

Six Days You Shall Work? Robotics and the Reformed Ethic of Labor¹

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Abstract

After summarizing issues related to the Fourth Industrial Revolution and robotics in relation to work, this article offers biblical, Reformed, and Puritan perspectives on labor. It continues by examining the potential for loss of work due to technology. Finally, in response to these challenges, it offers a few worldview considerations and explores pastoral solutions.

Keywords

Fourth Industrial Revolution, Robotics, work ethics, Protestant and Puritan work ethics, Fourth Commandment, work and rest

I. Introduction: The Fourth Industrial Revolution

The Fourth Industrial Revolution is upon us. Klaus Schwab, founder and executive chairman of the World Economic Forum in Davos, Switzerland, explains:

We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale,

¹ This article was originally a lecture for the Westminster Theological Seminary Conference in Korea at Yullin Church, Seoul, in October 2018.

scope, and complexity, the transformation will be unlike anything humankind has experienced before.²

As we seek to understand this unfolding revolution, we should place it in the context of the three prior industrial revolutions:

The first: *water and steam power* enabled mechanized production.

The second: *electric power* enabled the creation of mass production.

The third: *electronics and information technology* or *digital power* enabled the automation of production.

The fourth: *fusion of digital technologies* is enabling the powerful merging of the hitherto distinct physical, digital, and biological realms.

To sense the tidal wave of technological advances, simply consider these ten breathtaking technological breakthroughs that now regularly appear in the news: artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science innovations, energy storage, and quantum computing.

Robotic artificial intelligence has been part of our lives for some time, from the manufacturing of cars to information and billing management. Now, robotics is on the cusp of offering such global advances as food service by robot, autonomous delivery service by drones, self-driving cars and trucks, and robotic home helpers, and agricultural harvesters and planters; robotics promises the elimination of dangerous and tedious jobs in manufacturing and even the removal of humans from the frontlines of warfare through robotic warriors and drone aircraft.

In this article, I will consider the interplay between the emerging technologies of artificial intelligence,³ robotics,⁴ and big data.⁵ The question that these specific advances raise for us is what impact they will have on human labor and how this impact engages our Reformed doctrine of work, as stated

² Klaus Schwab, “The Fourth Industrial Revolution: What It Means, How to Respond,” *World Economic Forum*, January 14, 2016, <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>. See also Jonathan Craig, “Facing a New Industrial Revolution—Alex Cook,” *Vision Christian Radio*, March 6, 2018, <https://vision.org.au/radio/2018/03/06/facing-a-new-industrial-revolution-alex-cook/>.

³ For a brief introduction to artificial intelligence, see “Artificial Intelligence (AI),” *Techopedia*, last updated October 7, 2021, <https://www.techopedia.com/definition/190/artificial-intelligence-ai>.

⁴ The engagement of universities in robotic development is highlighted at “The Robotics Institute,” *Carnegie Mellon University*, 2022, <https://www.ri.cmu.edu/>.

⁵ See, for example, Michael Fuller, “Big Data, Ethics and Religion: New Questions from a New Science,” *Religions* 8.5 (2017): 88, <https://doi.org/10.3390/rel8050088>.

in the classic language of the Fourth Commandment: “Six days shall you work” (Exod 20:9).

II. The Robotics Revolution from a Biblical Perspective

I am a church historian, not a futurologist or a prophet or the son of a prophet. Prognostication is beyond my ken. Nevertheless, as a student of social forces from the past, I suggest issues about which we ought to be concerned. In the Reformed tradition, we assert that all truth is God’s truth. We seek to engage the world from the perspective of the knowledge of God, affirming God’s sovereign purpose and providential governance of the cosmos. Accordingly, we should address these emerging technological advances from a vantage point of divine purpose rather than fearful uncertainty. Our sovereign Lord has anticipated all things in his divine providence. It is our privilege as his vice-regents to anticipate or providentially to foresee emerging developments to the best of our ability inasmuch as we are created in the image of this glorious God of providence.

