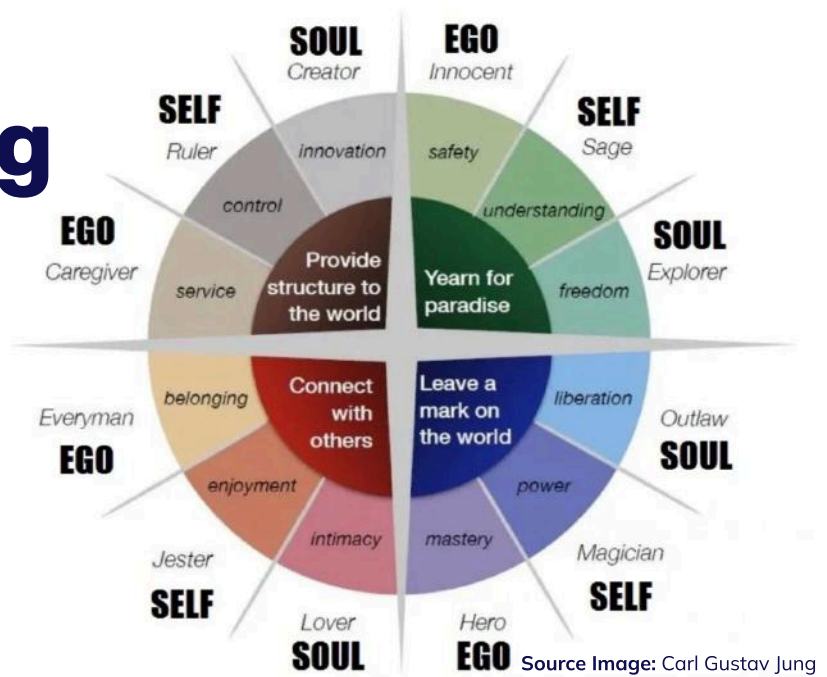


# Transforming Worldviews



Through Vonnegut's Stories and Jungian Archetypes



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Autonnette McLaughlin - Causal Layered Analysis Scenarios

World Futures 2025



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# Executive Summary

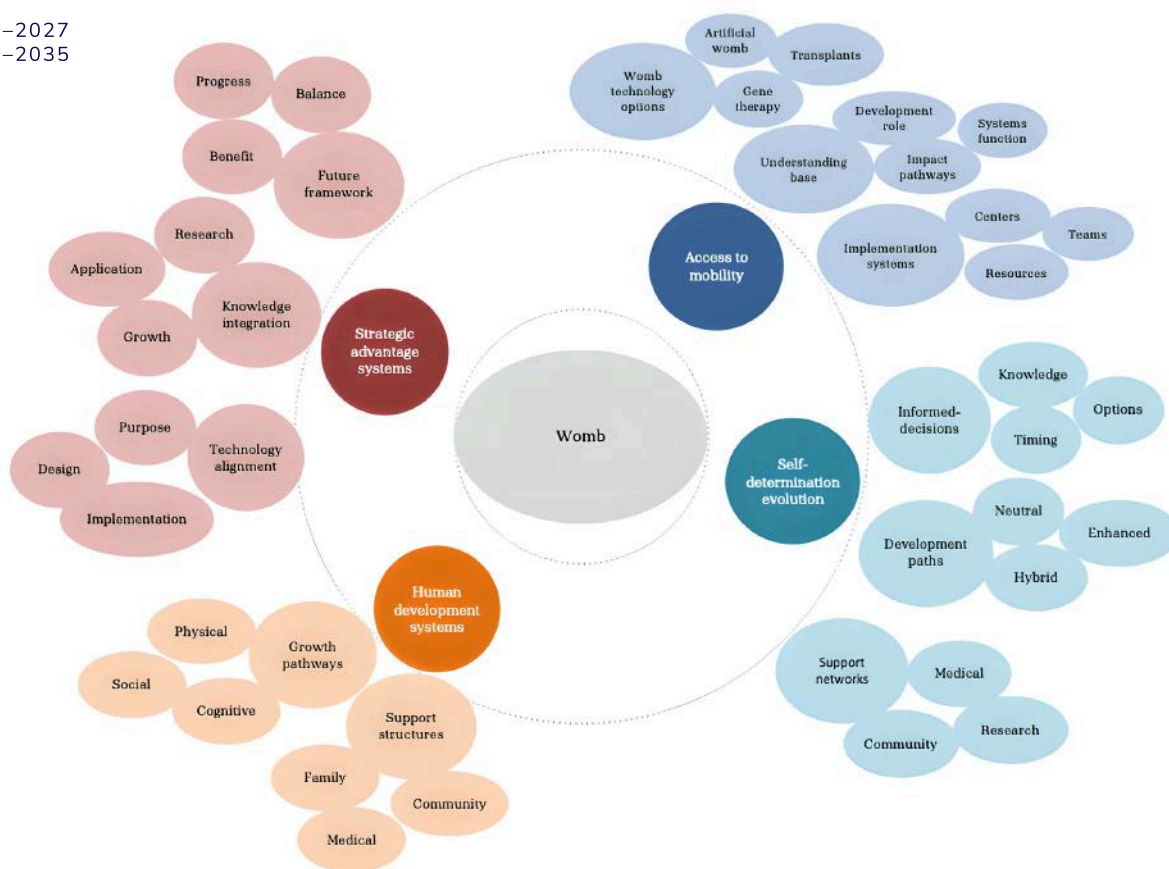
Faith leaders face critical decisions about reproductive technologies as societies navigate declining fertility rates through 2035. *The Future of the Womb: Transforming Worldviews* helps you understand how competing worldviews, from conservative to biocapitalism, lead to fundamentally different policy futures across North America, the UK/Europe, China, and Japan. You will encounter perspectives that challenge traditional values while gaining practical tools to navigate these tensions without compromising core principles.

