictions of the Welfare State*. London: Hutchinson.
- Ohno, Taiichi. 1988a. *Toyota Production System: Beyond Large-Scale Production*. NY: Productivity Press.
- \_\_\_\_\_. 1988b. *Workplace Management*. NY: Productivity Press.
- Osono, Emi, Norihiko Shizumi & Hiroataka Takeuchi. 2008. *Extreme Toyota: Radical Contradictions that Drive Success at the World's Best Manufacturer*. New York: Wiley.
- Packer, George. 2013. Change the World: Silicon Valley Transfers Its Slogans – and Its Money – to the Realm of Politics. *The New Yorker*. May 2, pp. 44–55.



- Peck, Jaime. 1996. *The Work-place: The Social Regulation of Labor Markets*. NY: Guilford Press.
- Petty Consulting/Productions. 1991. *Deming of America* (Documentary). Cincinnati, OH: Petty Consulting/Productions.
- Piore, Michael & Charles Sabel. 1986. *The Second Industrial Divide*. New York: Basic Books.
- Pruijt, Hans. 2003. Teams Between Neo-Taylorism and Anti-Taylorism. *Economic and Industrial Democracy*. 24(1): 77-101.
- Ransom, Kevin. 2010. How the Car Companies Lobby the Government. *Autos.aol.com*. May 7. <http://autos.aol.com/article/car-companies-lobbying/>
- Rao, Arun & Piero Scaruffi. 2011. *A History of Silicon Valley*. Silicon Valley, CA: Omniware.
- Ritzer, George. 2002. "McJobs: McDonaldization and its Replationship to the labor Process." pp. 141-147 in George Ritzer (ed.) *McDonaldization: The Reader*. Thousand Oaks, CA: Pine Forge Press.
- \_\_\_\_\_. 2004 (1993). *The McDonaldization of Society, Revised*. Thousand Oaks, CA: Sage Press.
- \_\_\_\_\_. 2011. *Sociological Theory*. New York: McGraw Hill.
- Rifkin, Jeremy. 1995. *The End of Work*. NY: Putnam & Son.
- Rothschild, Emma. 1973. *Paradise Lost: The Decline of the Auto-Industrial Age*. New York: Random House.
- Sabel, Charles. 1984. *Work and Politics: The Division of Labor in Industry*. NY: Cambridge University Press.
- Sabel, Charles & Jonathan Zeitlin. 2002. *World of Possibilities: Flexibility and Mass Production in Western Industrialization*. New York: Cambridge University Press.
- Schwartz, Nelson & Charles Duhigg. 2013. Apple's Web of Tax Shelters Saved it Billions, Panel Finds. *New York Times*, May 21.
- Sherif, Muzafer, O. J. Harvey, B. Jack White, William Hood & Carolyn Sherif. 1988. *The Robbers Cave Experiment: Intergroup Conflict and Cooperation*. Middletown, CT: Wesleyan University Press.
- Silver, Hilary. 2008. *Forces of Labor*. NY: Cambridge University Press.
- Sloan, Alfred. 1986. *My Years with General Motors*. Harmondsworth, UK: Penguin.
- Smith, Adam. 1976 (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. Chicago: University of Chicago Press.