What, then, will happen when traditional manual labor has been largely made irrelevant? For those humans who do not have the requisite skills to engage the high technological realm of intellectual labor, this is a real danger. Robots, while expensive at first, ultimately prove to be remarkably economical because of their accuracy and their ability to work at high speeds for vast stretches of time—all this without complaints to superiors or need for vacations, raises, medical care, or costly insurance.

Each industrial revolution has increased human power over human activities, the environment, and the cosmos. To put it in biblical terms, with the approach of the Fourth Industrial Revolution, we are facing a giant stride toward the fulfillment of the cultural or creation mandate. Genesis 1:26–28 relates the cultural mandate given to unfallen humanity:

Then God said, “Let us make man in our image, after our likeness. And let them have dominion over the fish of the sea and over the birds of the heavens and over the livestock and over all the earth and over every creeping thing that creeps on the earth.” So God created man in his own image, in the image of God he created him; male and female he created them. And God blessed them. And God said to them, “Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth.”

Yet we take this giant stride toward the fulfillment of the cultural mandate with the omnipresent reality of fallen humanity’s autonomy as evidenced at the Tower of Babel in Genesis 11:1–9:

Now the whole earth had one language and the same words. ... And they said to one another, "Come, let us make bricks and burn them thoroughly." And they had brick for stone, and bitumen for mortar. Then they said, "Come, let us build ourselves a city and a tower with its top in the heavens, and let us make a name for ourselves, lest we be dispersed over the face of the whole earth." And the LORD came down to see the city and the tower, which the children of man had built. And the LORD said, "Behold, they are one people, and they have all one language, and this is only the beginning of what they will do. And nothing that they propose to do will now be impossible for them. Come, let us go down and there confuse their language, so that they may not understand one another's speech." So the LORD dispersed them from there over the face of all the earth, and they left off building the city. Therefore, its name was called Babel, because there the LORD confused the language of all the earth. And from there, the LORD dispersed them over the face of all the earth.

This ancient account depicts the vast potential for good and evil bound up in the human power that is simultaneously shaped by the image of God and humankind's inherent sinful rebellion against the rule of the Creator. This dialectic between humanity's ability for good and the ability for harm through technological advances is recognized in current discussions of labor and robotics.

The possibility of great benefits from the Fourth Industrial Revolution is celebrated. Schwab declares, "The possibilities of billions of people connected by mobile devices, with unprecedented processing power, storage capacity, and access to knowledge, are unlimited."⁶ Analysts of the Fourth Industrial Revolution with its army of robots with artificial intelligence anticipate the raising of global income levels, the improvement of the quality of life on a global scale, and the great availability of products through giant leaps in efficiency, productivity, and lowering of costs.

However, the potential challenge to manual labor by robotic advancement has not been overlooked by theorists⁷ or Christian theologians.⁸ On

⁶ Schwab, "The Fourth Industrial Revolution."

⁷ Alex Williams, "Will Robots Take Our Children's Jobs?," *New York Times*, December 11, 2017, <https://www.nytimes.com/2017/12/11/style/robots-jobs-children.html>; "The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution," *World Economic Forum*, January 2016, http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf; Joseph Pistrui, "The Future of Human Work Is Imagination, Creativity and Strategy," *Harvard Business Review*, January 18, 2018, <https://hbr.org/2018/01/the-future-of-human-work-is-imagination-creativity-and-strategy>; Tim Dunlop, "A Job Revolution Is Coming, and We Can't Ignore It," *ABC News*, July 29, 2015, <http://www.abc.net.au/news/2015-07-30/dunlop-a-job-revolution-is-coming/6658032>.

⁸ Kevin Brown and Steven McMullen, "How to Find Hope in the Humanless Economy," *Christianity Today*, June 21, 2017, <https://www.christianitytoday.com/ct/2017/july-august/how-to-have-hope-in-humanless-economy.html>; "A Christian Survival Guide to the Rise of the Robots," *Not Only Sundays*, October 20, 2017, <http://www.notonlysundays.com/christianity-robots/>;

September 2, 2018, an article in the *Daily Beast* raised the question, “What happens when robots do all the work?”⁹ Disruption of the traditional workforce seems inevitable and potentially dangerous.

