SALVE REGINA UNIVERSITY

FUNDAMENTALLY HUMAN: CREATING A RESPONSE TO TECHNOLOGICAL UNEMPLOYMENT BASED ON THE PAPAL ENCYCLICALS

A DISSERTATION SUBMITTED TO THE
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BY

DONNA M. GAMACHE-GRIFFITHS
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Dedication

For Russ and Graeme

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List of abbreviations

AFDC	Aid to Families with Dependent Children
AI	Artificial Intelligence
CST	Catholic Social Teaching
EITC	Earned Income Tax Credit
GDP	Gross Domestic Product
TANF	Temporary Assistance for Needy Families
UBI	Universal Basic Income

Glossary

Aid to Families with Dependent Children. A US federal assistance program in effect from 1935 to 1997 that provided financial assistance to children whose families had low or no income. TANF replaced it.

Catholic Social Teaching. Principles set forth by the Roman Catholic Church regarding issues of human dignity and the common good in society.

Earned Income Tax Credit. A US federal refundable tax credit for low- to moderate-income working people, especially those with children.

Gross Domestic Product. The total monetary value of all the finished goods and services produced within a country in a specific period.

GINI Coefficient. A statistical measurement that calculates the distribution of income across a country to measure the wealth inequality in that country.

Papal Encyclical. A letter written by the Pope concerning specific areas of Roman Catholic doctrine.

Temporary Assistance for Needy Families. A time-limited US federal assistance program that provides cash assistance to impoverished families. It replaced AFDC.

Universal Basic Income. A program funded by the government to provide every adult citizen a set amount of money regularly.

Abstract

This project seeks to utilize the Catholic Church's wisdom tradition to support a human-centered response to technological unemployment. The loss of jobs to various forms of technology is a serious concern, especially to those made redundant by technology who cannot find comparable employment. Although job loss to technology is not a new phenomenon, prior economic cycles were very different and cannot provide a solid foundation for planning future responses. The United States unemployment assistance program has been the same for almost fifty years, and the pace of technological change in society has far outraced it. What options exist to ameliorate job loss that can support the worker primarily as an individual worthy of concern and support? Approaching this problem with the fundamentals of the Papal Encyclicals and Catholic Social Teaching (CST) would allow all interested parties to view the situation from a truly human perspective. The Catholic values of human dignity, solidarity, and subsidiarity can serve as the foundation of new government support programs like universal basic income (UBI). Various UBI projects have shown the value of an approach that allows individuals increased agency over the assistance they receive as it is a more efficient and targeted way to help those in need while affirming their dignity. Acknowledging the potential benefits gained from this overlooked intersection of the secular and the spiritual will profoundly affect all people in this age of rapidly advancing technology.

Introduction

When I was a child, one of my very favorite television cartoons was *The Jetsons*. This Hanna-Barbera creation told the story of the four-member Jetson family living in Orbit City in the year 2062. There were a plethora of push-button conveniences that handled all manner of daily activities and laugh-out-loud comedy when those devices failed to work correctly. Perhaps most impressive, though, was the extensive work performed by the family's robot maid, Rosie. Even as a child, I thought how much easier life would be for my family if we had a Rosie. Technological automation was everywhere in the Jetsons' world, and there were many variations of Rosie to accomplish various types of tasks. Despite these advances, the family patriarch George still held a steady job at Spacely Space Sprockets. George's work computer, called R.U.D.I. (Referential Universal Differential Indexer), is one of his best friends. R.U.D.I., Rosie, and other machines of their kind had not replaced George as an employee in this futuristic utopia. George did have to deal with his obnoxious robot supervisor Uniblab while at the office. For the most part, technology and humanity coexisted peacefully, and the Jetson family benefitted from this arrangement.[1]

Although we have not yet reached 2062, we are living in a technology-saturated world. Many of the devices used by the Jetsons were precursors to the genuine technological innovations we currently use, such as flat-screen 3D televisions, video conferencing, tablet computers on which you can read the newspaper, tanning beds, and home treadmills. Today, most of these technologies are commonplace and assembled by automated machinery. There

[1] William Hanna and Joseph Barbera, *The Jetsons – The Complete First Season*, DVD. Burbank, CA: Warner Bros. Entertainment, 2006.

may still need to be a George Jetson to push a button to complete the work, but perhaps his job is safe only until a new robot is designed to perform it.