## Method

I applied causal layered analysis to uncover hidden assumptions, Vonnegut's story shapes to reveal competing narratives, and Jungian archetypes to expose psychological drivers behind each worldview. You will examine four scenarios that uncover how different worldviews lead to different futures. Five strategic questions, each with three horizon frameworks, will help you examine actionable steps.

You will explore reproductive options, including artificial womb technologies and additional reproductive alternatives. The STEEPVC analysis will help to reveal how these technologies impact the social, technological, economic, environmental, political, value, and cultural dimensions. Start by understanding the scenarios, then use the strategic questions to explore the immediate challenges.

H1: 2025–2027  
H2: 2028–2035



## Findings

For many families, the arrival of AWT could change what it means to welcome a child, offering new options and raising new questions about parenthood and care. These values influence what and who we embrace and how we make decisions. Traditionalists view artificial womb technology (AWT) as a gift in hopes of preserving families within their natural bounds. Modernists view IVF, genetic screening, surrogacy, and AWT as an expansion of reproductive choices. Postmodernists establish boundaries for AWT research to protect human dignity, and neoliberalists view AWT as a commodity.

Worldviews evolve as we examine ourselves and who we are becoming within a system of uncertainty and risks for everyone. With this in mind, leaders seek innovators and medical professionals who collaborate to implement necessary medical interventions within divine boundaries. Just as important are the voices of patient-advocacy groups and marginalized communities, whose lived experiences help ensure that ethical boundaries reflect those most impacted, not only traditional experts. As well as establishing ethical boundaries beyond traditional prohibitions and tempering technological enthusiasm to navigate the middle ground.

Innovators create reproductive advantages by pairing technology with equitable access. They design solutions that benefit multiple generations. Everyone deserves access to technological interventions that undergo comprehensive ecological assessments before becoming sustainable solutions. However, inclusive leadership extends beyond innovators and clinicians alone. Patient advocacy groups and marginalized communities, who are most affected by these technologies, want their voices heard and centered in decision-making. When we use those solutions to design reproductive systems, we can balance productivity needs with fundamental human dignity.