Thus, we consider the darker issues of the robotic revolution. Consider Erik Brynjofsson and Andrew McAfee’s *The Second Machine Age*, a *New York Times*, *Wall Street Journal*, and *Washington Post* bestseller. They claim that such robotic advances will likely yield greater inequities due to the likelihood of disruptions to labor markets.¹⁰ The loss of jobs in various segments of the labor force may lead to the loss of meaning, income, and identity for many and may even fan the flames of social unrest, revolt, addiction, and suicide. Moreover, new moral dangers are already arising through robotic developments that encourage illicit human sexual activity. There is a burgeoning new industry of robotic sex dolls and brothels, and even the criminal exploitation of children through robotic child rape dolls. Will robotics confront us with other criminality, such as robotic enemies programmed to murder or to cause other mayhem as a new species of already pandemic computer malware and malicious hacking?

Artificial intelligence and robotic progress engender unease in the public, as seen in human-humbling accomplishments by artificially intelligent machines. Most of us have long turned to calculators for higher-level mathematical operations. More recently, victories have dethroned human champions in the intellectually competitive games of chess, Jeopardy, and Go. The cyborg conquest of humanity, once a staple of science fiction, now seems a possibility to many. How should we view robotics if this new reality may make manual labor obsolete, displacing a vast army of laborers who will have no opportunity for meaningful work or a steady income?

III. *The Reformed View of Work*

As we address the issue of human labor, considering robotic technology, we should keep in mind not just the notion of the cultural mandate but also the concepts of creation ordinances, the Fourth Commandment, and the importance of the Christian ethical concerns for good works, self-sufficiency, and generosity.

Kenneth J. Barnes, “A Theology of Work for a Post-Industrial Age,” *Theology of Work*, <https://www.theologyofwork.org/external-materials-hosted-by-tow-project/a-theology-of-work-for-a-post-industrial-age>.

⁹ Clive Irving, “Labor Day 2040: What Happens When Robots Do All the Work?,” *Daily Beast*, September 2, 2018, <https://www.thedailybeast.com/labor-day-2040-what-happens-when-robots-do-all-the-work>.

¹⁰ “The Second Machine Age,” 2022, <http://secondmachineage.com/>.

While traditional manual labor is often arduous and frequently dangerous, it is not simply a result of the curse for those in the Reformed tradition. The creation account shows us that Adam was to keep the garden even in a perfect world, albeit without the challenges of thorns, thistles, and death or blood, sweat, and tears. According to John Murray's classic study of ethics, *Principles of Conduct*, labor is one of God's creation ordinances, as seen in Adam's call to keep the garden of paradise (Gen 2:15). Human labor is a means of fulfilling the creation mandate of Genesis 1:28–30 that accompanies humanity's lofty calling as the *imago Dei*.¹¹

Moreover, as we consider Scripture, we discover that the moral law of God summarized in the Ten Commandments places the Sabbath side by side with six days of human labor, following the pattern of the Creator's divine week of labor followed by a holy cessation from such labor (Exod 20:8–11). The Fourth Commandment teaches both work and worship. Importantly, labor is not in the second table of the law, the means of loving our neighbor, but in the first table that defines our love for God. Just as the Sabbath is an expression of loving God, so also is a week of labor done with excellence for the glory of the Creator.

Thus, the Fourth Industrial Revolution confronts the Fourth Commandment. How will the development of robotics impact the large body of human manual laborers? What will the results be? What should the church do to anticipate this coming reality as she strives to fulfill the duties of evangelism, love for neighbor, and being salt and light in a fallen world? Are there opportunities for us as believers to help shape culture as it enters the era of robotics to the glory of Christ and for the advancement of his kingdom?

