Identity and Mission
in a technological future

A critical discussion of how distinctively Christian understandings of human identity and purpose provide the foundation for a missional response to Western secular visions of the human future in light of advancing technologies.

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Abstract

Change in Western society driven by the development of advanced technologies in coming decades is forecast by many commentators and popularly described as 'The Fourth Industrial Revolution'. Just as the first Industrial Revolution caused significant economic, political, and social change, so this latest revolution will produce fresh upheaval.

This thesis considers Christian mission in response to visions of the possible impacts of advanced technology on society projected by respected secular commentators. These visions are identified in the areas of economic impacts, technological living, effects of technology on human relationships and the ideology known as transhumanism. From a discussion of aspects of human identity that can be found in the biblical narrative, four key elements are identified which provide a foundation of human identity and purpose for the discussion of mission. These four aspects are the inherent *embodiment* and *relationality* of the human and the creational vocations of being culture-making *rulers* in creation and *priests* standing at the intersection of earth and heaven. The present technological mindset of Western society is also explored in the company of philosophers of technology and using the idea of 'social imaginaries' developed by Charles Taylor.

With this foundation in place an approach to mission is discussed that is based on the four aspects of human identity and focused on establishing a distinctive cultural identity for the church and, eschewing technique and method in mission as a technological mindset, emphasising joining with God in his missional activity and listening for His voice in day-to-day mission.

Declaration

This dissertation is the student's original work unless referenced clearly to the contrary, and no portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning

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I would like to thank the tutors at Cliff College, particularly Aaron Edwards, for their willingness to work with me on approaching an MA in Mission with a very particular slant towards the issues of engagement with advancing technologies.

Dedication

This dissertation is dedicated to my wife Louise, who has put up with months of me grunting at her from behind books and computers without complaint, and has encouraged me when I have been frustrated by my struggle to see the wood for the trees in this complex area.

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Introduction

A modern mindset based on Enlightenment rationalism links technological advances with expected social and economic progress.[1] The accelerating technological advances forecast to be ongoing during the 21st century, therefore, raise popular expectations of further progress in the human condition.[2] This period of change has become known as the Fourth Industrial Revolution[3] (4IR). Just as the original Industrial Revolution of the 18th and 19th centuries produced considerable social, political, and economic progress and upheaval across Western Europe and beyond,[4] the contention of those convinced of the power of the technologies of 4IR is that this new wave of advancing technology will be similarly transformational for humankind in the 21st century.

However, such is the potential power of these technological advances, the first fruits of which are already being deployed, that there are commentators who are nervous about the ability of humankind to use and control them wisely.[5] The moral philosopher Toby Ord sees humankind as morally immature and projects that the adoption of advanced technologies shortens the odds of human extinction within the next hundred years to one in six.[6] One can question how Ord quantifies such odds, but his point about the inadequacy of the secular Western moral infrastructure to grapple with these technologies is important as we consider ways in which the Church can respond to 4IR.

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[1] For Example Steven Pinker, *Enlightenment Now: The Case for Science, Reason, Humanism and Progress* (London: Allen Lane, 2018) and Matt Ridley, *The Rational Optimist : How Prosperity Evolves* (London: Fourth Estate, 2011)

[2] Appendix 1 gives details on the advancing technologies having applications capable of signiciant impact.

[3] e.g. Klaus Schwab, *The Fourth Industrial Revolution* (Geneva: World Economic Forum, 2016)

[4] see David S. Landes, *The Unbound Prometheus : Technological Change and Industrial Development in Western Europe from 1750 to the Present* (Cambridge, U.K.: Cambridge University Press, 1969)

[5] For Example:

Klaus Schwab and Nicholas Davis, *Shaping the Fourth Industrial Revolution* (Geneva: World Economic Forum, 2018)

Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford: Oxford University Press, 2014)

"An Open Letter - Research Priorities for Robust and Beneficial Artificial Intelligence," The Future of Life Institute, 2015, accessed 22/12/2018, https://futureoflife.org/ai-open-letter/.

[6] Toby Ord, *The Precipice - Existential Risk and the Future of Humanity* (London: Bloomsbury Publishing, 2020) 167

Approaching the Thesis

Rowan Williams has said that 'Mission…is finding out what God is doing and joining in',[7] while Lesslie Newbigin viewed the prime goal of mission as being 'quite simply the glory of God'.[8] As missional responses to secular visions of the human future in light of advancing technologies are sought in this thesis, the idea of joining with God will be prominent as the 'how' of mission, while the glory of God is acknowledged as the ultimate 'why' of mission in the various responses that are identified.

The thesis that Christian understandings of human identity can provide a foundation for mission responses within 4IR scenarios requires several separate strands of argument to be established before moving to the missional implications. Firstly, the distinctive human identity originating in creation will be developed from the biblical narrative in conversation with commentators such as Tomlin, Middleton, Christopher Wright, and NT Wright. It is argued that aspects of this foundational human identity established in creation are still relevant in the remainder of the biblical story despite the fall and represent the distinctively Christian understandings of human identity which provide the foundation for missional responses to future scenarios.

Having discussed human identity, the 4IR visions projected by highly regarded commentators will be outlined in the subject areas of economic impact, living in a technological society, human relationships, and the vision of the future contained in the ideology of transhumanism. The final strand in framing the discussion, before approaching mission directly, will be to take account of the already deeply technological nature of Western society. Approaching through Heidegger and Ellul's contention that technology becomes a dominating societal way of thinking and living, some more recent theological considerations (including Borgman, Shatzer,

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[7] "Presidential Address to General Synod, by the Most Revd Rowan Williams, Archbishop of Canterbury," Church of England, 2003, accessed 26/03/2021, https://www.portsmouth.anglican.org/news/2003/07/29/presidential-address-to-general-synod-by-the-most-revd-rowan-williams-archbishop-of-canterbury/.

[8] Michael W Goheen, *The Church and Its Vocation - Lesslie Newbigin's Missionary Ecclesiology* (Grand Rapids: Baker Academic, 2018) 101

and Brock) will also be engaged, discussing the usefulness of considering technology on such an overarching basis. To help see where the technological can intrude into societal ways of thinking Charles Taylor's concept of 'social imaginaries' will be employed and some key 'imaginaries' will be discussed which illustrate the extent to which a technological mindset, which tends to both amorality and reductionism, dominates Western thinking.

Each of the above elements needs to be established before drawing them together into a discussion of missional responses to visions of Western society in 4IR based on Christian understandings of human identity.

1. A Christian understanding of human identity and purpose

1.1 Creational human identity

The creation narratives of Genesis describe the foundational relationship between God and humans and so inform our thinking on identity. While a key idea is that humans are created in the image of God (*imago Dei*), (Gen 1:26, 27), this is an opaque, multi-faceted and contested concept not defined in scripture, so it is proposed to assess elements of human identity elsewhere in the creation texts. [9]

Creaturely embodiment

In Genesis 2:7 humans are seen to be creatures formed from base materials just like the rest of creation. From the biblical account, Wright notes that 'we have more in common with the rest of the animate creation than in distinction from it'.[10] I would reinforce this, noting that in Genesis humans were created on the same day as other creatures,[11] and hence are creaturely, were created from the 'dust of the earth',[12] and hence are fundamentally material, and were the final creative act closing a creation which is declared by God as 'very good'.[13] The significance of human creaturely embodiment to human identity has particular implications for assessing human enhancement and transhumanism which can seek to transcend what is seen as the limitations of embodiment.

Relationality

The strength of the theme of relationship in Christianity's narrative of God's love has led theologians to seek ways of discovering relationality, a nature formed for relationship, among

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[9] Noreen L Herzfeld, *In Our Image: Artificial Intelligence and the Human Spirit* (Minneapolis: Augsburg Fortress, 2002) 15. In practice many commentators read the insights about human identity from the surrounding text in Genesis into the concept of imago Dei, for example Barth embrace of relationality as key to the *imago* can be reached more directly from the other text as in elsewhere in this section. The term itself establishes the uniqueness of the human in creation but not the substance of that uniqueness.

[10] Quoted in "A Christian Vision of Human Flourishing," (Briefing Paper), Theos, updated 06/02/2021, 2010, https://www.theosthinktank.co.uk/research/2010/10/08/a-christian-vision-of-human-flourishing. 5

[11] Genesis 1:27

[12] Genesis 2:7

[13] Genesis 1:31

the aspects of human identity located in the creation story, often by introducing it within the malleable concept of the *imago Dei*.[14] There is little evidence of relationality within the Genesis 1 creation narrative, where many theologians can only see the imposition of a transcendent will in a power relationship between creator and creature.[15] Most attempts to establish relationality will, therefore, read back from the New Testament's Trinitarian formulations and the idea of Christ as the true image of God.[16]

A more direct way of identifying relationality as an aspect of creational identity in humankind is to utilise Middleton's argument for God's primal generosity in creation. Middleton makes the case that, rather than imposing transcendent will in Genesis 1, God 'grants humans the power of agency on the sixth day of creation, setting the scene…for the drama of human history making.'[17] The key point is that humankind does not start exercising this agency until the seventh day which has no end in Genesis, and is when God is resting. God is thus portrayed in Genesis 1:1 - 2:3 as:

> taking the risk of first blessing human beings with fertility and entrusting them
> with power over earth and the animals and then of stepping back, withdrawing,
> to allow humans to exercise this newly granted power, to see what develops.[18]

Middleton sees this as a parental style of relationship, one of trust in which the gift of freedom and power is given in the expectation of a relational response to that gift and trust.

Middleton does not explicitly identify God's generosity as implying relationality but drawing ideas about generosity from elsewhere can help to do so. Brock follows Augustine in seeing generosity as 'elicit[ing] both gratitude to the giver and respectful use of the gift'; thankful 'receipt of a gift seeks to strengthen and integrate the relationship with the giver by returning it in time, in a different form.'[19] The response to gift is, therefore, not obligation but a free

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[14] Herzfeld, *In Our Image*, 25

[15] Discussion in J Richard Middleton, *The Liberating Image* (Grand Rapids: Brazos Press, 2005) 272ff

[16] E.g. Spencer, "Human Flourishing." 13

[17] Middleton, *Liberating Image*, 290

[18] *Liberating Image*, 294

[19] Brian Brock, *Christian Ethics in a Technological Age* (Grand Rapids: Wm B Eerdmans Publishing Co, 2010) 203

response of gratitude. In Genesis 1 God is anticipating relationality in his human creation so that he steps back on the seventh day, having given life, fertility, and power, in anticipation of there being within humans the relational capacity to respond to his generosity and trust. This seems a firmer basis for establishing from the Genesis 1 narrative that God anticipated relationality as an aspect of the creational human identity.

Subdue and rule - the ruler

The God-given task to humans in Genesis 1:28 is to subdue the earth and rule over the other creatures. This idea of dominion has been criticised as being a foundation for exploitation and oppression of creation,[20] but Wright suggests that the words 'subdue and rule' do not legitimise exploitation but refer to no more than controlling via agriculture (subdue) and a vice-regency role for humans[21]. Wright additionally invokes Psalm 145 where the reign of God is 'characterised by wisdom, power, goodness, grace, compassion, faithfulness, generosity, provision, protection, justice and love'.[22] Human dominion as vice-regent over creation involves reflecting this compassionate and relational form of kingship. In the ancient worldview, subduing and ordering of creation held back ungodly chaos, so the human role as vice-regent is to continue God's creative and industrious purposes, bringing order and holding back chaos.[23] Human creativity in technology is therefore authorised to fulfil God's purposes in ordering creation and in holding back chaos. The context is, however, that of a compassionate and relational kingly reign.