## Litany, Drivers and Systems

The litany helps us examine AWT headlines for each worldview, such as "Begotten Not Made," "Wonderbaby is Here", "Womb Transplants Surge Despite Religious Restrictions," and "Alabama Fetal Personhood." For example, when "Begotten Not Made" hit the headlines, the debate over personhood status influenced conversations about ethics and family planning. The primary driver of change is the family planning divide around marriage fertility, universal access, and optimized human systems. Examining each one alongside the myth metaphor encourages deeper thinking and conversations.

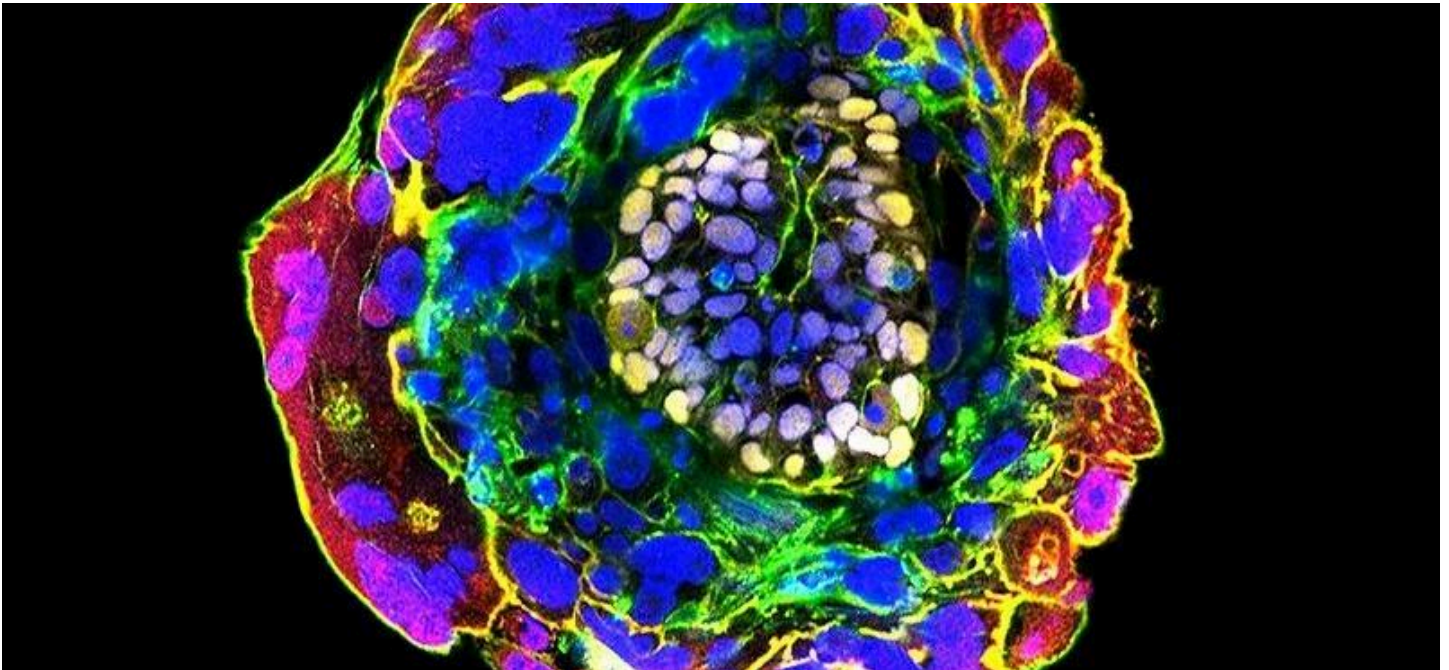
## Myth/Metaphor, Worldviews, and Vonnegut

The myth/metaphors help us envision the future, such as the family table, the garden, instincts are not law, and changing the script, not just the actors. The worldviews are related ways of knowing, such as traditional, modern, postmodern, and neoliberalism. Each of these worldviews reflects leadership decisions. The Vonnegut story shapes help us refine the approach when sharing the narrative, such as the Old Testament, the New Testament, From Bad to Worse, "Man in the Hole," and "Cinderella." The value indicators help us recognize when we begin to rethink our values amidst uncertainty. When we integrate each tool, we can begin to recognize the emerging futures narratives and how they may influence our worldviews and value systems. By recognizing these emerging narratives, leaders are better equipped to anticipate diverse perspectives and craft policies that are both inclusive and adaptive to future societal shifts