The world, of course, is often oblivious to or even directly hostile to the Christian worldview and its biblical perspective on labor. Nevertheless, it is generally recognized that work is essential to human flourishing.¹² One's labor is often integral to identity and purpose for life. The meaning of the lives of many is often bound up in an intimate interplay between personhood and the work that they accomplish and the benefits of the fruits of their labor. For those who have no transcendent reference point of ultimate value and eternal existence of the soul, as cherished by the

¹¹ John Murray, *Principles of Conduct: Aspects of Biblical Ethics* (Grand Rapids: Eerdmans, 1957), 35–44; cf. <https://cultivatejournal.com/articles/creation-ordinances>.

¹² Bill Mitchell, "Work Is Important for Human Well-Being," *Modern Monetary Theory*, September 16, 2016, <http://bilbo.economicoutlook.net/blog/?p=34412>; "Community Post: Twenty Men Fixing a Road," *Theology of Work*, <https://dev.theologyofwork.org/the-high-calling/blog/community-post-twenty-men-fixing-road>; cf. "On Work and Human Flourishing: Twenty Men Fixing a Road," Washington Institute, <http://www.washingtoninst.org/620/on-work-and-human-flourishing-twenty-men-fixing-a-road/>.

Christian, their terrestrial expression of meaning is often inextricably identified with their labor.

An important theme that reflects the centrality of labor for the Christian ethic is the interplay of labor, generosity, and the good works of the believer. Let us just note that the essential duty of good works for the Christian and the resulting benefit of self-sufficiency enables generosity and care for others. We might consider these Pauline texts:

We want you to know, brothers, about the grace of God that has been given among the churches of Macedonia, for in a severe test of affliction, their abundance of joy and their extreme poverty have overflowed in a wealth of generosity on their part. For they gave according to their means, as I can testify, and beyond their means, of their own accord, begging us earnestly for the favor of taking part in the relief of the saints. (2 Cor 8:1–5)

For we are his workmanship created in Christ Jesus for good works, which God prepared beforehand, that we should walk in them. (Eph 2:10)

Let the thief no longer steal, but rather let him labor, doing honest work with his own hands, so that he may have something to share with anyone in need. (Eph 4:28)

But if we have food and clothing, with these we will be content. ... They [the rich in this present age] are to do good, to be rich in good works, to be generous and ready to share. (1 Tim 6:8, 19)

... waiting for ... the appearance of the glory of our great God and Savior Jesus Christ, who gave himself for us to redeem us from all lawlessness and to purify for himself a people for his own possession who are zealous for good works. (Titus 2:13–14)

In view of such passages, it is clear why the challenge of robotics to meaningful labor should be a concern for Christian thinkers. This is particularly clear as we take a brief excursus into Puritan ethics in regard to work.

IV. Puritan Work Ethics

A helpful place to engage the Puritan view of labor is found in Leland Ryken's "Milton's Sonnet on His Blindness and the Puritan Soul." Ryken addresses the question raised by John Milton's line, "Doth God exact day-labor, light denied?"¹³ Ryken writes,

¹³ Leland Ryken, "Milton's Sonnet on His Blindness," in *Puritan Piety: Writings in Honor of Joel R. Beeke*, ed. Michael A. G. Haykin and Paul M. Smalley (Fern, Ross-shire: Christian Focus, 2018), 195–213.

The octave of Milton's sonnet is a progressively worsening anxiety-attack, and it is rooted in Puritan views of work and vocation. No Christian group thought and wrote more helpfully on the subject of work than the Puritans, and that thinking informs the first eight lines of Milton's sonnet.¹⁴

Ryken identifies three Puritan tenets behind Milton's sonnet:

First, the Puritans believed that God calls all people to their work in the world. This is the famous Puritan concept of vocation. Perkins asserted in his classic *Treatise of the Vocations or Callings of Men* that "every person ... without exception must have some personal and particular calling to walk in." Richard Steele (1629–1692) wrote that "He that hath lent you talent hath also said, Occupy till I come." Richard Baxter (1615–1691) similarly directed, "Acquaint yourselves with all the talents which you receive from God, and ... keep a just account of your receivings."¹⁵