- Sports Business Daily*. 2012. Marketing and Sponsorship at Nike. October 22. Accessed August 4, 2013. <http://www.sportsbusinessdaily.com/Daily/Issues/2012/10/22/Marketing-and-Sponsorship/Nike.aspx>
- Stewart, Thomas & Anand Raman. 2007. Lessons from Toyota's Long Drive: Interview with Toyota President Katsuaki Watanabe. *Harvard Business Review*. July.
- Stout, Lynn. 2012. *The Shareholder Value Myth*. San Francisco, CA: Berrett-Koehler.
- Stross, Randall. 1997. *The Microsoft Way*. NY: Basic Books.
- Taylor, Frederick Winslow. 1911. *Principles of Scientific Management*. New York: Norton.
- Toyoda, Aiko. 2010. Toyota President Akio Toyoda's Statement to Congress. *The Guardian*. February 24. <http://www.theguardian.com/business/2010/feb/24/akio-toyoda-statement-to-congress>
- Toyota. 2004. *Employees Handbook*. TMMK, Georgetown, Kentucky.
- Tremblay, Gaëtan. 1995. The Information Society: From Fordism to Gatesism: The 1995 Southam Lecture. *Canadian Journal of Communication*. 20(4):461–82.
- \_\_\_\_\_. 2008a. Gatismisme et informationnalisation social. in Philippe Boquillion and Yolanda Combes (eds) *Les Industries de la Cultural de la Communication an Quebec et Canada*. Paris: L'Harmattan.
- \_\_\_\_\_. 2008b. Industries Culturelles economie crehe et societe de l'Information. *Global Press Journal, Canadian Issue*. 1(1):65–88.
- Trist, Eric. 1997. *The Social Engagement of Social Science: A Tavistock Anthology*. Philadelphia: University of Pennsylvania Press.
- Trist, Eric L., G. W. Higgin, H. Murray & A. B. Pollock. 2013 (1963). *Organizational Choice: The Loss, Re-discovery, and Transformation of a Work Tradition*. NY: Routledge.
- Turner, Lowell. 1993. *Democracy at Work*. Ithaca: Cornell University Press.
- Turner, Tim & colleagues. 2012. *One Team on all Levels: Stories from Toyota Team Members*. Boca Raton, FL: CRC Press/Taylor & Francis.
- Twentieth Century Fox. 2013. *The Internship*. Movie, 119 Minutes. Los Angeles: Twentieth Century Fox.
- Uchitelle, Louis. 2011. Working for Less: Factor Jobs Gain, but Wages Retreat. *New York Times*, December 29.
- US Census Bureau. 2013. Income statistics. Accessed August 2, 2013. <http://www.census.gov/hhes/www/income/data/historical/measures>.

- US House of Representatives (USHR). 2013. The Low-Wage Drag on our Economy: Wal-Mart's Low Wages and Their Effect on Taxpayers and Economic Growth. Report prepared by the Democratic staff of the US House Committee on Education and Workforce. May. Accessed on August 8, 2013. <http://democrats.edworkforce.house.gov/sites/democrats.edworkforce.house.gov/files/documents/WalMartReport-May2013.pdf>.
- Vallas, Steven. 1999. Rethinking Post-Fordism: The Meaning of Workplace Flexibility. *Sociological Theory*. 17(1):68–101.
- \_\_\_\_\_. 2001. Symbolic Boundaries and the New Division of Labor: Engineers, Workers and Restructuring of Factory of Life. *Research in Social Stratification and Mobility*. 18:3–37. JAI Press.
- \_\_\_\_\_. 2003. Why Teamwork Fails: Obstacles to Workplace Change in Four Manufacturing Plants. *American Sociological Review*. 68(2):223–50.
- \_\_\_\_\_. 2006a. Empowerment Redux: Structure, Agency and the Remaking of Managerial Authority. *American Journal of Sociology*. 111(6):1677–717.
- \_\_\_\_\_. 2006b. Theorizing Teamwork under Contemporary Capitalism, in Vicki Smith (ed.) *Worker Participation*. Special issue of *Research in the Sociology of Work*. Volume 16, pp. 3–24.
- Vidal, Matt. 2011. Reworking Post-Fordism. *Sociological Compass*. 5/4:273–86.
- \_\_\_\_\_. 2010. On the Persistence of Labor Market Insecurity and Slow Growth in the US: Reckoning with the Waltonist Growth Regime. Institute for Research on labor and Employment, Working Paper 2010–16. UCLA. [www.irele.ucla.edu](http://www.irele.ucla.edu)
- \_\_\_\_\_. 2006. Theorizing Teamwork under Contemporary Capitalism. *Research in the Sociology of Work*. Vol. 16. San Diego, CA: JAI Press.
- \_\_\_\_\_. 2007. Manufacturing Empowerment? “Employee Involvement” in the Labour Process After Fordism. *Socio-Economic Review*. 5:197–232.
- Wallerstein, Immanuel. 1974. *The Modern World System*. New York: Academic Press.
- Wall Street Journal (WSJ)*. 2013. A Revolution in the Making. *Journal Report: Unleashing Innovation – Manufacturing*. Articles by John Koten (3), Bob Tita, Shelly Banjo, James Hagerty (2), Deborah Gage, Geoffrey Fowler. June 11, 2013, R1–R7.