Middleton[24] strongly emphasises this royal task in the creation narrative as a cultural role. The emphasis on agriculture and animal husbandry, 'which are the basis for human societal organisation', in the Genesis accounts and supported by Psalms 8 and 104, 'ultimately envisions the development of all aspects of culture, technology, and civilisation.'[25]

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[20] Most prominently Lynn White-Jnr, "The Historical Roots of Our Ecological Crisis " *Science* 155 (1967).

[21] Christopher J H Wright, *The Mission of God's People - a Biblical Theology of the Church's Mission* (Grand Rapids: Zondervan, 2010) 49

[22] *Mission of God's People*, 51

[23] Noreen Herzfeld, *Technology and Religion - Remaining Human in a Co-Created World* (West Conshohocken, PA: Templeton Press, 2009) 13

[24] J Richard Middleton, *A New Heaven and a New Earth* (Grand Rapids: Baker Academic, 2014)

[25] *New Heaven*, 43

> The royal task of exercising power to transform the earthly environment into a complex sociocultural world that glorifies the creator...is thus a holy task, a sacred calling, in which the human race as God's image on earth manifests something of the creator's own lordship over the cosmos.[26]

This approach sees the purpose of human vice-regency as starting with horticulture and leading to subsequent cultural development after the fall, the development of tools and the building of cities that God envisaged when he made a very good 'pristine world...[which] is open to improvement by the exercise of human cultural power - a calling granted to humans at creation'.[27]

Serve and preserve - the priest

God gives Adam the task of working and taking care of the Garden of Eden (Genesis 2:15). Wright points out that the words for work (*abad*) and take care (*samar)* in their simplest translation can be presented as 'to serve and to keep/preserve'.[28] Thus God's vocation for humankind is of hardworking service to keep or preserve the Garden of Eden.[29]

Spencer notes that the only other place in the Pentateuch in which these words for 'serving and preserving' are used together is 'in the book of Numbers, to describe duty of the Levites in ministering in the sanctuary.'[30] He references Wenham's depiction of the Garden of Eden as a sanctuary and Adam as a 'priest in God's garden'[31] a strand of thought echoed by Beale, who compares Adam's role with that of the later priests who 'both physically protected the temple and spiritually were to be experts in the recollection, interpretation, and application of God's word.'[32] Beale describes Adam as a priest-king in Eden, thus drawing together the two key roles for humankind implied in these Genesis passages, vice-regent and priest.

Conclusion on creational identity

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[26] *New Heaven*, 43

[27] *New Heaven*, 46

[28] Wright, *Mission of God's People*, 51

[29] *Mission of God's People*, 51

[30] Spencer, *Human Flourishing,* 11

[31] *Human Flourishing,* 11

[32] G.K. Beale, *A New Testament Biblical Theology* (Grand Rapids: Baker Academic, 2011) 34

In the creation accounts, there are four significant aspects of human identity for which their importance in the rest of the bible and the modern church must next be considered. The first two, *embodiment* and *relationality* might be described as ontological aspects of identity as they are the nature or essential characteristics of human identity. The second two, *ruler* and *priest* can be described as teleological aspects of identity in that they describe purposes for humans as created. Some indeed may suggest that ruler and priest are vocations rather than aspects of identity, but I would argue along with Conyers[33] that the modern conception of vocation is vastly weaker than the biblical conception, which required focused lifetime attention. In this way the ruler and priest vocations are securely lodged in human creational identity; being both rulers and priests is hard-wired into humanity at creation and so constitute core aspects of our foundational identity.

1.2 Human identity in creation and the Church

Core aspects of identity in the creation story have been highlighted, but do they continue to have significance through the biblical story to the present day?

Rulers, priests, or both?

Christopher Wright comes to an understanding of the Church's mission via the idea of a 'kingdom of priests' in Exodus 19:3-6[34] which involved Israel in bringing God to the people (by being the representative people) and bringing the people to God (through gathering the nations by attraction). Wright sees the reference to 'royal priesthood' in 1 Peter 2: 9-12 as linking modern church communities with this role of Israel but he describes this as a priestly role; 'the mission of God's people then includes being God's priesthood in the world. We are a representative people. Our task is to represent the living God to the world, and to bring the world to acknowledge the living God.'[35] Given his identification of the ruler identity in human creation, to neglect this here when talking of a royal priesthood is surprising. In contrast, Middleton sees the new Jerusalem of Revelation 21 as representing 'nothing less than the

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[33] A J Conyers, *The Listening Heart: Vocation and the Crisis of Modern Culture* (Dallas: Spence Publishing, 2006)
[34] Wright, *Mission of God's People*, 127
[35] *Mission of God's People*, 122

[end-time] renewal of human culture in all its fullness - this time without sin - in the context of a redeemed creation'.[36] He, therefore, sees a clear ruler implication for the life of the Church living between the times with the Church having to 'instantiate an embodied culture or social reality alternative to the violent and deathly formations and practices that dominate the world.'[37] Graham Tomlin's book on priesthood *The Widening Circle*,[38] tends to merge references to the Church's cultural response to Christ's rule, into his presentation of the priesthood of humanity and the Church. This sole emphasis on priesthood seems inconsistent as he does identify a ruler identity in creation[39] and Christ[40] but then subsumes it within his sole focus of priesthood. This is particularly the case as in his earlier book, *'The Provocative Church'*,[41] Tomlin emphasises the Church being a provocative 'visible reminder of life under God's rule.'[42] He says that evangelism can never stand alone and sees pastoral care, worship, and practical action in the community as important for 'bearing witness to God's rule in Christ, demonstrating what it looks like, showing what human life and community are like when they are lived under God's rule.'[43] N.T. Wright, however, makes a direct link between the Genesis identities of both ruler and priest and the purposes of modern-day Christians in the Church.[44] He identifies that the goal of Christian living is the eschatological new heaven and the new earth, 'with human beings raised from the dead to be the renewed world's rulers and priests.'[45] Christians prepare for this new creation by casting aside habits of slavery and embracing a renewal of their minds towards free Christian living by developing virtue.[46] Human beings take their place 'not only as receivers of God's forgiveness and new life but as agents of it. In other words: rulers and priests.'[47] Wright sees Christians 'ruling' with the virtues of the same 'new,

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[36] Middleton, *New Heaven*, 175

[37] *New Heaven*, 175

[38] Graham Tomlin, *The Widening Circle - Priesthood as God's Way of Blessing the World* (London: SPCK, 2014)

[39] *Widening Circle*, 74

[40] *Widening Circle*, 76

[41] *The Provocative Church*, 4th Edition ed. (London: SPCK, 2014)

[42] *Provocative Church*, 56

[43] *Provocative Church*, 63

[44] N T Wright, *Virtue Reborn - the Transformation of the Christian Mind* (London: SPCK, 2010) Ch3

[45] *Virtue Reborn*, 59

[46] *Virtue Reborn*, 82

[47] *Virtue Reborn*, 98

strange, upside-down "royalty"' that Jesus taught and embodied.[48]

The conclusions of Middleton and N.T. Wright, contra Tomlin and Christopher Wright, seem more convincing in their emphasis that the creational ruler and priest aspects of human identity are <u>both</u> fully present and recognised in the royal priesthood of the Church. The passing over of the ruler role of the Church by some writers is surprising. It may come from a wariness of the fierce criticism of the environmental effects of 'dominion' thinking mentioned earlier, or the difficulty of escaping worldly perceptions of rule as exercising human power even though, biblically, human ruling is shown through generous, compassionate self-sacrifice. The ruler aspect of the royal priesthood seems dangerously diminished in the self-perception of the modern Church with implications for mission.

<u>Relational and embodied</u>

Shatzer describes the relational aspect of human identity as starting 'with God's triune nature, His perfect life as Father, Son, and Holy Spirit.'[49] We are created beings, created in relationship with God to be in relationship with others. Williams takes this relationality and sees it as the basis of dignity and the core of 'personhood', enabling human beings to be differentiated from machines or animals[50]'. Personhood is therefore based on the relationality we have identified as an aspect of human creational identity. Zimmerman summarises the main elements of personhood as being self-transcendence, sociality, and embodiment.[51] Self-transcendence is the ability to objectify the world, rise above our immediate environment, and be 'open to the world' that is mediated in language, operates in time and history, and contains objective truth. Sociality is relationship in action and operates in I-thou (as opposed to I-it) relationships. Embodiment is exemplified in the incarnation, a blending of the divine and the earthly, and Zimmerman references Gregory of Nissa who saw the body as a unique expression of each person in eternity, and Bonhoeffer who says that a human being 'does not have a body and does not have a soul but he (sic) is body and soul. The human being in the beginning is really

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[48]   *Virtue Reborn*, 199
[49]   Jacob Shatzer, "A Limited Image? Practitioners, Patients, and Playing God," *Ethics & Medicine: An International Journal of Bioethics* 34, no. 1 (2018). 22
[50]   Rowan Williams, *Being Human - Bodies, Minds, Persons* (London: SPCK, 2018) 45
[51]   Jens Zimmerman, *Who Am I? Personhood, Consciousness, and Transhumanist Visions*, (Youtube: Human Flourishing in a Technological World, 2018).

his body.'[52]

Personhood is a link between the embodiment and relationality aspects of creational identity and is a helpful concept in addressing issues around the impacts of advanced technologies on humankind.

1.3 Summary and implications

Elements of the creational human identity can be found in the Genesis texts. Here humans are given the ontological aspects of human identity of material *embodiment* and of *relationality* with both God in Trinity and with one another, which are factors in defining unique personhood. Unlike other creatures, humans are given distinct vocations at creation, which provide teleological aspects of human identity as both *rulers* and *priests*. These teleological aspects of identity provide Christian purpose as well as identity, alongside the ultimate *telos* of Christian living identified by our interlocutors, the hope of our Lord's return and the renewal of heaven and earth. The four aspects of identity have been traced through to their present significance in the royal priesthood of the Church. From our previous interlocutors, it is possible to see ways in which these separate aspects of royal priesthood might manifest themselves in specific types of action in the Church's mission, as suggested below.

Rulers

The royal vocation 'means reflecting God's wisdom and justice into the world'.[53] Christians, therefore, have a calling in the Church to 'instantiate an embodied culture or social reality alternative to the violent and deathly formations and practices that dominate the world.'[54] The shape of this ruling identity must always be humble, generous, and compassionate and, in a fallen world, must be prepared to be so sacrificial as to be cruciform in its character.