A second and related cornerstone of Puritan thinking about vocation is that God is the one who calls people to their tasks and the judge to whom people are accountable. Perkins wrote that "God himself is the author and beginning of callings." That being the case, those who work in their callings must do so in an awareness that they are accountable to God as the judge of their efforts. Baxter advised that Christians must do their work "as in God's sight, passing to his judgment" while Cotton Mather (1663–1728) explained, "Let every Christian ... act in his occupation with an eye to God, acting as under the eye of God." In the complete works of Thomas Manton (1620–1677), two whole volumes are taken up with sermons on the parable of the talents, and one of Manton's main points is that God will conduct "an exact account" of how we have exercised the talents he has given. In a Puritan context, much is at stake in whether and how a people pursue their callings in the world.¹⁶

Thirdly, to make matters even more problematical for Milton in his state of recent blindness, the drift of Puritan thinking was to give priority to the active life and to disparage idleness and inactivity. Theoretically the Puritans found a place for rest and recreation in their lives, but in practice they gave precedence to work. Not surprisingly, Baxter was a particular exponent of elevating work and action: "Naturally action is the end of our powers. ... It is for action that God maintaineth us and our abilities: work is the moral as well as the natural end of power. ... It is action that God is more served and honoured by." "God doth allow none to live idly," wrote Arthur Dent (1553–1607), while Robert Bolton (1572–1631) called idleness "the very rust and canker of the soul." An early signpost to Protestant thinking on the elevation of the active life and demotion of non-work was Martin Luther's commentary on Genesis 2:15: "Man was created not for leisure but for work."¹⁷

The three ideas summarized by Ryken help us to appreciate why the Reformed theological world must concern itself with the potential loss of labor. Without godly work, what becomes of the fact that everyone has a

¹⁴ Ibid., 204.

¹⁵ Ibid., 204–5.

¹⁶ Ibid., 205.

¹⁷ Ibid., 205–6.

calling? If robotics disrupts the possibilities for vast numbers, what does the dislocated believing laborer do with the fact that the God who calls will also judge on the basis of the diligence exerted by the Christian? And if robotics leaves people with a life of inactivity and purposelessness, what becomes of the fact that it is the active life that pleases God preeminently? Biblically motivated contemporary “Puritans” are compelled to consider the future of work in light of the arrival of robotic technology.¹⁸

The biblical and Reformed work ethic calls for careful planning for the church in view of the looming issues of the dislocation of workers due to the robotic revolution as we anticipate the care of the people to whom we will minister.

V. Potential Impact of the Loss of Labor on Technological Advances

The rise of the so-called millennial generation illustrates the potential dysfunction that technology may create. These young people have never lived without the presence of smartphone technology as a pervasive element of their lives.¹⁹ Maladies that are associated with their technological reality are addiction to their smartphones,²⁰ growing depression due to incessant online comparison, and competition²¹ leading to a growing trend toward teen suicide.²² The ability to carry on personal face-to-face conversations and interpersonal interactions are apparently being diminished.²³

Such impacts on millennials may well anticipate the impact of technological disruption on other facets of society. The sharp rise in suicide among taxi drivers due to impact of the competition from Uber reflects another example of the disruptive force of new technology as it ends previous labor

¹⁸ *Ibid.*, 206.

¹⁹ Catey Hill, “Millennials Engage with Their Smartphones More Than They Do Actual Humans,” *Market Watch*, June 21, 2016, <https://www.marketwatch.com/story/millennials-engage-with-their-smartphones-more-than-they-do-actual-humans-2016-06-21>.

²⁰ “25 Surprising Facts about Phone Addiction,” *Addiction Tips*, 2022, <https://www.addictiontips.net/phone-addiction/phone-addiction-facts/>.

²¹ Jean Twenge, “Teenage Depression and Suicide Are Way Up and So Is Smartphone Use,” *Washington Post*, November 19, 2017, https://www.washingtonpost.com/national/health-science/teenage-depression-and-suicide-are-way-up--and-so-is-smartphone-use/2017/11/17/624641ea-ca13-11e7-8321-481fd63f174d_story.html?noredirect=on&utm_term=.39dff22c5fe7.