- Watson, James. 1997. McDonald's in Hong Kong: Consumerism, Dietary Change, and the Rise of a Children's Culture, in James Watson (ed.) *Golden Arches East*. Stanford, CA: Stanford University Press, pp. 77–110.
- Weisbord, Marvin. 2004. *Productive Workplaces: Organizing and Managing for Dignity, Meaning and Community*, 2nd Edition. San Francisco: Jossey-Bass.
- Womack, James, Daniel Jones & Daniel Roos. 1990. *The Machine that Changed the World*. New York: Harper Collins.
- Wrege, Charles & Perroni, Amedeo. 1974. Taylor's Pig-Tale: A Historical Analysis of Frederick W. Taylor's Pig-Iron Experiments. *Academy of Management Journal* 17 (1):6–27.
- Yardley, Jim. 2012. Horrific Fire Revealed a Gap in Safety for Global Brands. *New York Times*. December 8.
- \_\_\_\_\_. 2013. Justice Still Elusive in Factory Disasters in Bangladesh. *New York Times*. June 29.

# Person Index

- Adler, Paul, 31  
Aglietta, Michel, 17, 30  
Anderson, Chris, 50, 51  
Andreesen, Marc, 26  
Anner, Mark, 69  
Aoki, Katsuki, 39
- Bell, Daniel, 14 n.1  
Berggren, Christian, 34  
Besser, Terry, 31, 37  
Bowerman, Bill, 42  
Boyer, Robert, 17, 30  
Braverman, Harry, 2, 12, 13,  
14, 68  
Bryman, Alan, 21  
Burawoy, Michael, vii–viii, 13
- Clawson, Dan, 13  
Cole, Robert E. 31  
Conney, Richard, 68
- Deming, W. Edwards, 35, 36  
Depew, Jeffrey, 31, 32  
Drucker, Peter, 11  
Durkheim, Emile, 2
- Edison, Thomas, 6  
Edwards, Richard, 13  
Eisenhower, President  
Dwight, 10  
Emory, Fred, 35
- Fishman, Charles, 48  
Ford, Henry, 6, 10, 11, 35, 47, 55
- Gates, Bill, 23  
Gilbreth, Frank and Lillian, 2  
Griffey, Ken Jr., 43
- Grove, Andy, 44
- Harvey, David, 16, 30 n.1  
Herrigel, Gary, 51  
Hoxie, Robert F., 9  
Hytrek, Gaary, 23
- Ishikawa, Kaoru, 35  
Immelt, Jeffrey, 31 n.7
- Janoski, Thomas, 38, 39, 40  
Jameson, Frederic, 16  
Jobs, Steven, 60  
Jordan, Michael, 43
- Knight, Philip, 42, 44  
Krafcik, John, 34, 41  
Kurzweil, Ray, 71
- Lepadatu, Darina, 38–39, 40  
Lewin, Arie, 44  
Lewin, Kurt, 24  
Lichtenstein, Nelson, 47  
Liker, Jeffrey, 31, 36, 37  
Lipietz, Alain, 20
- Maher, Kris. 48  
Marx, Karl, 3, 4  
Matsushita, Konosuke, 13  
Mehri, Darius, 52 n.2, n.3  
Moberg, David, 12
- Newsom, Gavin, 52  
Noll, Heinrich (aka, Schmidt),  
14 n. 1
- Obama, President Barack, 31,  
52, 60