PREFERRED

# Conservative Values



Source Photo: Phillip Ball

## LITANY

Begotten Not Made, Moral Abomination, Motherless Births, Creepy Pregnancy,  
Fetus to Fetus Transplant, Genetic Conflict Theory, Playing God, Low Sperm Motility, Getting Paid

| Drivers                                                 | Systems                       |
|---------------------------------------------------------|-------------------------------|
| Genetic counseling & testing for family planning divide | Marriage fertility            |
| Cradle of life                                          | Sacred conception             |
| Family affordability                                    | Community support             |
| Beyond one size                                         | Traditional family structures |
| Reimagining birth                                       | Divine order                  |
| Reproductive advantage                                  | God's plan                    |

Source: Author's research

# The Family Table

Tensions between traditional values and expanding tech options create social polarization, political and legal conflicts in traditional regions about resisting tech, and emerging community-based support systems as fertility options for family formation increase.

**Worldview:** (Traditional Values) - Divine order, sacred boundaries, conventional morality, and established hierarchies

**Vonnegut's Story & Shape:** "Humankind receives incremental gifts from a deity, but is suddenly ousted from good standing in a fall of enormous proportions."

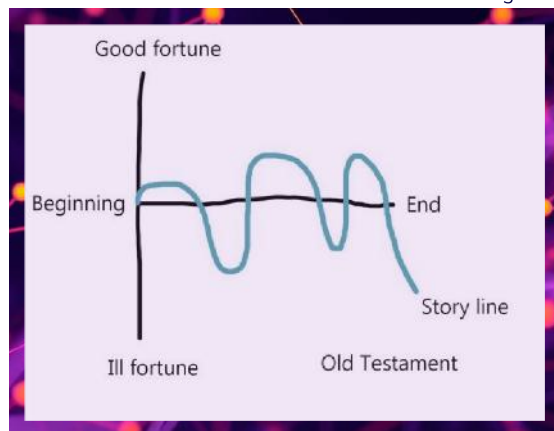
Source: Kurt Vonnegut

## Keyword

## Search

## Terms:

church fertility support, religious family planning, natural fertility methods, faith-based fertility



## THE FAMILY TABLE KEY VALUES

**Myth: Ego (Caregiver) - Women are the caregivers:** The Jungian archetype ego means a yearning to leave a mark on the world.

The most likely traits include:

- **Motto:** Love your neighbor as yourself
- **Core desire:** To protect and care
- **Goal:** To help others
- **Greatest fear:** Selfishness and ingratitude
- **Strategy:** Doing things for others
- **Weakness:** Martyrdom and being exploited
- **Talent:** Compassion, generosity
- **The innocent is also known as:** The saint, the altruist, the parent, the helper, the supporter.