Missional outworking of this identity can be seen in:
Being a hopeful community of sacrifice and love[55] so being a provocative reminder of Jesus'

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[52] *Who Am I? Personhood, Consciousness, and Transhumanist Visions*.
[53] N.T. Wright, *The Day the Revolution Began* (London: SPCK, 2016) 79
[54] Middleton, *New Heaven*, 175
[55] Tomlin, *Provocative Church*, 81

kingdom.[56]

1. Being a functional blessing to the local community by seeking ways to extend the grace, generosity, and kindness of God [57]

2. Mediating God's love and presence through self-offering as sacrifice - employing Christian virtue in demonstrating the 'upside-down' royalty of Jesus[58]

3. Protecting the vulnerable; seeking, generating, and sustaining justice in the world[59]

4. Generating and sustaining beauty in human culture[60]

5. Demonstrating ecological care for the planet[61] as representative humanity

<u>Priests</u>

Priesthood is a 'vital part of being human. We humans are called to stand at the intersection of heaven and earth, holding together in our hearts, our praises, and our urgent intercessions the loving wisdom of the creator God and the terrible torments of his battered world.'[62]

Missional outworking of this identity can be seen in:

1. Intercession for the world[63]

2. Worship on behalf of the world[64]

3. Evangelism/Proclamation - inviting people to come under God's rule[65]

4. Interpretation/Public theology - 'the human and humanising task of hermeneutics as a rich and multi-layered truth-telling'[66]

5. Blessing - an ontological blessing - 'the existence within the wider human community of a people who gather to offer worship to God, to voice the praise of creation, to celebrate the victory which Christ has won over the powers of darkness, is itself a blessing to the world'[67]

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[56] *Provocative Church*, 57

[57] *Widening Circle*, 104ff

[58] Wright, *Virtue Reborn*, 199

[59] Tomlin, *Widening Circle*, 105

[60] Wright, *Virtue Reborn*, 199

[61] Tomlin, *Widening Circle*, 80

[62] Wright, *Revolution Began*, 80

[63] Tomlin, *Widening Circle*, 100

[64] *Widening Circle*, 110

[65] *Widening Circle*, 107 and Wright, *Mission of God's People*, 122

[66] NT Wright, *History and Eschatology - Jesus and the Promise of Natural Theology* (London: SPCK, 2019) 174

[67] Tomlin, *Widening Circle*, 104

2. Visions of the impact of advanced technologies

Having identified important features of a Christian understanding of human identity, the next task is to review the scenarios resulting from the rapid implementation of advanced technologies envisioned by secular commentators. While the popular conceptual connection between technological innovation, economic growth, and increased human wellbeing in Western society is still strong, many commentators foresee that there are potential impacts that, if not ameliorated, could alter human experience in significantly negative ways. These visions of the future contain situations of brokenness and disillusion in which God is likely to be found at work, where the Church can join in missional response for His glory.

2.1 Economic impacts

One of the first analyses of the effect of the current wave of technological advances came from Brynjolfsson and McAfee.[68] They see many cognitive tasks being undertaken more cheaply, providing a period of considerable bounty for Western economies but they also acknowledge challenges ahead. They are cautious about the limited 'spread' of the bounty from advances, as 'rapid advances in digital tools are creating unprecedented wealth, but there is no economic law which says all workers, or even a majority of workers, will benefit from these advances.'[69] Businesses based on online networks tend towards concentration as larger networks enable them to be more effective and useful to users, thus raising barriers to entry for competitors.[70] Facebook, Google, Twitter, Amazon, Uber, and Alibaba have all been able to establish dominant business models, making billions for their owners and leaving those who run them with great social and political power.[71]

Baldwin (2019) warns that a 'Globotics Upheaval'[72] will lead to a new threat to Western jobs. Jobs involving cognitive processes such as routine activities within services industries (e.g

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[68] Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age - Work, Progress and Prosperity in a Time of Brilliant Technologies* (New York: W.W. Norton & Company Inc, 2016)

[69] *Second Machine Age*, 128

[70] *Second Machine Age*, 156-157

[71] Kalev Leetaru, "Social Media Platforms Will Increasingly Define 'Truth'," *Forbes*, 24/08/2019 2019.

[72] Richard Baldwin, *The Globotics Upheaval* (London: Wiedenfeld & Nicholson, 2019)

customer service functions being replaced by robotic process automation), previously perceived as being immune to attack, are now highly vulnerable to these technologies of direct automation[73] and overseas penetration through digitally-enabled tele-working.[74] Susskind[75] is concerned about 'structural' technological unemployment, where technology directly replaces human labour in an existing task but that labour cannot then find alternative employment.[76]

Conventional economic theory argues that in a dynamic economy this cannot happen for long, referring to the 'lump of labour fallacy' which says that in practice labour can reskill and redeploy to new industries which are inevitably created by technological progress.[77] Brynjolfsson and McAfee are among those who believe that there are job prospects in innate human superiorities over machines, such as the creation of new ideas,[78] and they suggest that machines and humans augmenting one another perform better than machines alone.[79] Snower also identifies human-to-human skills such as empathy, compassion, and 'mentalising/mind reading' as unique skills.[80] Susskind is convincing when he contends that the 'lump of labour fallacy' is likely itself to become a fallacy. He argues that 'pragmatic AI' applications, typically based on machine learning, are constantly chipping away at the individual tasks which make up the skills base of human beings.[81] Indeed, others suggest that many of these perceived unique superiorities are already being mimicked by AI.[82] Baldwin, while hoping that the lump of labour fallacy still holds, expresses concerns that machines will be learning at such a rate that new skills and new jobs will be swallowed up before humans have even had the chance to reskill for them.[83]

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[73] *Globotics Upheaval*, 148

[74] *Globotics Upheaval*, Ch5

[75] Daniel Susskind, *A World without Work - Technology, Automation and How We Should Respond* (London: Allen Lane, 2020)

[76] *World without Work,*, 112

[77] For example Branko Milanovic, "Three Fallacies That Make You Fear a Robot Economy," 2019 (2016).

[78] Brynjolfsson and McAfee, *Second Machine Age*, 191

[79] *Second Machine Age*, 191-193

[80] Snower in Samuel Wells, *A Future That's Bigger Than the Past: Catalysing Kingdom Communities* (London: Canterbury Press Norwich, 2019) 41

[81] Susskind, *World without Work,*, 126

[82] Nigel Cameron, *The Robots Are Coming: Us, Them and God* (London: CARE, 2017), 53ff - AI driven robots in care environments and as therapeutic pets. Robbie Gonzales, "Virtual Therapists Help Veterans Open up About PTSD," *Wired* 2017. - the use of robots in some psychotherapy situations.

[83] Baldwin, *Globotics Upheaval,*, 187

If we are convinced that there is a whole raft of new and powerful technologies on the way, including those that can learn to approach and exceed human levels of ability in particular skills or tasks, it would be a mistake to assume that there will always be sufficient areas of human superiority to provide paid employment for more than a minority of those seeking it.[84] This spectre of a world largely without work raises political and economic questions about what human life will look like with few or no jobs and widening inequality as only the owners of capital reap economic rewards.[85]

2.2 Living in a technological society

The technologies of 4IR have the potential for changing lives for the better by stimulating economic growth and providing a variety and ease of experiences in everyday life, but there are concerns about changes that are so profound that 'there has never been a time of greater promise or potential peril.'[86] Technologies can empower humans with information and efficiency but risk harming them in other ways.

Technology and personal formation

The first fruits of the technologies of 4IR can be seen in the impact of the internet and the devices and applications that interact with it. Dreher describes the internet as 'the most radical, disruptive, and transformative technology ever created.'[87] He argues that, while it appears to give limitless choice and flexibility, 'it is actually seducing us into passive captivity'.[88] Referencing the work of Carr,[89] he suggests that, because of brain plasticity, the internet can effectively 'rewire' our brains in a way damaging to concentration.[90] Loss of human agency is likely as we cede control to our devices as they remember things for us, decide what we are

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84 Susskind, *World without Work*, 168
85 *World without Work*, Ch10
86 Schwab, *The Fourth Industrial Revolution*, 2
87 Rod Dreher, *The Benedict Option - a Strategy for Christians in a Post-Christian Nation* (New York: Sentinel, 2018) 224
88 ibid
89 Nicholas Carr, *The Shallows: What the Internet Is Doing to Our Brains* (New York: W.W Norton, 2011)
90 Dreher, *Benedict Option*, 225

offered to buy, and offer us news and social media to consume.[91]

This ability of technology to physically change our brains, and so our responses to our environment, as well as to diminish our agency within our daily lives will be a concern for Christian disciples focused on the development of virtue and spiritual formation to live in more Christlike ways to God's glory.

Surveillance capitalism

The concentration of economic power caused by network effects may be producing 'surveillance capitalism'.[92] Aspects of human experience, particularly the increasing portion being undertaken online, are being continuously turned into data by dominant network companies and this becomes a valuable marketable product by which individuals and social groups can be influenced. This information is not just about what people do, it is about what they say and feel. Behavioural data can be gleaned from people's online self-exposure and AI can then be used to discover patterns within the data making behavioural and psychological manipulation of groups and individuals more possible.

Artificial vs human intelligence and 'misaligned' AI

The majority of research into AI involves 'narrow' or 'weak' AI where machines use algorithmic learning techniques to become superior to humans in solving particular problems.[93] A minority of researchers are focused on Artificial General Intelligence (AGI) which is defined by Walsh as the 'goal of building machines with the ability to work on any problem humans can do, at or above the level of humans'.[94] This is a step on the road to superintelligence - 'any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest.'[95]

While some experts think superintelligence is a considerable distance off, requiring many

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[91] Robert Doede, "Transhumanism and Reductionist Perspectives of Mind," (Youtube: Human Fourishing in a Technological World, 2020).

[92] Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (London: Profile Books Ltd, 2019)

[93] Toby Walsh, *Android Dreams - the Past Present and Future of Artificial Intelligence* (London: C Hurst & Co, 2017) 92

[94] *Android Dreams*, 92

[95] Bostrom, *Superintelligence*, 26

further conceptual breakthroughs in high-level thinking, reasoning, and abstraction,[96] the possibility of superintelligence has thrown a spotlight on the control of AI development, not just to avoid destructive superintelligence but to stop the usage of narrow AI in autonomous machines running out of control. Experts are concerned about 'misaligned AI' with poorly defined AI objectives carrying ethical and practical risks. The 'black box' property of much AI means that answers are provided often without an explanation of how they are arrived at.[97] Many experts advocate strict international controls on development, designed collaboratively between scientists and between nations,[98] but the speed of AI development brings worries about effective regulation.[99] Russell advocates moving away from objective-driven AI towards seeking ways of training AI to be more altruistic, humble, and adaptive to human preferences.[100] These discussions involve ethical appeals, implying identity and purpose assumptions central to this thesis.

2.3 Human relationships

Increases in loneliness in Western society are a consequence of increasing individualisation and the loss of sociability[101]. This loss of sociability is evidenced in the marked decline of 'the kinds of associations that used to bring people together on a regular basis'[102] and relates to serious health implications.[103] Sacks notes the role of technology in driving this individualisation, referencing Rajan's *The Third Pillar*[104] which argues that 'the human webs of connection, the relations, values and norms that bind us to one another, are being torn apart

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[96] Stuart Russell, *Human Compatible - Artificial Intelligence and the Problem of Control* (London: Viking, 2019) 293

[97] "The Dark Secret at the Heart of Ai," Massachusetts Institute of Technology, 2017, accessed 25/01/2019, 2019, https://www.technologyreview.com/s/604087/the-dark-secret-at-the-heart-of-ai/.