- O'Connor, James, 19  
Offe, Klaus, 19  
Ohno, Taiichi, 35  
Osono, Emi, 68
- Piore, Michael, 51  
Pruijt, Hans, 53
- Ritzer, George, 20–22, 38  
Rothschild, Emma, 11
- Sabel, Charles, 51  
Sacks, David, 26  
Shiiki, Moriya, 31–32 n.8  
Sloan, Alfred, 11  
Smith, Adam, 6  
Stempel, Robert, 27
- Taylor, Frederick Winslow, 6, 7, 8, 9, 14
- Teruyuki, Mauro, 52 n.1  
Toyoda, Aiko, 41  
Tremblay, Gaetan, 23  
Trist, Eric, 25  
Turner, Tim, 38, 52 n.3
- Vallas, Steven, 18, 19, 20, 31, 53  
Vidal, Matt, vii, 19, 47
- Wallerstein, Immanuel, 62  
Walton, Sam, 46  
Watanabe, Katsuaki, 35  
Weber, Max, 4, 20  
Welch, Jack, 27, 28, 29, 30, 31 n.7,  
31–2n.8, 32 n.9  
Whitney, Eli, 4  
Woods, Tiger, 43
- Zuckerberg, Mark, 26

# Subject Index

- additive production or 3-D printing, 33, 34, 49–52, 53
  - n.6, 55, 57, 64–65, 67, 71
- Citizensville, 52
- Dauids and Goliaths, 52
- flexible specialization, 51–52
- localization of labor, 64–65
- models of production it
  - might take, 50–51
- Nike, 53, n.6
- subtraction, 49
- administrative and technical services (ATS), 44
- advanced industrialized countries (AICs), 21, 23, 47, 63, 70
- Amazon Corporation, 26, 60
- Apple Corporation, 23, 25, 26, 39, 40, 44–46, 51, 55, 56, 58–60, 62, 64, 69, 70
- employee protection enforcement, 46
- Foxconn (Hon Hai Precision Industries), 40, 44–46, 69–70
- iPad, 23, 44
- offshoring, 44–45, 55–62
- repatriation of profits, 60
- tax avoidance, 26, 60
- automation, *see* technology
- auto industry (*see* Fordism and Toyotism)
- Bangladeshi subcontractors, 47, 49
  - Tazreen fire kills over a hundred workers, 49
  - Rana Plaza fire kills over a thousand workers, 49
- Boeing Corporation, 63
- Blue Ribbon Sports, 42
- California Public Employees Retirement System (CALPERS), 27
- Computer Aided Design/Computer aided Manufacturing (CAD/CAM), 18
- China, 12, 19, 20, 23, 27, 29, 34, 39, 43–47, 56, 58, 62–65, 69, 70
  - Great Leap Forward, 65
- citizenship rights, 69
- Citizensville, 26, 52, 71
- co-production, 15, 20–22
- Dell Corporation, 44, 59
- Deming Prize (2nd Order medal of the Sacred Treasure), 35
- Dizneyization, 21
- Division of Labor, *see also*
  - Adam Smith *and* Emile Durkheim
  - contradictions, 69–70
  - limitations, 70–71
- division of labor, eight types of
  - post-Fordism, 3, 15, 16–20, 54, 56–58
  - flexible accumulation, 4, 15, 16–20, 54, 56–58, 71
  - lean production, 3, 34–41, 52 n.1, n2, n3; 53 n.4, 54, 55–61, 65, 67, 68