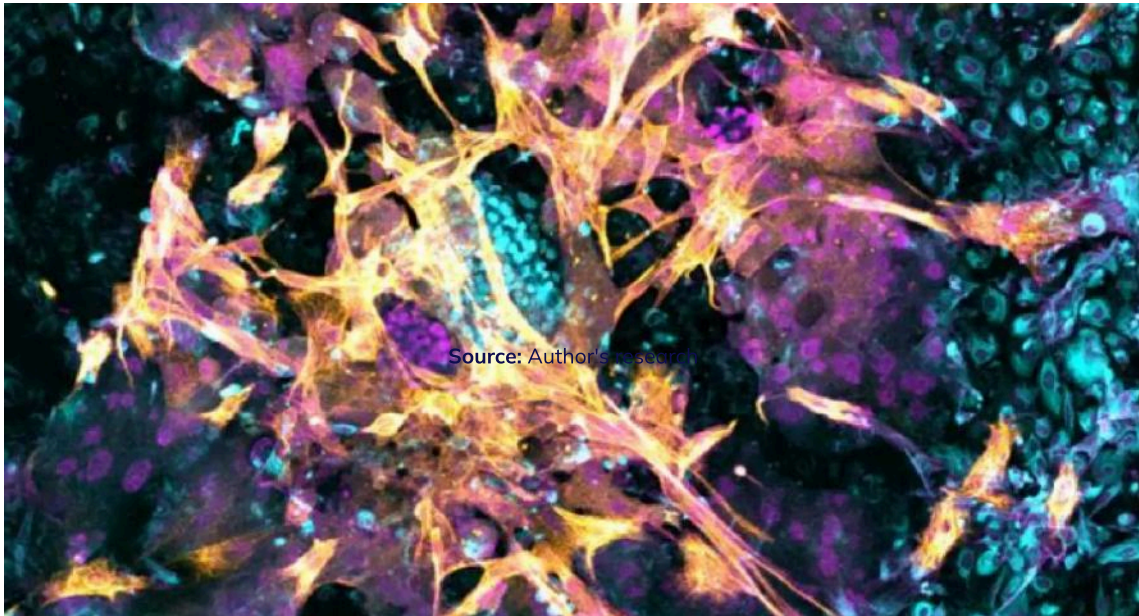
Source: Carl Gustav Jung

## Conservative Values Indicators:

- Growth in religious programs promoting natural family planning methods
- Increased emphasis on sermons and church teachings on traditional family formation
- Development of church-based support systems for couples experiencing infertility
- Increasing use of church-based genetic counseling on hereditary conditions and divine purpose
- Development of approved spiritual practices for couples undergoing fertility treatments

DISOWNED

# Morality



Source: Author's research

**Source Photo:** Matteo Molè/Babraham Institute. Microscopy image of a day-14 human embryo that has implanted in the new artificial womb.

## LITANY

Wonderbaby is Here, Baby of the Century, Human Embryo Models, A Benefit for Aging Women, Posthumous Reproduction, Eve, Womb City, Trans Women, Chinese Experiment, Pronatalism

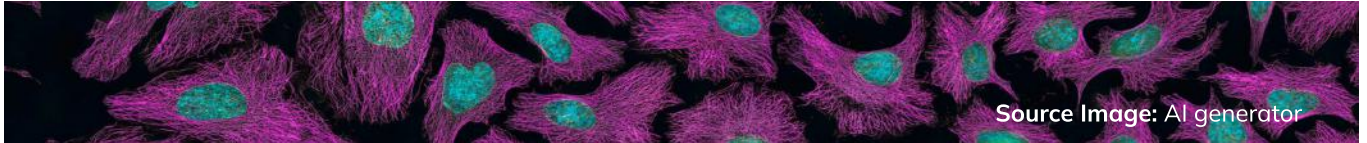
| Drivers                                                 | Systems                     |
|---------------------------------------------------------|-----------------------------|
| Genetic counseling & testing for family planning divide | Universal access            |
| Cradle of life                                          | Genetic health and autonomy |
| Family affordability                                    | Money and freedom           |
| Beyond one size                                         | Less restrictions           |
| Reimagining birth                                       | Normalize AWT               |
| Reproductive advantage                                  | choice and control          |

Source: Author's research



# The Garden

## METAPHORS, WORLDVIEWS, VONNEGUT'S STORY SHAPES, AND MYTH



The widening economic divides in who can access services despite universal access cause psychological impacts from too many reproductive choices, and lead to market-based tech development that only serves the wealthy.

**Worldview:** Modern values include rational choice, scientific advancement, individual rights, and technological solutions

**Vonnegut's Story Shape:** "Humankind receives incremental gifts from a deity, is suddenly ousted from good standing, but then receives off-the-chart bliss."