[98] Tegmark, "An Open Letter."

[99] A well-considered podcast on these issues is at Anne Marie Engtoft Larsen, *Regulation for the Fourth Industrial Revolution*, podcast audio2018, https://www.weforum.org/agenda/2018/01/podcast-regulation-for-the-fourth-industrial-revolution/.

[100] Russell, *Human Compatible*, 172-179

[101] Jonathan Sacks, *Morality - Restoring the Common Good in Divided Times* (London: Hodder and Stoughton, 2020) 32

[102] *Morality*, 30

[103] Joe Smith, "Loneliness on Its Way to Becoming Britain's Most Lethal Condition," *Independent*, 30/04/2018 2018.

[104] Raghuram Rajan, *The Third Pillar - the Revival of Community in a Polarised World* (London: William Collins, 2019)

by technological innovation.'[105]

At one level social media offers respite from isolation, but in practice it tends to be individualised and over personalised,[106] allowing people to avoid others who differ from them and to project false 'curated' images of themselves to others. Commentators mention how damaging social media is to true empathy and that people can 'lose true ability to relate to others.'[107]

2.4 Transhumanism

4IR changes in society will not just be occasioned by AI. Advances in genetics, neuroscience, chemistry, bioengineering, and robotics all raise the possibilities of human enhancement, making temporary or permanent changes to the human biological state to achieve perceived advantages, such as improving strength, longevity, intellect, or happiness. Cyborg engineering, melding the organic and the machine, is beginning to look increasingly possible,[108] and an ideological movement called Transhumanism 'affirms the possibility and desirability of fundamentally improving the human condition...especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities.'[109] Ultimately Transhumanism offers technological immortality in the form of disembodied minds within the cosmos.[110] The ethical and eschatological issues arising from transhumanism are thus considerable, addressing key issues of human identity and purpose.

2.5 Summary - impacts of 4IR

The innovation and application of new technologies threaten to arrive at such speed and strength of impact that individuals, companies, governments, and society, will not have time

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[105]   Sacks, *Morality*, 9

[106]   Jacob Shatzer, *Transhumanism and the Image of God* (Downers Grove: Inter Varsity Press, 2019) 149

[107]   *Transhumanism*, 150-151

[108]   Cameron, *The Robots Are Coming*, 24

[109]   Bostrom: The Transhumanist FAQ- quoted in Michael Burdett, *Technology and the Rise of Transhumanism: Beyond Genetic Engineering* (Cambridge: Grove Books, 2014) 4

[110]   *Technology and the Rise of Transhumanism*, 23

to review and adjust as each new wave of change breaks. These technologies will have impacts on economic life, disrupt personal habits, privacy, and agency, change our methods of human-to-human relationship, create relationships with machines, and pose transhumanist questions. There is potentially great bounty from this innovation but there is also potential for considerable loss of human well-being. God's mission will focus in those places where human hubris leaves violence and brokenness. It is here that His Church will be able to demonstrate an alternative way of being. Chapter 5 will discuss some missional responses to the areas of threat to human wellbeing that have been identified in this chapter.

3. Technology - A hazardous concept

The advanced technologies of 4IR are not parachuted into a pristine society. Over many centuries technological ideas have become embedded in Western thinking and helped form its cultural shape.

<u>Technological artifacts, systems, and ideologies</u>

Leo Marx[111] identifies that in the nineteenth century there appeared a 'semantic void' in the ability to describe the turbulent practical, societal, and ideological transformations that were taking place, and the term 'technology' was pressed into service in all these areas. Thus 'technology' became what he describes as a 'hazardous concept', 'blurring the boundary between the material (physical or artifactual) components of these large socio-technological systems and the other bureaucratic and ideological components.' Even more significant for Marx is the 'erosion of the "outer" boundaries…those separating the whole technological system from the surrounding society and culture.'[112]

This terminological struggle is clear for Heidegger and Ellul, two significant thinkers about the broader aspects of technology, writing in the 1950s. Heidegger seems enigmatic when he says 'the essence of technology is by no mean anything technological'[113] while Ellul[114] tried to distinguish the societal issues he was describing from the discussion of individual technologies, by describing the technological mindset he saw in society and culture as 'technique', which 'does not mean machines, technology, or this or that procedure for attaining an end.' Rather, it is 'the *totality of methods rationally arrived at and having absolute efficiency … in every* field of human activity.'[115] Heidegger[116] recognised that the 'essence of technology' is a mode of understanding that develops beyond our control and comprehension and ultimately is a danger to human existence. For Heidegger, technology breaks the relationship between

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[111] Leo Marx, "Technology: The Emergence of a Hazardous Concept," *Technology and Culture* 51, no. 3 (2010).

[112] "Technology." 575

[113] Martin Heidegger, *The Question Concerning Technology* (London: Garland Publishing, 1977), 4

[114] J. Ellul, *The Technological Society* (Vintage Books, 1964)

[115] Sam Matlack, "Confronting the Technological Society," *The New Atlantis* 43 (2014).

[116] Heidegger, *The Question Concerning Technology.*

humans and nature and between humans themselves, so that both nature and humanity are simply seen within a 'standing reserve' of resources to be exploited by technology. Ellul thinks that 'technique', this quest for pure efficiency in all enterprises, has outgrown human control, even if we can govern individual technologies. 'Technique elicits and conditions social, political, and economic change. It is the prime mover of all the rest, in spite of any appearance to the contrary.'[117] Ellul and Heidegger are, in different ways, indicating that the technological has wide-ranging impacts within Western culture. Going well beyond the cultural impact of particular technological artifacts, whole systems of industrial life have been established and technological ways of thinking have become ways of life, affecting and transforming every corner of Western culture.

Individual technological assessment

However, a present generation of writers seems to have run out of patience with overarching approaches. Evgeny Morozov critiques Ellul's 'grand rhetoric' by saying 'It's time to give up this talk of 'Technology' with a big T and instead figure out how different technologies can boost or compromise the human condition.'[118] Albert Borgman critiques Ellul for seeking to explain everything in terms of technology and technique while being vague in their definition.[119] Brock, however, is one modern Christian writer who continues to acknowledge the overarching threat of technology as an idolatrous system. He argues that a 'narrow' assessment of individual technologies is of limited value unless subjected to a 'thick' analysis of the society in which the technology is introduced.[120]

An example for using Brock's critique of technological assessment is from Peter Heslam a theologian of business who wrote a short article *Plastic is Fantastic*[121] where, in the first half of the article, he lauds the excellence of plastic as a technology used for all sorts of human good. This could be seen as an example of Brock's 'narrow' assessment, focusing solely on the benefits of the technology itself. In the second half of the article Heslam draws attention to

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[117] Matlack, "Confronting."
[118] "Confronting."
[119] "Confronting."
[120] Brock, *Christian Ethics*, 163
[121] "Plastic Is Fantastic," LICC, 2019, accessed 24/03/2021, 2021, https://licc.org.uk/resources/plastic-is-fantastic/.

the appalling damage to the environment of plastic waste, which he says is inexcusable as plastic is easily recycled. He identifies this as an ethical issue which Heslam seems to assume places it beyond the concern of business. This is inadequate as a 'thick' assessment due to its lack of depth or recognition of complexity. A starting point for a 'thick' assessment might include a recognition of the willingness of commerce to free ride on ecology,[122] the fact that reductionist popular economic mindsets evade ethical questioning,[123] and that human selfishness is endemic to the fallen nature. Rather than sidestepping the issue of responsibility, such an assessment might then explore how manufacturers and consumers could be made accountable for the damage caused by plastic waste resulting from the undoubtedly excellent products made from plastic.

Brock's concern is that in practice such thick assessments would need to be so broad that the whole process would be unworkable, but the above example shows that at least assumptions that moral issues aren't the concern of business could be questioned with more depth.

Conclusion

Marx's terminological difficulty remains, and people immersed in Western culture find it hard to see how their whole mode of understanding is underpinned (or perhaps undermined) by technology/technique as a core mindset in our culture. To assist understanding of the dominant role of the technological in the Western mindset, Taylor's concept of 'social imaginaries' will be used to critique some key 'technological' ways of thinking that are dominant in Western society.

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[122]   Jonathan Aldred, *Licence to Be Bad - How Economics Corrupted Us* (London: Allen Lane, 2019) Ch5
[123]   Section 4.3 below

4. Social imaginaries in Western society

The concept of 'social imaginaries' was developed by the philosopher Charles Taylor. Calhoun explains social imaginaries by saying, 'much of "reality" exists in the way it does partly because of how it is imagined…there are socially organised ways of imagining the world…that help produce and reproduce the modern world.'[124] Thus social imaginaries are widely accepted ways in which people perceive the workings of the world in which they live and take action. Calhoun gives as examples the ideas of 'the market' or 'the people' as social imaginaries of economic and democratic realities.[125]

Some of the key social imaginaries with which Western society operates contain a very limited and functional view of human purpose and identity. They can also be reductionist, by limiting real-world complexity to try to establish broad theoretical principles. Such reductionist abstraction actually 'neglects the diversity and complexity of creation' as well as having 'substantial legal, ethical, political, social and other non-technical implications.'[126]

4.1 The social imaginary of expressive individualism

Taylor identifies a central social imaginary of contemporary Western society which he calls 'expressive individualism'.[127] Individualism is seen by Sacks as a movement from "We to I"[128] which has taken place over centuries and tends towards loneliness, greed, self-interest, and a therapeutic need to massage self-esteem which can lead to narcissism.[129] Others, however, see benefits to individualism, as a 'therapeutic' approach that recognises we have 'deep interior spaces whose potentialities are not being realised'.[130] Sacks acknowledges that in this way individualism allows us to be 'free as never before to be as we wish and live as we

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[124] *Craig Calhoun, Charles Taylor Has Reimagined Identity and Morality for a Secular Age,* Blog, (2016).

[125] ibid

[126] Derek C. Schuurman, *Shaping a Digital World : Faith, Culture and Computer Technology* (Downers Grove, Illinois: IVP Academic, 2013) 41

[127] Charles Taylor, *A Secular Age* (Cambridge, MA: Harvard University Press, 2018) Ch13

[128] Sacks, *Morality*, 77

[129] *Morality*, 60

[130] Francis Fukuyama, *Identity - Contemporary Identity Politics and the Struggle for Recognition.* (London: Profile Books Ltd, 2018) 103

choose',[131] but notes the cautionary words of Charles Taylor who speaks of 'the spread of an outlook that makes self-fulfilment the major value in life and that seems to recognise few external moral demands or serious commitments to others.'[132]

Expressive individualism values 'authenticity' sometimes described as 'being true to yourself'. Tomlin argues that the 'cult of authenticity' is a symptom of a culture of self-absorption wherein people seek meaning in their inner self.[133] They believe that clues to their authentic self, 'are found in our strongest and loudest desires and longings. The overriding moral law, therefore, becomes about being true to that self.'[134] This imaginary of the self-absorbed choosing self which seeks authenticity stands in stark contrast to the reality of the economic and technological identities which can be seen to be imposed on individuals within Western culture.