- McDonaldization, 4, 15, 16, 20–23, 54, 56–58, 69
- Siliconism, 4, 15, 16, 23–26, 56–57
- shareholder value, 15, 16, 27–30, 31 n. 7, n.8, n.9, 54, 56–58, 68
- Toyotism, 3, 33, 34–41, 52 nn. 1, 2, 3; 53 n.4, 54, 55–61, 65, 68
- Nikefication, 3, 4, 26, 33, 34, 41–46, 54, 56–60, 65, 68
- Waltonism, 3, 4, 33, 34, 46–49, 54, 55–60, 65, 68
- additive production, 33, 34, 49–52, 53 n.6, 54, 55, 57, 64–65, 67, 71
- Donut Corporation, 42, *see* Nikefication
- downsizing, 30
- Fair Labor Association (FLA), 45–46, 49, 53 n.7
- five-dollar day, 10
- Flexible Accumulation, 4, 15, 16–20, 31 n.4, 56–58, 71
- capital accumulation, accumulation crisis, 19
- flat organizations, 31 n.4
- flexibility, 18
- individualistic bargaining, 18
- outsourcing,
- teamwork for white-collar only, 18–19
- supply chain management or just-in-time inventory, 18
- flexible specialization, 51–52
- industrial districts in Germany, 51
- industrial districts in Italy, 51
- Ford Motor Company, 11, 40, 51
- Ford Motor Company Tech Shop, 51
- Fordism, 1, 2, 5, 9–14, 16, 17, 22, 40, 55, 56, 61, 64, 68, 69
- assembly line (mass production), 6, 9, 10–13, 22, 35, 36, 42
- decline, 12–13
- Dodge Revolutionary Workers Movement, 13
- education system, 11
- interchangeable parts, 9–10
- five-dollar day, 10,
- hierarchical integration, 10
- Keynesian economic policy, 10–11
- mass markets, 10
- repetitive labor, 13
- Rouge River plant, 6, 10, 12, 55,
- standardization, 9–10,
- United Autoworkers Union (UAW), 10
- Foxconn (Hon Hai Precision Industries), 40, 44–46, 69, 70
- French regulation school, 17m, 31 n.2
- Frontline, 48
- Germany, 2, 14, 39, 51, 60, 70
- General Electric (GE), 27–30, 31 n.7, 31–32 n.8, 32 n.9
- General Motors (GM), 11–12, 27,
- General Motors Assembly Division (GMAD), 11
- Google Corporation, 24, 25, 51, 60
- Hawthorne plant experiments, 8–9
- Honda Corporation, 46, 52 n.1, 60
- Hukou* system, 69
- Hyundai Corporation, 34
- India, 29, 47
- Indonesia, 43, 63, 64
- Intel, 23, 39, 60
- International Labor Office (ILO), 45, 46
- International Monetary Fund (IMF), 64
- Japan, 12–13, 20–21, 27, 31 n.4, 32, 34–43, 46, 52 n.1, n.3, 53 n.5, 56, 61, 68, 70–71
- joint ventures, 32 n.8, 43, 63, 66 n.2
- just-in-time inventory (JIT), 18, 35–37, 57, 58, 59, 65
- Kaizen*, 34, 35
- K-mart (from Kresge), 46, 59, 60
- Keiretsu*, 32 n.8
- Keynesian economics, 10, 11



- Korea, 42–43, 61, 68, 70
- lean production, 3, 34–41, 52 n. 1, n.2, n.3; 53 n. 4, 55–61, 65, 67, 68  
 budgetary lean, 41  
 contradictions, 67, 68, 69–70  
 Donut Corporation, 42  
 job rotation, 2, 36, 37, 38, 40, 53  
 n.4, 55  
 job security, 53 n.4, 69  
 just-in-time inventory, 18, 35–37, 57, 58, 59, 65  
*Kaizen*, 34, 35  
 lean, long-term and loyal (LLL), 36  
 long-term philosophy, 28, 30, 35–36, 37, 41, 48–49, 55, 56, 58–59  
 manage by walking around (MBWA), 37  
 Nikeification, 3, 4, 33, 34, 41–46, 56–60, 65, 68  
 political aspects, 37, 41  
 teamwork, 35–36  
 temporary employees (outsourcing), 18, 19, 36, 37, 38, 39, 40, 47, 58, 69  
 Toyotism, 3, 33, 34–41, 52 n.1, n.2, n.3; 53 n. 4, 55–61, 65, 68  
 true lean, 40–41, 58  
 visual controls, 35, 36  
 Waltonism, 3, 4, 33, 34, 46–49, 53 n.8, 55–60, 65, 68
- less-developed countries (LDC), 47, 64
- Liz Clairbone Corporation, 45
- manufacturing decline, 12, 22, 60, 68
- Massachusetts Institute of Technology (MIT), 34
- McDonald's Corporation 16, 20–23, 54–57, 60, 66 n.1  
 low wages, 22
- McDonaldization, 4, 15, 16, 20–23, 56–58, 69  
 Food-Fordism, 21,  
 co-production or consumptive labor, 15, 20, 22, 54  
 Disneyization, 21,  
 emotion work, 20–22,  
 “I’m lovin’ it,” 21  
 “I’m hatin’ it?” 22  
 low wages, 22, 66 n.1  
 McJobs, 22, 33  
 protests, 66 n.1  
 rationality, 20–22
- McJobs, 22, 33
- Mexico, 20, 31
- Microsoft Corporation, 23, 26, 39
- Middle East, 17,  
 OPEC, 63–64
- Mitsubishi Electric, 32 n.8
- Mittelstand*, 51
- Moore’s Law, 71
- Muda*, 35
- Multi-divisional Form Organization (M-Form), 11
- National Labor Relations Board (NLRB), 59, 66 n.1
- National Science Foundation (NSF), 39
- National Manufacturing Science Centers, 52
- Nemawashi*, 32 n.8
- neo-liberalism, 38, 68; political lean, 41; budgetary lean, 41
- neo-Taylorism, 53 n.4
- New United Motors Manufacturing, Inc. (NUMMI), 31
- Nike Corporation, 26, 42–44, 55, 56, 59, 60
- Nikeification, 3, 4, 33, 34, 41–46, 56–62, 65, 68  
 Blue Ribbon sports, 42  
 Donut corporation, 42  
 Fair Labor Association (FLA), 45  
 Fordist sweatshops, 42  
 Just do it, 43  
 offshoring, 41–43  
 labor problems, 44–45  
 marketing strategies, 44  
 partners, 43–44  
 part-time employees, 43  
 teamwork, 42
- Nissan Corporation, 39, 58
- Nokia Corporation, 59,