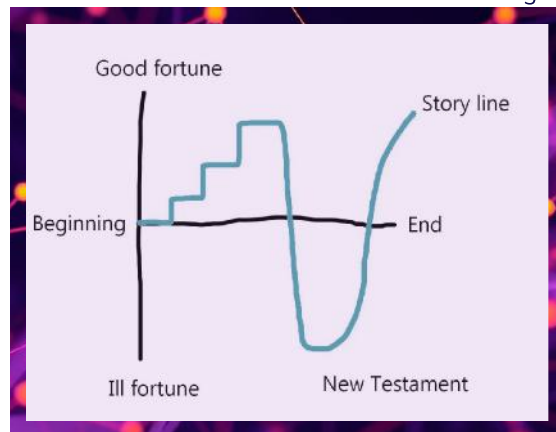
Source: Kurt Vonnegut

### Keyword

### Search

### Terms:

designer baby,  
reproduction  
rights,  
family diversity,  
fertility tourism,  
at-home genetic  
testing



### Conservative Values Indicators:

- Declining church membership among fertile young adults
- Increasing internal church debates about reproductive technologies
- Growing tensions between church teachings and members' reproductive choices
- Christian healthcare providers are facing pressure to offer services against their religious beliefs
- Increasing reproductive technology restrictions exacerbate church politics
- Multiple shifts in baptismal theology to accommodate children born through forbidden technologies
- Growing underground networks of church members privately sharing reproductive options

## THE GARDEN KEY VALUES

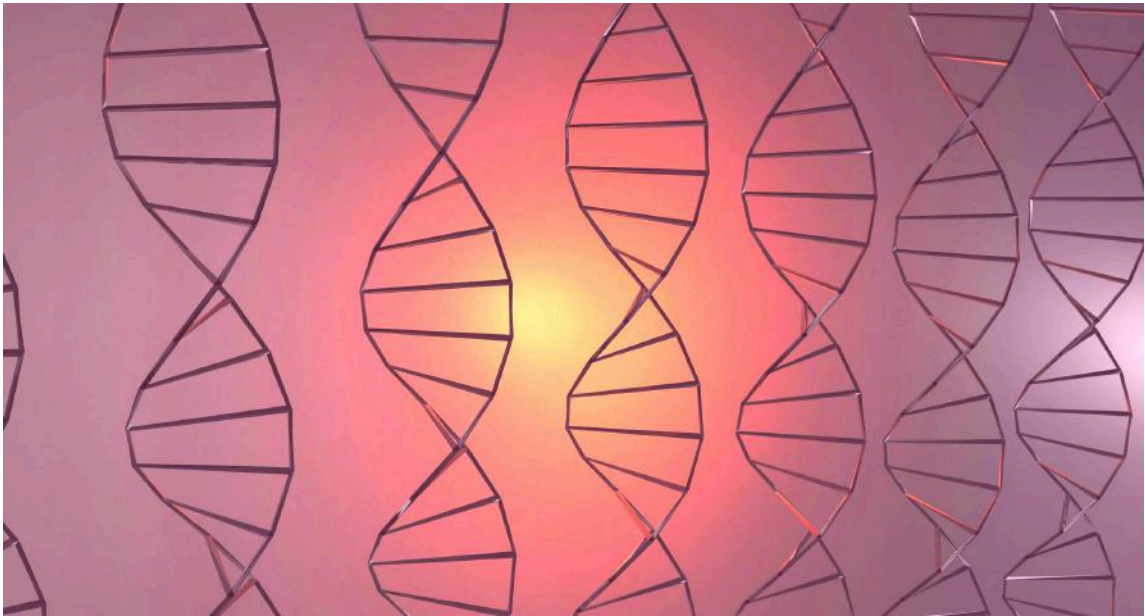
**Myth: Ego (Hero & Mastery)** - The Jungian archetype ego means a yearning to leave a mark on the world.

The most likely traits include:

- **Motto:** Where there's a will, there's a way
- **Core desire:** To prove one's worth through courageous acts
- **Goal:** Expert mastery in a way that improves the world
- **Greatest fear:** Weakness, vulnerability, being a "chicken"
- **Strategy:** To be as strong and competent as possible
- **Weakness:** Arrogance, always needing another battle to fight
- **Talent:** Competence and courage
- **The Hero is also known as:** The warrior, crusader, rescuer, superhero, soldier, dragon slayer, winner, and team player.