4.2 The social imaginary of scientism

Postman[135] stands on the shoulders of Heidegger and Ellul in his characterisation of present society as 'Technopoly', a state of culture and a state of mind which 'deifies technology' so the culture 'seeks its authorisation in technology, finds its satisfactions in technology, and takes its orders from technology.'[136] This 'deification', which he calls 'scientism' believes:

1) that the methods of natural science can be applied to studying human behaviour, in social sciences and psychology.

2) that social science can generate specific principles for the effective organisation of society.

3) that 'faith in science is a sufficiently comprehensive belief system to provide meaning to life, foundations for morality, human flourishing and even immortality.'[137]

Postman denies the ability of science to do these things and believes that scientism fails to provide answers for people's search for moral authority as science 'has no more authority than

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[131] Sacks, *Morality*, 35
[132] *Morality*, 35
[133] Graham Tomlin, "Why 'Being Yourself' Is a Bad Idea," *Premier Christianity* 2021.
[134] ibid
[135] Neil Postman, *Technopoly - the Surrender of Culture to Technology* (New York: Vintage, 1992)
[136] *Technopoly*, 71
[137] *Technopoly*, 147

you do or I do to establish…criteria as the "true" definition of "life", or of human state, or of personhood.'[138]

Christian philosopher J.P Moreland[139] describes Scientism as 'the air that we breathe' in Western culture.[140] Scientism operates to place Christian beliefs about life, knowledge, history, and reality outside our culture's plausibility structures. It also has caused defining shifts in how Western culture defines 'knowledge, truth, duty, virtue, freedom, and tolerance'.[141] These shifts limit conceptions of human identity and purpose as they relegate anything to do with religion or ethics to the margins as unquantifiable, relativistic personal faith. Writing about C.S. Lewis's seminal essay 'The Abolition of Man' Michael Matheson Miller[142] recognises that Scientism is a form of reductionism whose effects go far beyond science into politics, the arts, and human relationships. He says that 'Lewis argued that scientism and rationalism make things like justice, nobility, honesty, valor, courage, and compassion non-rational, and undermined the human capacity for greatness.'[143]

4.3 The social imaginary of the supremacy of markets

In Chapter 2 we identified two key projected economic impacts of 4IR - increased economic inequality and the threat of increasing and quite possibly mass unemployment. Such projections are predicated on a dominant economic theory that emphasises 'markets' as being the supreme (all-powerful and dominant) mechanism in the production and distribution of economic goods and services.

Such assumptions of purely market-driven economics are, however, under attack for being simplistic and reductionist. Aldred argues that 'from the 1950s onwards economists suffered from "physics envy" - a yearning to remake economics in the mould of a mathematical science

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[138] *Technopoly*, 162

[139] J P Moreland, *Scientism and Secularism* (Wheaton, Illinois: Crossway, 2018)

[140] *Scientism*, 31

[141] *Scientism*, 33

[142] John G West, *The Magician's Twin - C.S. Lewis on Science, Scientism, and Society* (Seattle: Discovery Institute, 2012)

[143] *Magician's Twin*, 311

like physics.'[144] Economists such as Frank Knight and Milton Friedman sought to use a theoretical figure of 'economic man' to explain the real world. Defined as a rational choosing individual with such unrealistic attributes as perfect knowledge and perfect foresight, 'economic man' is an example of reductive thinking. Although humankind is varied, complex, and changeable, to enable academic analysis a 'scientific' and unrealistic proxy is established. While the aim is to allow objective analysis, Aldred argues that reductive economic thinking simply evades ethical questioning as, in practice, 'political and ethical considerations are inescapable in economics...[so] much modern economics proceeds with a hidden political and ethical agenda but masquerades as an objective science.'[145] Other theoretical constructs of market economics, such as individualism,[146] the invisible hand,[147] and utilitarianism,[148] are also under attack, challenging the reductive nature of the market supremacy imaginary.

Human identity in the marketplace

Reductionist market thinking in turn produces reductive and alienating concepts of human identity. The most often referenced identity for humans in economic life is as 'consumers'. Raworth notes how throughout the twentieth century the 'word "consumer" steadily grew in public life, policy-making, and the media until it far outstripped the word "citizen".'[149] This is significant because the means of expression of consumers are more limited than those of citizens. 'Citizens can address every aspect of cultural, social and economic life … consumers find expression only in the marketplace.'[150]

The principal activity of most human beings, work, is curiously 'a relatively minor subject in economics.'[151] Human labour is typically regarded as a de-personalised factor of production - human resource. Tanner identifies that the modern corporation, rather than prioritising human wellbeing, will tend to demand conformity in the form of total commitment and

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[144] Aldred, *Licence to Be Bad*, 9
[145] *Licence to Be Bad*, 10
[146] Ha-Joon Chang, *Economics: The User's Guide* (London: Penguin Group, 2014) 176
[147] Eve Poole, *Capitalism's Toxic Assumptions* (London: Bloomsbury Publishing, 2015) Ch2
[148] *Toxic Assumptions*, 61
[149] Kate Raworth, *Doughnut Economics - Seven Ways to Think Like a 21st Century Economist* (London: Random House Business Books, 2017) 102
[150] *Doughnut Economics*, 102 quoting Justin Lewis
[151] Chang, *Economics*, 348

personal self-sacrifice, so avoiding 'the lurking threat to productivity and profit of any disparity between what workers want and what companies want from them.'[152] Heidegger's prediction that humanity itself becomes a 'standing reserve' in a technological society seems to be a reality.

These are not arguments against capitalism or markets in a proper economic context, but against a social imaginary, that seems almost an article of faith in business, policy-making, and popular thought, saying that exceedingly complex economic relationships can automatically be resolved for optimal human wellbeing because of a mystical process called 'the market'. The insidious penetration of this social imaginary within business and the financial markets has been highly damaging to human wellbeing and made questionable business practices largely immune from ethical comment.

4.4 The social imaginary of the materialism of the human

The social imaginary of scientism holds that is only the laws of science applied to material things which have explanatory value. Thus, in popular thought,[153] the human body is an organic machine, for which the brain is the information storage and processing unit. Medical science is responsible for the preservation, repair, and enhancement of this frail machine to allow maximum opportunity for the continuation of human mental faculties. The advanced technologies of the future offer a new set of opportunities and prospects, not only for increasing the robustness and longevity of the human body but also for providing robotic or organic enhancement which will make it vastly more utilitarian. Ultimately, on this logic, technology may enable the creation of alternative machines for carrying the information storage and processing capabilities of the human brain.

There are, however, objections to this approach. The materialist model struggles to accommodate human consciousness which Rowan Williams identifies as being highly complex and central to all our thought and understanding of ourselves and others.[154] Scientific

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[152] Kathryn Tanner, *Christianity and the New Spirit of Capitalism* (Yale: Yale University Press, 2019) 70

[153] Yuval Noah Harari, *Homo Deus* (London: Penguin Random House, 2017) provides a typical perspective.

[154] Williams, *Being Human*,

materialists have suggested that consciousness is an illusion of the mind, possibly an evolutionarily convenient one.[155] Dirckx points out that this is an odd argument as consciousness 'undergirds even illusion' making Dennett's argument ultimately 'simply absurd as it makes it impossible to say anything at all.'[156] Consciousness is not the only problem with the materialistic idea that we 'are just our brains'. Another significant problem is that of free will. If the brain and human body are purely material, then the system is deterministic and free will is also an illusion. Everything must be contingent on prior causes, there is no room for an original idea or a freely decided action.[157] This becomes an ethical minefield, as in this line of thinking nobody is ultimately responsible for what they do.

Williams sees that scientific materialism applied to human beings and their identity is deeply reductive and he questions the motivations of those who press reductionist solutions to problems in complex systems.[158] By definition, a reductionist explanation can only be partial in a complex system. Given 'the fact that there are wholes whose capacities and properties are more than any of their parts, reductionism as a systematic, global principle is simply intellectually incoherent.'[159]

Transhumanist suggestions that human destiny and purpose is about striving to improve and replace a frail material body to gain immortality must be challenged as simplistic and inaccurate by those who believe that humanity's past, present, and future identities are as embodied and spiritual creatures that are part of a creation that God declared 'very good'.

4.5 Summary - Social imaginaries in Western society and Church

Charles Taylor's concept of 'social imaginaries' has been employed to identify how technology has already deeply influenced existing Western society. It has been argued that many of these imaginaries are 'scientistic', deifying technological methods and thereby marginalising

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[155] Sharon Dirckx, *Am I Just My Brain* (Epsom: The Good Book Company, 2019) 52 discusses Dennett's arguments.
[156] *Just My Brain?*, 53
[157] *Just My Brain?*, Ch5
[158] Williams, *Being Human*, 23
[159] *Being Human*, 21

religious, philosophical, and ethical accounts of reality. It is also argued that these imaginaries are typically reductionist, representing crude approximations to reality which ignore the complexities of both creation and society and in the process project simplistic, alienating, and vacuous identities on Western citizens.

The hegemony of these ways of thinking is not, however, confined to secular culture. Tomlin complains, following Ellul, of a lack of a distinctive Christian lifestyle in the modern Church[160] and others have similar concerns. Valerio sees expressive individualism within the Church when she points to increasing levels of 'self-absorption' in western Churches based on 'a contemporary theology that interiorises and individualises Christian faith…[seeing] a relationship with "the Lord" as a gateway to having one's needs met.' She calls this Therapeutic Christianity.[161] Similarly, Dreher spots the therapeutic in the American Church in 'Moralistic Therapeutic Deism' which is 'mostly about improving one's self-esteem and subjective happiness.'[162] Wells makes a strong critique of a modern Christian approach which adopts a lifestyle consistent with secular Western values, having 'happy families, healthy careers and commendable contributions to general welfare', alongside which Christianity adds certain elements of wisdom teaching and self-discipline and a strong emphasis on personal religious experience which 'provides memorable moments of encounter with transcendent relationship'. Deep down he says, it is 'instrumentalising Christianity for something that's a false idea which is, in the end, a contradiction of the gospel.'[163]

Against these tendencies to treat Christian faith as an additional interest in lifestyles defined by Western social imaginaries, the task of a missionary church is to remind its members of where their creational identity conflicts with potentially idolatrous social imaginaries of Western society, which must be dethroned to allow a life of Christian virtue to be developed.

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[160] Tomlin, *Provocative Church*, 23
[161] Ruth Valerio, *Just Living - Faith and Community in an Age of Consumerism* (London: Hodder and Stoughton, 2016) 143
[162] Dreher, *Benedict Option*, 10
[163] Wells, *Future That's Bigger*, 44-45

5. Mission in an age of advanced technology

Missional responses by individual Christians and the local and wider Church to visions of the impacts of advanced technology will build on the aspects of creational identity (priest, ruler, relationship, and creaturely embodiment) identified earlier as a fruitful foundation for mission. After addressing the issue of the Church's own culture, approaches in response to the key areas of challenge are suggested.

5.1 Church in Culture

Tomlin's statement highlighting from Ellul 'what many feel is a long term weakness of the Church in the West - a failure to live in any distinctive or alternative way to the ways of life on offer in the wider culture'[164] is a major critique of the Western Church. This lack of Christian distinctive lifestyle reflects a failure to live out the ruler cultural aspects of the Church's core identity as a royal priesthood which should establish an alternative community whose culture contradicts the selfishness, greed, violence, and injustice of the society which has formed in the shadow of technology.