The Pew Research Center issued a report entitled "AI, Robotics and the Future of Jobs" (2014) written by Aaron Smith and Janna Anderson as part of its technology series The Web at 25. The authors questioned experts for their opinions on the potential impact of robotic advances and AI (artificial intelligence) on our society by 2025. The report summarized:

> The vast majority of respondents to the 2014 Future of the Internet canvassing anticipate that robotics and artificial intelligence will permeate wide segments of daily life by 2025, with huge implications for a range of industries such as health care, transport and logistics, customer service, and home maintenance. But even as they are largely consistent in their predictions for the evolution of technology itself, they are deeply divided on how advances in AI and robotics will impact the economic and employment picture over the next decade.[2]

Those "techno-utopians" who responded to the survey feel assured that societies will adapt to technological change in a positive way by redefining work itself and creating jobs that capitalize on uniquely human capabilities. They acknowledge the potential devastation that millions of workers will suffer due to employment shifts but firmly believe that time will remedy the situation to society's overall benefit. The counter-argument proposed by the "techno-pessimists" is far-reaching in its concern for the actual scope of the problem, and the authors distilled this information into the following salient points:

> Key Themes: reasons to be concerned:
> *Impacts from automation have thus far impacted mostly blue-collar employment. The coming wave of innovation threatens to upend white-collar workers as well.
> *Certain high-skilled workers will succeed wildly in this environment – but far more may be displaced into lower-paying service industry jobs at best or permanent unemployment at worst.

[2] Aaron Smith and Janna Anderson, "AI, Robotics, and the Future of Jobs", Pew Research Center, August 2014, http://www.pewinternet.org/2014/08/06/future-of-jobs/ (accessed November 12, 2014).

> *Our educational system is not adequately preparing us for future work, and our political and economic institutions are poorly equipped to handle these hard choices.[3]

While the Pew study respondents foretold these as future problems, the American workforce's stratification is already occurring. "The dustbin of history is littered with dire predictions about the effects of technology. They frequently come to the fore in periods in which economies and societies are in the throes of sweeping transformation – like today."[4]

> It is an era that will be defined by a fundamental shift in the relationship between workers and machines. That shift will ultimately challenge one of our most basic assumptions about technology: that *machines are tools* that increase the productivity of workers. Instead, machines themselves are turning into workers, and the line between the capability of labor and capital is blurring as never before.[5]

Oxford scholars Carl Frey and Michael Osborne completed a study in 2013 entitled "The Future of Employment: How Susceptible are Jobs to Computerization?" Their findings indicate that approximately forty-seven percent of total United States employment is at risk of being fully automated within a couple of decades.[6] The study concluded that the top five jobs most likely to be completed replaced by technology are telemarketers; title examiners, abstractors, and searchers; hand sewers; mathematical technicians; and insurance underwriters. The five occupations least computerizable are recreational therapists; first-line supervisors of mechanics, installers, and repairers; emergency management directors; mental health and substance abuse social workers; and audiologists.[7] The pair go on to state, "Our model predicts that most workers

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[3] Smith and Anderson, "AI, Robotics, and the Future of Jobs."

[4] Richard Florida, "Robots Aren't the Problem: It's Us." *Chronicle of Higher Education – The Chronicle Review* (March 29, 2013). http://chronicle.com/article/Robots-Arent-the-Problem-/138007/ (accessed November 29, 2014).

[5] Martin Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future* (New York: Basic Books, 2015), xii.

[6] Carl Frey and Michael Osborne, "The Future of Employment: How Susceptible are Jobs to Computerization?" (Oxford: Oxford University): 44, https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf (accessed January 5, 2017).