²² Lulu Garcia-Navarro, “The Risk of Teen Depression and Suicide Is Linked to Smartphone Use, Study Says,” *NPR*, December 17, 2017, <https://www.npr.org/2017/12/17/571443683/the-call-in-teens-and-depression>.

²³ A. J. Agrawal, “Teens Are Struggling with Face to Face Communication: Here Is Why,” *Forbes*, May 4, 2017, <https://www.forbes.com/sites/ajagrawal/2017/05/04/millennials-are-struggling-with-face-to-face-communication-heres-why/#1e7437e926e8>.

patterns, creating emotional turmoil in response to the displacement and layoffs caused by declining businesses and industries.²⁴

This, however, begins to reveal to the church some of the ministry focus that the Fourth Industrial Revolution will necessitate. Higher-level labor skills will be needed as previous manual labor jobs are assumed by robots that do not need vacations, health insurance, or higher salaries and do not create labor disputes with owners. Spiritual, emotional, and career counseling will become vital skills for the church that will minister to those impacted in the labor market by the robots of the Fourth Industrial Revolution. A sense of irrelevance and the loss of personal dignity will escalate for those whose lives had previously been defined by their job skills. New training schools in technology and centers for vocational and spiritual counseling will likely become new business and ministry opportunities for the church so that believers can engage with these potentially traumatic experiences.

It seems nearly inevitable that a new “haves and have-nots” class distinction with class tensions will arise with the fruits and dislocations and disruption of a culture shaped by robotics as once-steady salaries are lost with the disappearance of jobs. The already existing margin between the rich and the poor will likely widen, deepening the struggles that already exist between urban and suburban and the gentrified and ghetto elements of large cities. This, too, will create a need for a new type of missionary, one who enters the impoverished and disenfranchised community of displaced laborers to share not only the gospel but new technological skills. This parallels the work of previous generations of missionaries, who reached people groups with the gospel along with education, health care, transportation, business, and communication.

VI. *Worldview Considerations*

The church views these issues through a lens that is completely different from the one used by secular entities, and consequently the method used to deal with them will be completely different.

Nature vs. supernaturalism. As believers, we do not view the world merely mechanistically or materially. Because we view God and the human soul as spiritual realities, we will not work to solve this new challenge merely by means of business modeling and more clever robotic inventions. To meet

²⁴ Corky Siemaszko, “In the Shadow of Uber’s Rise, Taxi Driver Suicides Leaves Cabbies Shaken,” *NBC News*, June 7, 2018, updated June 8, 2018, <https://www.nbcnews.com/news/us-news/shadow-uber-s-rise-taxi-driver-suicides-leave-cabbies-shaken-n879281>.

the new need, the church's ministry to the soul of the people and the church's mission to maintain human dignity and to proclaim the hope of the gospel of Christ will be required.

Demographics. Family size will likely continue to decline as the robotic revolution continues. A possible parallel is the gradual decline of the classic large farm family when agriculture was done by limited machinery to the small nuclear family in the industrialized world. Families facing urban life with its costliness and challenges have reduced in size to thrive with limited budgets and little ability to grow the food needed to sustain the family.

Imago Dei and the Creation Mandate. Our biblical commitments to humans as the *imago Dei* and the necessity to obey the creation mandate call on us to affirm human dignity and seek to use our God-given ability to harness nature—inclusive of robotics—to glorify God and love our neighbors.

Providence. Indeed, given the doctrine of providence, we joyfully sing, “This Is My Father’s World,” affirming that the advances in technology are no surprise to God and that in his common grace through the Holy Spirit, developments in robotics can and should be used for the glory of God. His divine omniscience always knew these developments would come.

Scripture and Biblical Ethics. The sufficiency of Scripture and Jesus’s Golden Rule provide the needed ethical basis to engage these challenges and construct a way of life that blesses all men and advances the goodness of the Creator in this world.

VII. Not Fear but Anticipation and Preparation: Potential Solutions and Responses

As we consider potential solutions and responses that will enable us to prepare the church for responding to the rise of robotic labor, we begin with the proposal coming from Silicon Valley that asserts that the government needs to provide a universal living wage to everyone.²⁵ This may be one conceivable secular solution to the challenge. However, we must ask what realities the church can consider.