- Organization of the Petroleum  
Exporting Countries  
(OPEC), 63–64
- Outsourcing, 4, 18, 20, 22, 27–30, 37,  
43–44, 55–59, 62
- offshoring, 18, 19, 20, 23, 27–30, 31 n.7,  
33, 37, 39, 41, 43–45, 47, 49, 50,  
54–62, 68, 69
- On-the-Job-Training (OJT), 11
- Pakistan, 47
- Pantagonia Company, 45
- Penney, J. C., 46
- Piggly Wiggly Grocery Stores, 35
- politics of the division of labor  
of additive production, 52, 71  
of Fordism, 10–11,  
of flexible accumulation, 19–20,  
of Nikeification, 44–45, 69–70  
of post-Fordism, 19–20,  
of shareholder value theory  
of siliconism, 26  
of Taylorism, 8, 10–11  
of Toyotism, 37–38, 69–70  
of Waltonism, 49, 53, n.8, 69–70
- Post-Fordism, 3, 15, 16–20, 30–31 n.1,  
n.2, n.3, 56–58  
accumulation crisis, 17  
flat organizational structure, 17  
flexible production, 17  
French regulation school, 17, 31 n.2  
outsourcing  
shift to services and  
consumerism, 17  
specialization, 17
- Protean worker, 24
- regulation by scandal, 45–46,  
regulation theory,  
Reebok Corporation, 45  
rubbermaid products, 48,
- scientific management, *see* Taylorism
- shareholder value theory, 15, 16, 27–30,  
31 n.5, n.7, 31–32 n.8, 32 n.9,  
56–58, 68
- debt, 27  
downsize, 28, 30  
high wages for top managers, 28, 31  
n.5  
lacks a theory of production, 30, 56  
mergers, 27  
offshore, 28, 29, 30  
opposition to stakeholder  
theories, 27  
orientation to profits, 27  
outsource, 28  
remove layers of management, 27  
Six Sigma, 29, 31 n.6  
stock buy-backs, 27  
stock price, 27–30  
short-term philosophy, 28  
teamwork, 31–32 n.8
- Siliconism, 4, 15, 16, 23–26, 44, 56–57  
Double Dutch, double Irish, *see* tax  
avoidance  
Gatesism, 23  
semi-autonomous teams, 24–25  
perks/amenities, 23–24  
lack of job security, 24  
offshoring, 56  
politics, 26  
Protean worker, 24  
socio-technical theory, 24–25  
tax avoidance, 25–26
- singularity, 71
- Six sigma, 29, 31 n.6
- socio-technical theory, 14 15, 23–25, 39  
cross-functional teams, 39  
environmental scan, 25  
semi-autonomous teams, 23–24,  
30, 39  
steering committee, 25  
stakeholders, 25, 27–28  
Tavistock Institute, 24
- Sloanism, 11–12  
General Motors Assembly division  
(GMAD), 11  
Lordstown plant, 12  
M-Form organization, 11
- Smithfield Foods, 70  
stakeholder theory, 25, 27–28