[7] Ibid.

in transportation and logistics occupations, together with the bulk of office and administrative support workers, and labor in production occupations, are at risk."[8] As computational power grows, will this percentage of American occupations at risk increase commensurably? Such job loss could be catastrophic for the nation's economy, and the country needs a viable plan to address it.

Unemployment, from any cause and at any age, undermines a just society since work is at the heart of the social question.[9] Employment is one part of a larger equation that encompasses many issues affecting humanity and its future.

> Indeed, the frightening reality is that if we don't recognize and adapt to the implications of advancing technology, we may face the prospect of a "perfect storm" where the impacts from soaring inequality, technological unemployment, and climate change unfold roughly in parallel, and in some ways amplify and reinforce each other.[10]

Despite these unwelcome employment changes resulting from technological advancements, humanity still has time to make thoughtful choices about its desire for the future and how it will accomplish those goals.

While the topic of unemployment is approached as a secular concern by governments, the roots of labor are found in the Biblical tradition and the Catholic Church's teachings. In *Laborem Exercens* (1981), Pope John Paul II states, "Work is one of the characteristics that distinguish man from the rest of creatures, whose activity for sustaining their lives cannot be called work. Only man is capable of work."[11] His declaration confirms the vocation of the

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[8] Frey and Osborne, 44.

[9] Fred Kammer, SJ, "Catholic Social Thought and Unemployment," *JustSouth Quarterly*, Summer 2011, http://www.loyno.edu/jsri/justsouth-quarterly , (accessed July 17, 2015).

[10] Martin Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future* (New York: Basic Books, 2015), xvii.

[11] John Paul II, *Laborem Exercens*, encyclical letter, Vatican website, September 14, 1981 http://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_14091981_laborem-exercens.html sec. 7, (accessed June 12, 2014).

human person outlined in the book of Genesis. Since we are made in the image of a dynamic and creative God, we are also dynamic and creative and are commanded to provide stewardship over the earth. "In John Paul's writings, he makes clear that, by their work, workers are continuing and perfecting the creative activity of God the Creator, and this is deepening the reality of being made in God's image. Unemployment assaults that profound spiritual identity."[12] There are many additional Bible passages in both the Old Testament and the New Testament addressing our role as workers; one of the most striking is when Jesus said, "My Father is working until now, and I Myself am working."[13] Employment provides more than just financial stability though, it is "through work, paid or unpaid, a person achieves fulfillment as a human being and, in a sense, becomes more a human being."[14] Only by recognizing this divine mandate of work can we hope to achieve a feasible response to widespread unemployment. "If people are more important than things, then labor is more important than capital, and workers are to be considered before technology. It follows that the organization of work and employment opportunities should be structured around human needs and that the whole economy should be harnessed to the service of the human person."[15] All people need to firmly understand the role technology plays in unemployment today and historically and reaffirm what work truly means to all humankind.

As technological advances threaten more significant worker displacement cycles, it's time to consider more aggressive and widespread responses. Whether it is a large-scale society-wide job loss or smaller sets of jobs where most tasks can be efficiently replaced by technology,

[12] Kammer, "Catholic Social Thought and Unemployment."
[13] John 5:17 (English Version).
[14] John Paul II, *Laborem Exercens*, 9.
[15] Bishop Kevin Manning, "The right to work: what does the Catholic Church teach?" *AD2000*, December/January 1998, http://www.ad2000.com.au (accessed July 17, 2015).

there needs to be a plan to meet such challenges. Many have proposed a universal basic income (UBI), or some variation of it, to provide minimum living standards and increase the leverage of unemployed workers when engaging with potential employers. UBI would be a government program that distributes a set amount of money regularly to all adult citizens. Frequently cited as "guaranteed income," its goal is to alleviate poverty, provide a safety net for all citizens, and potentially replace some other forms of social welfare. The exact specifics of who receives funds, how much they receive, and so forth would depend on the people's needs and the government's capability to fund it. Such a system could be scaled over time to meet potentially massive disruption and would be more easily implemented if the redundancies were smaller in number. UBI also acknowledges the many forms of unpaid work that strengthen society, such as parents, caregivers, and students. This system would require a level of early preparedness yet unrealized in the United States, so it is incumbent that people consider this guaranteed income option.