Tackling this issue would involve the Church in a tremendous alteration in its relationship with Western society. As James K A Smith points out, when the world is broken and violent 'the shape of…image-bearing will be cruciform.'[165] As the Church operates between Jesus' announcement of the Kingdom and the 'not yet' final consummation, Christian discipleship will involve 'following Jesus's perfect image-bearing as the New Adam, an image-bearing that was not triumphant conquering *of* the world but submissive suffering *for* the world.'[166] Hauerwas and Willimon provide an image of the Church as a Christian colony within post-Christendom secular society, calling on members to be formed in virtue and describing them as 'resident aliens'.[167] This description is a translation of *paroikoi*[168] as used in 1 Peter 2:11, an epistle with

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[164] Tomlin, *Provocative Church*, 23
[165] James K.A. Smith, *Desiring the Kingdom - Worship, Worldview and Cultural Formation* (Grand Rapids: Baker Academic, 2009) 164
[166] *Desiring the Kingdom*, 164
[167] Stanley Hauerwas and William H. Willimon, *Resident Aliens: Life in the Christian Colony* (Nashville: Abingdon Press, 1989)
[168] Karen H Jobes, *1 Peter* (Grand Rapids: Baker Academic, 2005) 25

themes that are strongly aligned to the arguments made in this thesis. Peter recognises his readers' creational identities and their link to the historic nation of Israel by describing them as a 'royal priesthood' (1 Peter 2:9). This distinctive identity is to result in distinctive ethics characterised by their holy personal conduct and by good works.[169] Hauerwas and Willimon remind us that the purpose of the Church's cultural role is the good news of the redemption of humanity:

> The only way for the world to know that it is being redeemed is for the Church to point to the Redeemer by being a redeemed people. The way for the world to know that it needs redeeming, that it is broken and fallen, is for the Church to enable the world to strike hard against something which is an alternative to what the world offers.[170]

Making these choices to be an alternative cultural community through the rediscovery of the 'upside down' royal identity is crucial if the Church is to be a challenge in Western society. By working out the implications of being a royal priesthood, identifying how being a ruler as well as a priest generates an alternative community that contrasts with Western society, the Church can present this challenge to Western society and the social imaginaries that hold it captive.

The thesis understands the Church's mission as finding a foundation in the teleological aspects of human identity, being both *rulers* and *priests*, alongside the ontological aspects of being *embodied* creatures created for *relationship*. Roxburgh[171] has critiqued programmatic mission strategies such as the 'Church growth movement' or the 'natural Church development movement'. Echoing Rowan Williams, Roxburgh sees the route forward involving 'joining God' in his work within local communities. From the analysis in this thesis, it can be seen with hindsight that the strategies for mission which adorn the bookshelves of most pastors relied on the technocratic for some of their inspiration. Efficiency of organisation, clear objectives and measurability of outcomes, productivity of effort, and effective communication of vision, all are elements of technique, the mindset of the technological society. Roxburgh's approach aligns with Brock who, in the face of all-pervasive technological thinking, advocates co-

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[169] Dean Flemming, *Why Mission?* (Nashville: Abingdon Press, 2015) 100
[170] Hauerwas and Willimon, *Resident Aliens*, 94
[171] Alan Roxburgh, *Joining God, Remaking Church, Changing the World* (New York: Morehouse Publishing, 2015) Ch2

operating with a living God 'who makes himself present' and whose voice we must 'more faithfully and insightfully listen for.'[172] This involves moment-by-moment engagement with technological society in the company of God, who is working for His glory. However, from the previous analysis, it can be seen how an understanding of biblical human identity can aid insight as the negative 4IR futures envisioned by some commentators are encountered in mission. The remainder of this paper will consider this encounter and the activity discussed will often draw on the potential missional activities associated with the priestly and ruler aspects of human identity identified in section 1.3, as well as the implications of embodiment and relationality in a technological world.

5.2   Mission and the economic impacts of advanced technology

<u>Mission in the public square</u>

Theological critique of economics is difficult territory as an 'economics is science' presumption in the Western mindset carries with it the associated scientistic implication that religion, morality, and justice have no voice in these matters. Christian organisations formed to speak into business issues often seem unwilling to challenge the supremacy of markets social imaginary which results in a weak 'we must try to be more ethical' type of critique,[173] rather than recognising that the economic theory underlying modern business, not only is sub-optimal in delivering economic benefits across Western society but has also largely expunged any ethical reference from economic motivations. This results in such issues as authorising 'free-riding' as rational economic behaviour (thus for example legitimating corporate tax avoidance)[174] and advocating markets as *the* way of dealing with issues of justice (for example by carbon trading as opposed to carbon pollution elimination).[175] Engaging more deeply in Christian critique of economic theory and systems would be a priestly activity of interpretation.

An unwillingness of government to mould economic policy to changing times is likely to lead to high unemployment and economic inequality resulting from the increasing robotisation of

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[172]   Brock, *Christian Ethics*, 168

[173]   E.g. Andrei Rogobete, *Ethics in Global Business - Building Moral Capitalism* (Oxford: The Centre for Enterprise, Markets and Ethics, 2016) and Heslam, "Plastic."

[174]   Aldred, *Licence to Be Bad*, Ch5

[175]   *Licence to Be Bad*, Ch3

human work. This might allow the proclamation of Christian perspectives of work and leisure which can critique inequality and the 'standing reserve' view of human labour and ecology. Loss of employment may cause disillusion with rationalist thinking and, rather than relying on government to provide humankind with new reasons for living, as Susskind suggests,[176] it could be the Church that stands ready in what we have identified as the priestly task of evangelism, proclaiming eternal hope and truth.

As a part of a ruler engagement with culture, the use of advanced technologies could be advocated to overcome some of the deficiencies in the operation of markets. Blockchain technologies or big data mining might be used to provide much better information about how revenues from the sales price of goods are shared among the factors of production in different countries. Similarly, publicly available telecommuting technology could allow personal scrutiny of factories in less developed nations by potential purchasers. Free markets can be effective, but their deification in a social imaginary is not justified when very often they are deeply mechanically flawed in their signalling ability, particularly around ethical and justice issues. This sort of marketing information activity could make them more efficient in responding to consumer concerns about justice.

Christians who seek to counter the reductionist and amoral economic social imaginaries in the public square in these ways will come from and be supported by local church communities who themselves have a central role in 4IR mission, to which we now turn.

Mission and local church community
Perhaps it is the economics of a church community that should most astonish the consumer society around us. The early church's intentional physical and economic care of their whole community and those pagans around their faith community had a great impact on their contemporaries (Acts2: 45-47). If economic hardship becomes more prevalent as robotisation progresses, then the opportunity for church communities to model their understanding of material things as gift increases, enabling genuine cultural witness. It is how we relate to and love one another *within* the church community that first demonstrates the alternative culture

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[176]   Susskind, *World without Work*, 236

to which Hauerwas and Willimon refer.

A church will also be able to demonstrate its theology of work and leisure in action within the church community and beyond to create social businesses, volunteer organisations, retraining activities, and debt counselling activities. These will allow churches to demonstrate the way the Kingdom of God sees work as an organic activity within creation, but also allows the Church to be a functional 'blessing' to its neighbouring community, using its identity as a body of culture-making rulers to extend 'the grace, generosity, and kindness of God'[177] to its neighbours.

Mission as individuals

The call to personal holiness in 1 Peter 1:16 may not initially seem to be a missional call, yet personal integrity and honourable deeds will cause pagans to glorify God (1 Peter 2:12). Therefore, Christians reject expressive individualism in their economic lives by breaking away from the rhetorics of consumerism[178]. Where they are in employment Christians will seek to be employed in ways that fulfil their creative vocations, and honour God by ethical and holistic business practices. They will avoid employment that regularly exposes them to the logic of the scientistic market imaginary, or which makes profit from speculative financialisation rather than genuine added value. If unemployed, they will understand that they are not defined by their lack of paid work but will seek opportunities to contribute to the work of their church communities.

As Christians live their lives of faith and mission in the context of the economic challenges of 4IR, listening for the God who speaks into their everyday lives, they will discover how their human identity as rulers and priests is relevant in working out their missional actions associated with economic 4IR impacts in their churches and their engagement in the public square.

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[177] Tomlin, *Widening Circle*, 104
[178] Mark Clavier, *On Consumer Culture, Identity, Church and the Rhetorics of Delight*, Reading Augustine (London: T&T Clark, 2019) Ch3

5.3 Mission and living in a technological society

As individuals, Christians seek ways to break the chains of technological control in their lives. Wider missional responses to the challenges of advanced technology in Western society which are highlighted in section 2.2 of this thesis can be made by the local church in its community, and by the wider church in the public square.

Individual responses to the challenges of technological society

NT Wright sees Christian living involving the development of virtue, learning to live lives driven by faith, hope, and love, and characterised by the fruits of the spirit.[179] Dreher argues that technological devices can disrupt such living having the power to take away as well as giving, fragmenting our attention, and distracting our purposes, controlling our behaviour, and even re-modelling the operations of our brains[180]. The development of virtue is therefore assisted by breaking the control of technology in our lives through the development of habits that focus our attention, such as digital fasting.[181] Shatzer draws from the work of Conyers seeing the completion of Christian vocation as depending on being continually attentive to that vocation.[182] Technological devices, Shatzer argues, operate as agents of distraction to break Christians from attending to these core purposes. Shatzer also draws on the work of James K. Smith on cultural liturgies,[183] identifying many advanced digital technologies as liturgies of control, so that their habit-forming grip on our time and energy is negatively formational, so distracting from God.

Shatzer and Borgman offer a range of strategies for combating this unwanted formation. One is by the setting of boundaries, such as those outlined by Crouch in his book *The Tech-wise Family*[184] which advocates alternative habits, controlling the intrusion of technology into our lives. Another approach developed by Borgman is attention to what he calls 'focal things or

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[179] Wright, *Virtue Reborn*,
[180] Referencing Carr, *The Shallows*,
[181] Dreher, *Benedict Option*, 226
[182] Shatzer, *Transhumanism*, 32-33
[183] *Transhumanism*, 25
[184] Andy Crouch, *The Tech-Wise Family: Everyday Steps for Putting Technology in Its Proper Place* (Grand Rapids MI: Baker Books, 2017)

practices' which are 'the crucial counterforces to technology understood as a form of culture'.[185] Focal things and practices might include exploring wilderness, running, music, and the culture of the table. Shatzer also emphasises the importance of the culture of the table, linking it with practice of communion.[186] He calls attention to the importance of a sense of place, of neighbours, and relationships.[187] All these things are designed to break the hegemony of technology over our attention and our lives, to give us space to think, to pray, to contemplate and to be formed in ways that allow us to access and exercise our creational identities. The ontological aspects of identity, embodiment, and relationality are highly relevant in this discussion of Borgman and Shatzer's recommendations for breaking the liturgies of control around technology. All their recommendations involve embodied engagement with persons or with nature, the former exercising our relationality in person to person contact and the latter enjoying our creaturely unity in creation and the expressiveness of our embodiment. All potentially damaging engagements with technology can be critiqued and their impacts countered by conscious safeguarding of these two core elements of human identity.