- Stakhanovism in USSR, 39  
 synthesizing models, 54–66  
 strikes at Toyota and Honda in  
     China, 46
- Taiwan, 23, 42, 43  
*Takt* time, 2
- Target Corporation, 59–60, 66 n.1
- taxes, 25–26, 37, 40–41, 60
- tax havens, Bermuda and Cayman  
 Islands, 26
- Taylorism, 1, 2, 5–9, 12, 13–14, 16, 49, 53  
     n.4, 55, 56, 61, 64, 68, 69  
     decline, 12–13  
     hiring, 7  
     investigations, 9  
     piece-work wages, 8  
     Foreman's empire, 7  
     functional foremanship, 8  
     Schmidt (aka Heinrich Noll), 8,  
         14 n. 1  
     time and motion studies, 6–7  
     white collar work, 2, 13
- teams, 24–25, 31, 32 n.8, 35–36, 39  
     quality control circles, 31, 32 n.8,  
         35–36  
     semi-autonomous teams, 24–25, 39
- technology, 34, 49–52, 70–71  
     3-D printing, 34, 49–52, 71  
     automation, 70, 71  
     additive production (3-D printing),  
         49–52, 71  
     CAD/CAM, 18  
     computer technology, 16–18, 23, 48,  
         50, 71  
     Robotics, 17, 70
- Tesla Motors, 51
- township and village enterprises in  
     China (TVE), 66 n.2
- Toyota Corporation, 20, 30, 31 n.4,  
     34–36, 38, 40–41, 46, 52 n.3, 59–60,  
     62, 65
- Toyota Production System (TPS), 20,  
     34, 41, 52 n.1
- Toyotism, 3, 30, 33–41, 52 n.1, n.2, n.3;  
     53 n. 4, 55–61, 65, 68
- community of fate, 30  
 contradictions, 68  
 job rotation, 36  
 just-in-time inventory, 35–37  
*Kaizen*, 34  
 job security, 36  
 lean production, 34–41,  
 long-term philosophy, 35–36  
 manage by walking around  
     (MBWA), 37  
 outsourcing (buffering), 36, 58  
 political aspects, 37  
 stress, 40  
 taxes, 41  
 teamwork, 35–36  
 temporary employees (outsourcing),  
     36, 58  
 true lean, 40–41  
 visual controls, 35, 36
- trade. 4, 50  
     comparative advantage, 44
- unions, trade or labor, 10, 18, 19, 25, 36,  
     37, 66 n.1  
     United Autoworkers (UAW), 10
- United Kingdom, 25
- United Nations, 46, 64
- United States (US), 29
- Vietnam, 46, 47, 63
- Vizio Corporation, 59
- Vlasic Pickles, 48
- Wall Street, 28
- Walmart, 46–49  
     low wages, 48–49
- Waltonism, 3, 4, 33, 34, 45–49, 53 n.8,  
     55–60, 65, 66 n.1, 68–69  
     bargaining for lower prices, 47  
     cutting costs, 47–48  
     human rights violations of  
         subcontractors, 49, 69  
     low pay, 48–49  
     monitoring system, 53 n.7, n.8  
     offshoring, 47  
     treatment of employees, 47

- union avoidance, 47
- work scheduling, 48
- World Bank, 64
- World Systems Theory, 4 n.2, 20,  
61–64
- value or commodity chains, 62
- Worldwide Responsible Apparel  
Production (WRAP), 53 n. 7
- Yamazaki Mazak Corporation, 71

palgrave▶pivot

[www.palgrave.com/pivot](http://www.palgrave.com/pivot)