Despite its many appealing qualities, UBI is not a panacea for all society's current unemployment ills. Its most concerning issue is the potential overall cost of such a program. From implementation to ongoing maintenance, the cost of having a guaranteed income for most Americans could be staggering. To fund such expenditure might create an undue burden on taxpayers, increase government debt and usurp funds from other government priorities like infrastructure, health care, and education which all help realize the overall goals of UBI. The option to have UBI supplant other social assistance programs to reduce costs has been considered. However, that approach risks redirecting resources from the truly needy for broader distribution to those who aren't dependent on such funds for their existence. The automatic payments would also eliminate much of the oversight and personalized support received by

current social assistance program recipients. There would be no mechanism to perform the support and oversight tasks on such a large scale. Any "free" money can be a disincentive for some to pursue additional work or more significant opportunities, instead preferring government reliance to self-reliance. Many in this country insist that social assistance contravenes the values of the "Protestant Work Ethic." This belief contends that a strong work ethic results in economic success and a sign of God's favor, and anything less is a religious condemnation of the individual.[16] There is also concern that social programs emphasizing consumption are the easiest short-term solution to address unemployment. These programs support a nation's GDP and the global economy while overlooking the other benefits work provides to individuals and their communities.[17] A focus on purchasing power detracts from seeking "the good life" and instead seeks "the goods life," which is contrary to much of the Catholic Church's doctrine.[18]

These concerning factors do not mitigate the importance of crafting means for non-stigmatizing social support but require that it be done carefully to keep the worker the focal point. UBI aligns with the threefold cornerstone tenets of Catholic Social Teaching (CST) because it supports human dignity, solidarity, and subsidiarity. The Berkley Center for Religious, Peace and World Affairs at Georgetown University undertook a review of UBI on the September 1, 2020 forum *Economic Justice and Universal Basic Income: Ethical and Religious Perspectives.* "Historically, faith leaders and religious institutions have played key roles in on-the-ground activism on economic issues, contributing to broader debates on increasing inequality

[16] Jadin Studer, "The Protestant Legacy of Modern Capitalism," *Religion in Society – Sociology of Religion Blogging Noosphere (Initiative of the University of Victoria)* (December 17, 2019), under "Issues in Religion," https://onlineacademiccommunity.uvic.ca/sociologyofreligion/tag/protestant-work-ethic/ (accessed May 14, 2021).

[17] R.R. Reno, "Work vs, Consumption," *First Things* (January 2020), https://www.firstthings.com/article/2020/01/work-vs-consumption (accessed May 14, 2021).

[18] Michael Sean Winters, "Review: Cloutier's 'The Vice of Luxury,' *National Catholic Reporter* (December 1, 2106), under "Distinctly Catholic," https://www.ncronline.org/blogs/distinctly-catholic/review-cloutiers-vice-luxury (accessed May 14, 2021).

in the global economy … Examining religious and ethical perspectives on policies like UBI can provide critical direction on efforts to rebuild global society."[19] The intrinsic value of an individual must be enabled to share in the earth's wealth and is best able to do so when given agency over their choices. Solidarity encourages all people to work for the good of one another, while subsidiarity coordinates those activities to support our local communities. Needs are best met when addressed at their source and allows those who truly understand the situation to help develop meaningful responses. The efficiency of such a focused implementation would also help preserve the genuine consideration of maintaining the recipients' self-respect. This approach would further the fulfillment of scripture, "To conclude, you must all have the same attitude and the same feelings: love one another as brothers, and be kind and humble with one another."[20]

Unemployment and underemployment are situations that individuals have always faced. The rapid advancement of technology into all facets of life will increase those who suffer under these burdens. Social assistance programs meant to deal with the employment problem have previously been stigmatizing, limited in scope, and focused on the worker's purely economic role in society. Unemployment programs have been created based on the historical cycles of prior work revolutions. Rapid changes in technology make those historical comparisons and models much less applicable and practical today. The prolonged viability of these social assistance programs is questionable in the face of endemic national joblessness. The most humane way to deal with widespread technological unemployment and underemployment in the future is to emphasize the concept of work as an intrinsic part of the human experience,

[19] Berkley Forum, "Economic Justice and Universal Basic Income: Ethical and Religious Perspectives," *Georgetown University: Berkely Center for Religion, Peace & World Affairs,* September 1, 2020, https://berkleycenter.georgetown.edu/posts/economic-justice-and-universal-basic-income-ethical-and-religious-perspectives (accessed May 14, 2021).