Brock, however, seems unconvinced that any 'counter-disciplines' can be effective, seeing the grip of technological ways of thinking in Western society as being far too strong.[188] He is suspicious of technological assessments which ask, 'How far can we go?' and rejects moral theology which is defined in terms of setting moral rules or prescriptions. He seeks a 'much more dynamic account of the Christian moral life' which allows human action that acknowledges and co-operates with a living God 'who makes himself present'. The question then becomes 'How, as members of technological societies, can we more faithfully and insightfully listen for the voice of the living God, given our misdirected desires and misinformed reason.'[189] Brock has been criticised for lacking practicality in the outworking of his 'eloquent statements of the concepts'[190] and it is true that, having rejected attempts at technological

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[185] Albert Borgman, *Power Failure: Christianity in the Culture of Technology* (Grand Rapids Brazos Press, 2003) 22
[186] Shatzer, *Transhumanism*, 153-154
[187] *Transhumanism*, Ch 7&8
[188] Brock, *Christian Ethics*, 174
[189] *Christian Ethics*, 168
[190] David W. Gill, "Christian Ethics in a Technological Age," *Journal of Christian Ethics*, no. Spr/Summ 2013 (2013).

assessment as inadequate, he is left with more general theological principles. However, this is not grounds to reject his thinking. After all, his argument is in part that we are so in the thrall of technological thinking that we struggle to conceive of any other way. While Brock is probably right that the counter-disciplines of Borgman, Shatzer, and others are not game-changers, they are, nevertheless, habitual reminders that we are in danger of relinquishing control of our time, faculties, and behaviour to our technology. We must make this a subject for our prayer, study, and contemplation thereby rejecting the reductionist and alienating identity of being 'data subjects' imposed by technology on humans and seeking to retain our agency in any formative decision making. In this way, we can continue to focus on our personal discipleship towards a holiness which can be missional witness.

Humanity's creational identity as rulers, the makers of culture and cultural change, imposes great responsibility as transformative technologies, such as AI and biotechnology, approach. Christians employed in such development and implementation may have to make weighty personal decisions about speaking up about moral issues in such development. Individual Christians will need courage, confidence, and support from their church communities to make necessary moral stands as they fulfil their role as royal culture makers, holding back chaos. Such individuals also need to show judgment in their choice of the career path in which they employ their God-given skills. Tough decisions on career options and the use of their talents will be required by Christians in many branches of advanced technology.

Local Church responses to the challenges of technological society

A major role of the Church in its response to the impacts of advanced technology will be to provide the teaching, pastoral care, and community support for individuals working through the issues of personal response highlighted in the section above. Small groups and discipleship classes can spend time considering the impact of technology on personal discipleship and will support members tackling workplace ethical difficulties. The Church might also provide advice and guidance in its neighbouring community about the control of technology in the home and personal lives, running classes for parents and families, including the subject in school assemblies and other points of contact with families.

The Church must undertake its priestly tasks of worship, intercession, and evangelism with an

understanding of the context of living in a society which is ever more bound by the technological. Individuals and wider society need to be released from corrupted social imaginaries and to experience the freedom which comes, not from the belief that we are free to choose, but from the understanding that we will know true freedom when we submit to serve.

Addressing issues of 4IR technology in the public square.

There is a role for the Church in priestly mode to help society think through the moral implications of the use of AI and biotechnology. Ord's concern about the immaturity of human moral thought to control the power of 4IR technologies is telling,[191] and there may be a turn back to the Church's moral authority, as scientism fails to provide moral answers to the challenges that 4IR poses. Ord's suggestion that technologies should be postponed until their control is clear should be taken seriously by the Church and form part of public debate.[192] Scientism has a presumption that technological progress should be unhindered, and the Church might provide serious ethical perspectives to encourage debate on the issue.

Similarly, there is a role for the Church in addressing the concerns of Zuboff about surveillance capitalism. The level of potential influence of commercial organisations over the behaviour of individuals and groups is a cause for concern about which Christian comment would be valuable. Also, the deferral to social media moguls to decide what voices can and cannot be heard in social media space should provoke public debate[193]. Zuboff is particularly concerned by behaviourist manipulation pioneered by B.E. Skinner and knowingly utilised by the likes of Facebook and Google to alter data subject's behaviour.[194] Such approaches can be resisted by Christians in the public square, but also interventions need to be handled with a Christian mindset.[195] A balance must always be maintained - in the battle against the controlling aspects of technology it is important to remember the truths that Christians proclaim, not just what

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[191] Ord, *Precipice*, 206
[192] *Precipice*, 191
[193] Naomi Klein, "Naomi Klein: How Big Tech Helps India Target Climate Activists," *Guardian* 2021.
[194] Zuboff, *Age of Surveillance Capitalism*, 12
[195] "Surveillance Capitalism, Autonomy, and the Death of Privacy," Theos, 2020, accessed 08/07/2021, 2021, https://www.theosthinktank.co.uk/comment/2020/10/02/surveillance-capitalism-and-autonomy.

we are against.

5.4 Relationship, embodiment, and transhumanism

Missional responses on issues such as human enhancement and transhumanism will rest more heavily on the ontological identities of humankind, identified as relationality and embodiment, than on the teleological identities. Subjects such as robot relationships, human enhancement, cyborgisation, and transhumanism, require Christians to have a critical framework for apologetics and to support their personal decision-making. Relational and embodiment aspects of human identity and the associated concept of personhood are key to building such a framework.

Machine relationships

The I-thou nature of relationships between persons provides a framework boundary for understanding relationships with machines. Just as animals fail to meet the boundary conditions for personhood, so do machines, although the difference is that machines can be programmed to mimic personhood.[196] The human tendency to anthropomorphise the inanimate helps this adoption. At core, however, the question needs to be asked, is the thing I am engaging with a 'thou' or an 'it'? There is a warning here about the cyborgisation of the human which involves the application of robotic, AI, and other technologies to the human body. Peters suggests that cyborisation erases the lines between humans and machines and while it 'begins by overcoming biological limits [it] leads to finally abolishing biological humanity completely.'[197] On Zimmerman's definition of personhood, which includes embodiment, incremental cyborgisation will lead to the point at which a cyborg ceases to be a person.

Human enhancement

A survey in 2016 explored the reaction of Americans to various human enhancements[198] and

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[196] Cameron, *The Robots Are Coming*, Ch10

[197] Ted Peters, "Imago Dei, DNA, and the Transhuman Way," *Theology and Science* 16 (2018). 7

[198] "The Religious Divide on Views of Technologies That Would 'Enhance' Human Beings," Pew Research Centre, 2016, accessed 24/03/2021, https://www.pewresearch.org/fact-tank/2016/07/29/the-religious-divide-on-views-of-technologies-that-would-enhance-human-beings/.

it suggests that many Christians automatically put the human biological nature off-limits to enhancement through biotechnology. Is this, however, a sensible theological approach? It could be objected that the human person is already malleable to its environment; various technologies can cause physical changes in the brain and human bodies can adjust to changes in environment (such as altitude and climate). McKenny suggests that non-intentional alterations to human biological nature through natural processes are accepted by Christians as God working in his creation. Could not, everything else being equal, intentional human intervention in that nature equally be God at work through creaturely agency?[199] This is a point well made, and many interventions such as preventative drugs and vaccines are already widely accepted intentional interventions, but the answer must be hedged around by questions about instrumentalisation and objectification of the human by such a process. The motivation behind an intentional intervention is crucial. Brock notes that the 'materialism of the human' way of thinking has greatly increased instrumentalisation of the body by encouraging a conviction that 'the body is not me'. The 'me' lies in the authentic self, particularly in questions of gender identity which influence wider thinking. McKenny qualifies his own argument by noting that 'although…biological nature…[is] not in principle instrumentalised or objectified by intentional biological changes' any enhancement would subject persons to 'norms of measurability, efficiency, and predictability [that are] societal values that prize manageability and productivity, values that may affect our perceptions and judgments of the good of our biological nature.'[200] Keeping motivations virtuous is therefore difficult as the values of scientistic technological thinking inevitably intervene, quite apart from more selfish human motivations.

Peters is rather more blunt, reminding his readers that 'the world within which we live is fallen' and 'the only human being… is the sinful human being, and no amount of technology will fix this within history.'[201] As we will see, in the context of transhumanism the motivation for human enhancement is unequivocally sinful, but even in other contexts proposed human enhancement must be subjected to the deepest scrutiny on intentional and unintentional

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[199] Gerald McKenny, "Human Nature and Biotechnical Enhancement: Some Theological Considerations," *Studies in Christian Ethics* 32 (2019). 233
[200] "Human Nature." 236
[201] Peters, "The Transhuman Way." 6

motivation.

Transhumanism

Transhumanism is 'an entirely future-orientated ideology that advocates for human technological enhancement…indicat[ing] an unhappiness with the present state of the human being and instead focuses on how the human being is or ought to be transformed entirely now and in the future.'[202]   Theologians often draw a comparison between the goals of transhumanism and the Christian eschatological hope of new creation. Many see both as an approach to deification, indeed the popular secular book *Homo Deus*[203] recognises the transhumanist goal as being to use technology to turn humans into gods. Christian concepts of deification are more complex and differ between the Eastern and Western churches. In the West, many would prefer the term sanctification in which, through the action of the Spirit in the Christian's faithful living, growth in Christlikeness is enabled but only in the age to come will this process be completed. Moltmann's distinction between the future as *adventus,* that which comes from ahead and *futurum*, that which has its roots in the present is helpful here. Christian hope is *adventus,* our hope is in the person who is coming to bring the future, while the transhumanist hope is *futurum* resting firmly on present knowledge projected forward into the future.[204]

Burdett notes some central tenets of transhumanism:[205]

1. Transhumanists deny the reality of death as a feature of human existence.

2. Human beings' lived bodily experience is a secondary, and in most cases expendable, aspect of human experience.

3. Most transhumanists proclaim transcendence in terms of self-transcendence in the sense that humanity's greatest wishes will come true and there will be no limit on their desires or will.

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[202] Michael Burdett and Victoria Lorrimar, "Creatures Bound for Glory: Biotechnical Enhancement and Visions of Human Flourishing," *Studies in Christian Ethics* 32 (2019). 243

[203] Harari, *Homo Deus*,

[204] Burdett and Lorrimar, "Creatures Bound for Glory." 252

[205] Michael Burdett, *Eschatology and the Technological Future* (New York: Routledge, 2015) 239

From these tenets Burdett characterises transhumanist thinking as 'a kind of hedonism' in which the good life is infinite pleasure, the absence of pain, and an infinite will which is unencumbered by death, the body, or other people. In contrast, the Christian message upholds communal life (relationality), lived bodily (embodied) as we interact with one another (sociality).