First, the law of supply and demand argues that the advance of robotics will also call for the need for a continuing market. Provisions will become more accessible and less costly as the buying power of the displaced will

²⁵ Jathan Sadowski, “Why Silicon Valley Is Embracing Universal Basic Income,” *The Guardian*, June 22, 2016, <https://www.theguardian.com/technology/2016/jun/22/silicon-valley-universal-basic-income-y-combinator>; Sonia Sodha, “Is Finland’s Basic Universal Income a Solution to Automation, Fewer Jobs and Lower Wages?,” *The Guardian*, February 19, 2017, <https://www.theguardian.com/society/2017/feb/19/basic-income-finland-low-wages-fewer-jobs>.

decline and the cost of producing the goods will also be lower. Therefore, a future market is a given.

What need will there be for products and services from robots if there are no consumers of those products? Hence, marketers will need to sustain the ability of displaced workers to continue to use their products. A McDonald's with an army of robots serving hamburgers is useless if there is not a population capable of buying those hamburgers for their meals.

Second, new educational structures will be needed that the church can assist in creating and managing. The concerns raised by these advances should not mask the new opportunities that this same technology affords. The accessibility of technology, given its omnipresence, means it can become part of the ongoing training of those impacted by the technological advances. Artificial intelligence and big data can be harnessed by both church and ministry leaders to enable the potentially displaced to become more effectively integrated into the new realities brought about by robotics. This is a strategic time to reconsider the educational model that has been used throughout the Western world. A curriculum that emphasizes creativity and practical technological skills rather than structured general knowledge may more effectively prepare the average laborer for the coming changes. Consider, for example, the fascinating movie *Most Likely to Succeed*, which argues that the changing realities of our global technological world demand an entirely distinct educational model that encourages invention, creativity, and entrepreneurship to prepare for the future.²⁶

Finally, there are many other possible avenues for the Christian community to consider as it seeks to prepare to minister to those impacted by the disruption of the Fourth Industrial Revolution, among them these:

- Pro-life family planning—to address a godly family and a manageable size of family for the future
- Necessary organizational activity to minister to these needs, such as refocused gospel organizations that will minister and witness to the new “poor”
- Opportunities to pursue athletics, arts, and creativity, as there may be a large block of time due to less required time for work
- Application of the new technologies to enable the personal growth and education of these various people, such as self-learning and personal management technology that may apply insights gleaned from the burgeoning information of accessible big data

²⁶ “Most Likely to Succeed,” 2017, <https://teddintersmith.com/mltsfilm/>.

- Ethical training to enable a godly response to the use of robots and the three-dimensional pornography that it is making so readily available
- Political stability to assist the disenfranchised, which will require new applications of Christian-based internal political oversight.

Preservation of classic human activities will also continue to provide a viable opportunity for ministry. This is important due to the danger of a postrobotic and postdata collapse in society due to the vulnerabilities of a highly technologically interdependent world through an electromagnetic pulse from an atomic blast or solar eruption.

Conclusion

As we anticipate the future, given the emergence of robotics and the many facets of the Fourth Industrial Revolution, let us keep our theological focus sharp and confident. We face not a materialistic universe but a God-governed supernatural cosmos. Thus, we must consider social changes and demographic concerns in light of the foundational truths of Scripture. The *imago Dei* and the creation mandate governed by divine providence encourage us to ever assert that this world is our Father's world. Divine omniscience long ago anticipated such radical changes and equipped the church to face them through the sufficiency of Scripture and the Golden Rule. Indeed, one of our tasks is to assure that the artificial intelligence systems of the future world of robots are developed in such a way that they integrate into their algorithms these very truths of human dignity, the truths of Scripture in theology and ethics, and the duty to care for the poor. If we are engaged in this process, we look at a future where robotics will only help us to advance the gospel, build the church, and advance the kingdom of Christ to the glory of God.



Preach, teach, *and* lead
with *confidence* and *wisdom*.



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