[20] 1 Peter 3:8

redirecting the primary focus of inquiry to maintaining self-respect and spiritual well-being of the individual worker. A review of the Catholic Church's history of exhortations on workers' rights and the support they should be given can be the basis for structuring an effective social assistance program. A program primarily focused on human dignity will be unlike any that has come before, applying the Church's wisdom to today's situation and affirming a system that puts people first. "If technology challenges us to understand who we are becoming as individuals, it must even more urgently address the question of how we organize ourselves as communities and more, as a global society… However, if we do not actively control, direct, and cogitate about the form, function, and purpose of the technology we create, we are surely lost indeed."[21] The Papal Encyclicals, CST, and UBI can help map the way to a better technological unemployment response.

[21] Peter Hancock, "Human Factors" in *The Psychology of Workplace Technology*, eds. M.D. Coovert and L.F. Thompson (New York: Routledge, 2014), 157.

Chapter 1

Why the Humanities?

There is seemingly no aspect of human experience untouched by technology. The immediate effects in daily life are often readily apparent. Phones have enhanced communication capabilities, cars self-adjust to avoid collisions, robots assist in complicated medical procedures, and numerous labor-saving home devices are operated remotely. Yet this superficial awareness of outcomes cannot encompass the deeper impacts technology has on the human condition. To question what it means to be human in an age of technology seeks to clearly define the individual's worth in a world progressing without the need for their active involvement. The superfluous feeling created by this reality is intensified when the individual suffers the ignominies of technological unemployment – essentially losing one's job to a machine. Though technological unemployment is forecast to increase, there are no widespread solutions to ameliorate this problem. Various constituencies, such as businesses, governments, and charities, approach it with a single-minded and unidirectional focus. But since it is a potentially vast and far-reaching concern for individuals and societies alike, there must be a comprehensive method for considering the multidimensional issues involved. One such way is to utilize the interdisciplinary study of the humanities, focusing specifically on contributions of religion, to reach a consensus for action that is focused on the primary component of the technological unemployment equation, the individual.

The search for the meaning of life, or more specifically, what it means to be human, can be answered by an unlikely source. Siri, the built-in, voice-controlled, intelligent personal assistant available for Apple users of iPhones, iPads, and some iPods, has multiple answers to this question. "Try and be nice to people, avoid eating fat, read a good book every now and then,

get some walking in and try to live together in peace and harmony with people of all creeds and nations," "All evidence to date suggests it's chocolate," and "I don't know, but I think there's an app for that" are some of her more popular responses.[1] This scenario highlights that one of humanity's fundamental questions is now strongly influenced and shaped by technology in ways previously unimaginable. "Technology is the mark of modern life. From transportation to engineering, entertainment, finance, warfare, communication, sports, art, medicine (the list could expand almost without limit), every sphere of human life is influenced and shaped by the modern technologies that continually change – and in turn, change us and the way we live."[2]

Turbulent technological change shifts the question's impetus from pondering the meaning of human life to contemplating what it means to be human in this age of technology. Perhaps beyond Siri's capabilities, the answer is likely that the irony of the situation in which technology can answer a seemingly human-centered question is not. Her latest retort, "I can't answer that right now, but let me write a very long play in which nothing happens" references the notion that any valuable answer requires a multiplicity of viewpoints and the ability to blend them.[3] Answers may ultimately be found in any number of places. No human life aspect occurs in a vacuum, so no answer to foundational questions about humankind's meaning can be one-dimensional. A nuanced comprehension of all the various influences on society is necessary to find the answers we desperately seek. Humanity has the freedom to transcend itself perpetually because there is no definitive fixed end as to what it is meant to be. The unifying thread is that

[1] Nico Lang. "I asked Siri 19 Ridiculous Questions and Got These Amazing Answers," *Thought Catalog* (November 13, 2013), http://thoughtcatalog.com/nico-lang/2013/10/i-asked-siri-19-ridiculous-questions-and-got-these-amazing-responses/ (accessed August 20, 2016).