Theologians see true deification as impossible for transhumanism. Zahl sees two impossibilities. Firstly, there is a metaphysical distinction between creature and the Creator who made creation *ex nihilo,* so theologically speaking creaturehood is non-transcendable. Secondly, the doctrine of original sin means that the cosmos 'is in a fallen place' so 'quests for human perfectibility will always fail.'[206] Zahl is convinced 'enormous good can and will be done through [biotechnical enhancement]…however, the doctrine of original sin predicts that efforts to change the human condition on a more fundamental level through human enhancement will prove to be a kind of biotechnological game of whack-a-mole.'[207] Peters provides a Christian version of Ord's warnings about human extinction when he says that 'every dramatic technological transformation carries with it human fallenness, the potential for self-destruction right along with the potential for healing. Only God's final act of redeeming grace will relieve us of such self-destruction.'[208]

The missional challenge of transhumanism is that with advancing technologies 'technology dreams of a better humanity and a better world now waft through our culture like an aroma of baking bread.'[209] The reality is, however, different from the dreams. Burdett has uncovered the distinction between the self-absorbed destructive hedonism of transhumanism and the relational, embodied Christian life. He also warns that because of the promise of unlimited personal will and desire, transhumanism poses problems for a future where people want to live together unless this future community never interacts.[210] Christian mission must affirm

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206   Simeon Zahl, "Engineering Desire: Biological Enhancement as Theological Problem," *Studies in Christian Ethics* 32 (2019). 227
207   "Engineering Desire." 228
208   Peters, "The Transhuman Way." 8
209   "The Transhuman Way." 8
210   Burdett, *Eschatology*, 240

humankind as 'Creatures bound for Glory'[211] but emphasise that relationality and embodiment, core aspects of our creational identity, are foundational within the assured new creation in the *adventus* future of Jesus' return. This future contrasts with transhumanism's *futurum* future which denies our creaturehood and fumbles dangerously towards a self-willed and non-human future that continues to be bound in human sin.

5.5 Summary - Missional responses to the challenges of 4IR technologies

To devise and apply strategies, programmes, tactics, and techniques for 4IR mission would be to fall prey to the false and reductionist promises of the 'efficiencies' of technological thinking. Instead, we must call on individuals and churches to find ways of listening for the God who speaks into our situations and to act on his call. The Western society which we serve in mission is highly complex and so we must prayerfully consider those aspects with which we can engage. That said, the four aspects of creational human identity that have been identified, *ruler, priest, relationality,* and *embodiment* provide insights which can inform a variety of local and public missional responses to the impact of 4IR as it affects us and our local communities. They also can provide formational responses to the technological control in our lives that has been unveiled in this thesis. Especially important is the critique that the Western Church has culpably neglected its culture-making ruler aspect of identity by failing in its responsibility to live out a cultural Christian lifestyle which is distinctive from, and a challenge to, the ways of life within technological Western society.

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[211] Burdett and Lorrimar, "Creatures Bound for Glory."

Conclusion

Western society is dominated by technology. Technology has created its industries, cities, and lifestyles. Technology has driven its culture of individualism and its consumerism. Technology has formed its scientistic ways of thinking. These scientistic ways 'deify' the laws of science and marginalise questions of religion, ethics, community, truth, beauty, justice, or compassion.

Into this society, a fresh wave of advanced technology is arriving, upon which rationalist thinking pins hopes of improving human prosperity. Here also the ideology called transhumanism sees an opportunity for transcending humankind beyond the feebleness of its organic form so that, through technology, the information held in its many minds can be liberated and immortalised to fulfil new destinies.

However, some envision potential peril ahead. What if these new technologies are so powerful that they no longer require a contribution from most of humankind to direct and to add resource to their activity? Will the systems of economic and civil society, in which amoral and reductionist ways of thinking are endemic, be robust enough to protect human well-being against this march of what is assumed to be progress? Will humankind be able to control the activities of the machine intelligence it has created or might humankind itself accidentally become surplus to the requirements of a future world?

It is into these troubling visions that the Christian Church seeks to proclaim its eternal truths. The Church is deprived of its past cultural dominance and potentially fatally compromised by its absorption of Western society's thinking and lifestyles. However, within its scriptures are clues to God's creational intentions, the core aspects of identity with which humankind was created, aspects of identity that have been important throughout biblical history, and which now reside in Christians, both individually as redeemed humanity and communally as the Church.

These core aspects of created human identity are the teleological aspects of *ruler* and *priest* and the ontological aspects of *relationality* and *embodiment*. The ruler aspect demands that Christians demonstrate an alternative cultural reality to the violent, broken and fallen society

around them. The priestly aspect calls Christians to the purpose of holding the fallen world before God's love in intercession and praise while also proclaiming that love to the world in blessing, evangelism, and truth-telling. In relationality, Christians know their presence in the divine and their connection in personhood with all other persons. In embodiment, Christians acknowledge their creaturely relationship with their creator, their integrity in creation and personhood in eternity, their identification with the incarnate Christ, and the unity of the human as body, mind, and spirit.

These aspects of human identity, combined with an understanding of society's reductive technological mindset, inform the ways that the Church can respond to the challenges of future technologies in Western society through actions which join with God in establishing his glory. Starting by the rediscovery of a distinctively Christian cultural lifestyle in the Church, the various aspects of identity can help frame Christian responses to economic and societal challenges, empowered by listening to the God who is always present and avoiding process, method and technique as demanded by technological thinking.

Ultimately, the royal priesthood proclaims to the world a hope of deification in unity with Christ in the *adventum* future of the glory of the Lord's return. This purpose and goal, provides a complete, embodied, and delightfully relational future in the renewed heaven and earth. This contrasts with the *futurum* future of transhumanism which is doomed to fail in its dream of deification because its fallen nature generates a destructive hedonism that will see the divisive self-will of non-human selves lurching into an isolating and alienated future.

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Appendix - Major Technologies of the Fourth Industrial Revolution

This summary of some of the key advanced technologies that are projected to have a significant impact on Western society draws heavily on the descriptions and categorisations in Klaus Schwab's book *Shaping the Fourth Industrial Revolution*[212]. Skilton and Hosvepian *The 4th Industrial Revolution*[213] is another source, in which they make clear that it is the fusion of technologies in the physical, digital and biological domains which will be transformational, allowing various new kinds of technologies to interact intelligently. They claim that it is this fusion of technologies that makes this an Industrial Revolution.

A) Extending digital technologies

1) New computing technologies

Since the 1940's there has been exponential improvement in the development of transistor-based digital processors with size and speed improvements meaning that general processor speeds doubled every 18 to24 months over that period enabling the rapid development of smaller and smaller devices over a wide range of applications. However, general processors are now reaching the limits of their size reduction and new forms of processing are being developed.

i) Specialist digital processors

Instead of relying on general processors, there is a move towards developing specialist chips and architectures for different applications. The most familiar is probably the graphics processor which manages the screen on personal computers but there are other examples including specialist chips called 'AI Accelerators' being developed for large scale specialist AI applications. Design for specialist applications means that the architecture of the chip can be honed for particular applications giving significant improvements in efficiency over general processors.

ii) Quantum computing

The strange properties of material behaviour at a quantum level provides the opportunity to develop processors in which each bit of data is not the traditional on/off state binary option. Instead, a 'qubit' includes various indeterminate other states which can be entangled together so the quantum state of one qubit provides information about those connected to it. The result is extraordinarily fast processing for very specialist areas of computing but with tough engineering problems to solve to make it viable in more than specialist situations.

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[212] Schwab and Davis, *Shaping 4ir,*

[213] Mark Skilton and Felix Hovsepian, *The 4th Industrial Revolution - Responding to the Impact of Artificial Intelligence on Business* (Cham, Switzerland: Palgrave Macmillan, 2018)

iii) Neuromorphic computing

Processing based on the morphology of neutrons which promises transfer onto silicon to allow computing at a tiny fraction of the energy usage of digital technology.

iv) Biochips

Utilising organic material to replace manufactured processors and storage. Living cells' processing capacities are more than 1000 times efficient than nano-scale manufactured semi conductors. DNA can be used to store massive amounts of information on very small amounts of DNA which is environmentally stable and much more durable.

2) Blockchain and distributed ledger technologies

Blockchain offers the possibility of creating large secure record systems without having a record-keeping authority. The most well-known application is for crypto-currencies. Any industry with complex record-keeping could use blockchain, healthcare and financial services have been mooted as possible application areas.

3) Internet of things (IoT)

Billions of machines will have sensors and be web-connected worldwide allowing much greater control of activities with much less organisation. Supermarkets will not need checkouts or people to check stock levels, fast food restaurants will not need many staff. Utilities' usage and machine health will be automatically monitored constantly. A push economy will be developed where we are offered solutions to needs and problems that have been identified remotely. Manufacturing industry is likely to be a major user, as will technology for running our cities. IoT will produce a lot of information to be analysed by AI to identify patterns and connections and thus increase effciency. It will take over a lot of routine monitoring and control jobs.

B) Reforming the world

1) Artificial intelligence and robotics

Already one of the most dominant new technologies with much more possible development available. Machine learning is capable of rapid manipulation of data to identify previously unknown patterns and connections that enable it to make predictions and solve problems algorithmically. While AI is a long way off human intelligence it can do some types of tasks very much better than humans, particularly where they are fairly routine. Even without breakthroughs in other types of AI, machine learning will enable the management and control of innumerable things cheaply and efficiently and, worryingly, without the need for much human input.

The combination of AI with robotics enables the insights of AI to have a physical outworking in a range of environments. For example, a robotic truck could be driven unmanned along motorways, processing and learning from sensor information.

2) Advanced materials

Many new materials for use in science engineering and medical applications issues are being created with the use of nano-technology, molecular level interventions. Many new materials are particularly useful in medical settings where strength, lightness, and longevity are key issues.

3) Additive manufacturing and multidimensional printing

Potentially transformative of industry supply chains, additive manufacturing allows the production of specialised parts locally, meaning no need for stocks, transport or bulk manufacturing facilities. Need a new car part? The dealer can just print one. Already widely used in prototyping and product development there is potential for its much wider expansion.

C) Altering the human being

1) Biotechnologies

The combination of technologies is opening up huge possibilities in biotechnology. Biological research is greatly aided by digital data handling and manipulation to allow the processing of data sets. Advanced materials and nano-level management of organic matter also allow new possibilities. Impacts might be seen in agriculture, precision medicine, and biomaterial production. Ethical and government issues are considerable.

2) Neurotechnologies

A wide set of approaches that provide powerful insights into the workings of the human brain, allowing us to extract information, expand our senses, alter behaviours, and interact with the world. Massive ethical, legal, and governance issues.

3) Virtual and augmented realities

Augmented reality adds material to the individual's perception of the real world while Virtual Reality puts the individual into an entirely fabricated reality. There could be considerable applications in entertainment, art, and culture; also in education and training, but it can also be used in behaviour manipulation and to alter perspectives.

D) Integrating the environment

1) Energy capture, storage, and transmission

Seeking new energy sources and new ways of using energy to break to the negative cycle of fossil fuels and climate change. Concentration on the maximisation of renewable energy use and new technologies such as tidal energy and nuclear fusion. Global collaboration and governance issues.

2) Geoengineering

An emerging set of technologies that propose manipulation of the earth biosphere to deal with pollution, droughts, and global warming. Viewed as highly immature technologies with potential existential risk.

3) Space technologies

The final frontier of space exploration, exploitation, and commercialisation. Issues of international co-operation or conflict.