[2] Patrick J. Dineen, "Technology, Culture and Virtue," *The New Atlantis* no. 21(Summer 2008) 63, http://www.thenewatlantis.com/publications/technology-culture-and-virtue (accessed August 2, 2016).

[3] Lang, "I asked Siri 19 Ridiculous Questions and Got These Amazing Answers."

modern people are "moved at once by a will to change – to transform both themselves and their world – and by a terror of disorientation and disintegration, or life falling apart."[4]

Humanities Purpose

The study of the humanities can provide the understanding needed to approach such weighty issues in the technological world today:

> The humanities are the stories, the ideas, and the words that help us make sense of our lives and our world. The humanities introduce us to people we have never met, places we have never visited, and ideas that may have never crossed our minds. By showing how others have lived and thought about life, the humanities help us decide what is important in our own lives and what we can do to make them better. By connecting us with other people, they point the way to answers about what is right or wrong, or what is true to our heritage and our history. The humanities help us address the challenges we face together in our families, our communities, and as a nation.[5]

Through understanding, humankind can begin to discern how it has created the world in which it lives. Humankind can also understand how it needs to preserve one's culture and protect the future. "Culture is the repository of memory and the medium of transmission of human accomplishment as well as human failings. It is the conduit of past to future, the vessel of memory of countless generations of the past to countless generations of the future, an inheritance, and a memorial."[6] The loss of cultural wisdom -- whether it be the burning of the ancient Library of Alexandria over 2000 years ago, the killing of midwives during the Spanish Inquisition beginning in the late 1400s, the dissolution of English monasteries by Henry VIII in the mid-1500s, or the Nazi book-burning campaign of 1933 -- harms society. Obliterating this knowledge prevents humanity from learning important lessons to help humankind be better and create a more secure future. "Culture is indeed the offspring of memory, the collective wisdom

[4] Marshall Berman, *All That is Solid Melts into Air: The Experience of Modernity* (New York: Penguin Group, 1988), 13.

[5] Miami University of Ohio, "Humanities Definition" in Technology and Humanities, http://units.miamioh.edu/technologyandhumanities/humanitiesdefinition.htm (accessed August 14, 2016).

[6] Dineen, "Technology, Culture and Virtue," 65.

of humanity that allows us not merely to survive, but to flourish – essentially, to become human."[7]

It is tempting to think that technology is a new phenomenon, and its effects on humankind are relatively new. That is not the case, although the range and rapidity of technology are heightened compared to previous generations. "Properly understood, any new and better way of doing things is technology."[8] By that definition of technology, humankind's history will be consistently marked by the progression of developments that altered the way people lived their lives. Those early humans who engaged in hunting, fishing, food gathering, and later making weapons, clothing, and building, were engaged in a primitive form of "technical activity" or technology.[9] Greeks were responsible for early achievements in the sciences, while the Romans developed military and legal concepts.[10] Even then, there existed a concern over the use of technologies. The idea is hinted at by a plethora of archaic myths. Some examples include the Tower of Babel story or the myths of Prometheus, Hephaestus, Daedalus, and Icarus. "Indeed, the transition from hunting and gathering to the domestication of animals and plants introduced a profound and disturbing change into culture."[11] "The myths articulated that although humanity frequently needed and celebrated technology, it could "easily turn against the human."[12] Over time these discoveries lead to even more innovations and advances in all areas of life, although technology's disruptiveness did not wholly diminish with these improvements.

[7] Dineen, "Technology, Culture and Virtue," 65.
[8] Peter Thiel and Blake Masters, *Zero to One: Notes on Startups or How to Build the Future* (New York: Crown Publishing Group, 2014), 8.
[9] Jacques Ellul, *The Technological Society* (New York: Vintage Books, 1964), 23.
[10] Ibid, 27-30.
[11] Carl Mitcham, *Thinking Through Technology: The Path between Engineering and Philosophy* (Chicago: The University of Chicago Press, 1994), 277.
[12] Ibid.

The advent of Christianity did not stop technological progress, but it did add another dimension to its implementation. "Technical activity did not escape Christian moral judgment. The question 'Is it righteous?' was asked of every attempt to change production modes or organization. That something might be useful or profitable to men did not make it right and just. It has to fit a precise conception of justice before God."[13] The Catholic Church continues such inquiry, as evidenced by the 2015 encyclical of Pope Francis, *Laudato Si*. He calls on all people to consider the effects of their actions on the environment and one another.[14] Those earlier concerns of the Church did nothing to alter the rapid technological changes during the Industrial Revolution. The attitudes of that time were built upon the earlier writings of Francis Bacon (1561-1626). He "maintained that God has given humanity a clear mandate to pursue technology as a means for the compassionate amelioration of the suffering of the human condition, of being-in-the-world. Technical know-how is cut loose from all doubt about the consequences of technical action."[15] It would be unthinkable not to use humankind's talent for innovation to improve the lives of others. This lingering outlook, combined with "the widespread mechanical development spurred by the exploitation of energy" made the Industrial Revolution possible.[16] The fear of technology's negative ramifications diminished despite the evidence to the contrary. The overall improvement in the quality of life due to the Industrial Revolution still resulted in many casualties. The working classes and the environment were the most apparent victims to suffer during this riotous technology progression. In this regard, science, both then and now, is no longer framed by any good or evil principles. Its role has

[13] Ellul, *The Technological Society*, 37.
[14] Francis, *Laudato Si,* encyclical letter, Vatican website, May 24, 2015, http://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_14091981_laborem-exercens.html (accessed June 18, 2015).
[15] Mitcham, *Thinking Through Technology: The Path between Engineering and Philosophy*, 284.
[16] Ellul, *The Technological Society*, 44.

become only to consider what the market will allow – "and the market permits anything, denies nothing, so long as it has some utility to someone."[17] Actions are implemented with little thought for anything beyond profit. The question is no longer whether something should be done, rather simply, can it be done?

Today, people remain conscious of the inherent dangers of technology but are seemingly unable to distance themselves from it:

> In our civilization technique is in no way limited. It has been extended to all spheres and encompasses every activity, including human activities. It has led to a multiplication of means without limit. It has perfected indefinitely the instruments available to man, and put at his disposal an almost limitless variety of intermediaries and auxiliaries. Technique has been extended geographically so that it covers the whole earth. It is evolving with a rapidity disconcerting not only to the man in the street but to the technician himself. It poses problems which recur endlessly and even more acutely in human social groups.[18]

Understanding technology's impact on the perennial human experience will require the interdisciplinary approach of the humanities and the role of religion and its wisdom tradition.

Humanities Education

The humanities concept was the foundation of early Greek and Roman education, which strove to create well-rounded citizens with a breadth of practical knowledge.[19] The term "humanities" came to be used during the Renaissance. It was a derivation of the Latin term *humanitas* found in the works of Cicero and Gellius to mean a civilized person of good morals. [20] During the Renaissance, it also developed into distinct academic fields.[21] These fields typically included languages, history, literature, philosophy, religion, music, and art but did not include

[17] O.C. McSwite, *Invitation to Public Administration* (London: M.E. Sharpe, 2002), 79.
[18] Ellul, *The Technological Society*, 78.
[19] Rens Bod, *A New History of Humanities* (Oxford: Oxford University Press, 2014), 2.
[20] Peter Gay, *The Enlightenment: The Rise of Modern Paganism* (New York: W.W. Norton & Company, 1995), 107-108.
[21] Bod, *A New History of Humanities*, 3.