Source: Carl Gustav Jung

# Secularism with Boundaries



**Source Image:** Unsplash The Vata, Pitta, and Kaphal dosha brain types may explain why people respond differently to fertility interventions and enable more constitutionally aligned reproductive care.

LITANY

Womb Transplants Surge Despite Religious Restrictions, Artificial Womb Technology (AWT) is the New Moral, Pregnancy Breakthroughs, Outer Origin, Womb: The Inside Story, Ayurvedic, Surrogaacy

| Drivers                                                 | Systems                    |
|---------------------------------------------------------|----------------------------|
| Genetic counseling & testing for family planning divide | Ethics and access          |
| Cradle of life                                          | Human dignity and benefit  |
| Family affordability                                    | Exploitation protections   |
| Beyond one size                                         | Guardrails for differences |
| Reimagining birth                                       | Social consequences        |
| Reproductive advantage                                  | Reasoned ethics            |

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 METAPHORS, WORLDVIEWS, VONNEGUT'S STORY SHAPES, AND MYTH
 

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# Instincts Are Not Law

Jurisdictional regulations limit workable boundaries, leading to fragmentation across regions, reproductive tourism, and access inequalities. The tensions between science and ethics hinder efforts to improve the system.

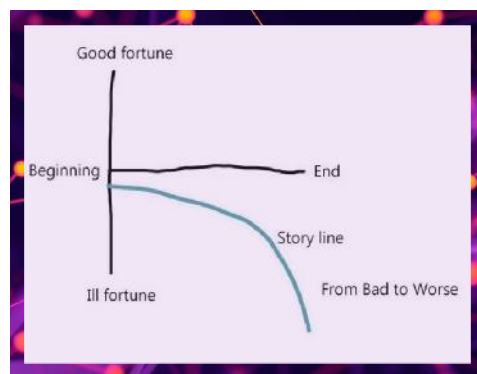
**Worldview:** (Postmodern Values) - Contextual ethics, mutual perspectives, and dynamics between choice, social, and environmental impacts

**Vonnegut's Story Shape:** "The main character starts off poorly, then gets continually worse with no hope for improvement."

Source: Kurt Vonnegut

## Keyword Search

**Terms:** ethical fertility limits, reproductive ethics board, balanced fertility regulations, Fertility technology safeguards, public bioethics input



Source: Kurt Vonnegut

## Postmodern Values Indicators:

- Christian ethicists participating in secular bioethics committees and regulatory bodies
- Development of denominational statements, classifying acceptable and unacceptable tech
- Increased interface dialogue, seeking common ground on reproductive ethics
- Christian healthcare systems are developing nuanced approaches to reproductive tech
- Christian educational materials, addressing scientific advances from a theological perspective
- The rise of specialized pastoral training programs, focusing on reproductive technology ethics
- The emergence of "faithful innovation" ministries, seeking theological grounding for reproductive tech

## INSTINCTS ARE NOT LAW

### KEY VALUES

**Myth: Ego (Everyman & Belonging)** -

The Jungian archetype ego means a yearning to leave a mark on the world.

The most likely traits include:

- **Motto:** All men and women are created equal
- **Core desire:** Connecting with others
- **Goal:** to belong
- **Greatest fear:** To be left out or to stand out from the crowd
- **Strategy:** Develop ordinary solid virtues, be down to earth, the common touch
- **Weakness:** Losing one's own self in an effort to blend in or for the sake of superficial relationships
- **Talent:** Realism, empathy, lack of pretense
- **The everyman is also known as:** The good old boy, regular guy/girl, the person next door, the realist, the working stiff, the solid citizen, the good neighbor, the silent majority, player.

Source: Carl Gustav Jung

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OUTLIER



Source Images: Adapted from Douglas Charles and Unsplash.

Biocapitalism: The Human Factory

LITANY

Alabama Fetal Personhood, 14 Days, AWT is Wo-man, Gene Edit Dreams, EctoLife, Sibling Hormones: Innovation or Research, Natural Birth-Bangladesh, The End of Sex, Reproductive Futurism, Antinatalism, Fetal Cannibalism, Malthusianism, Womb on Trial, Technological Womb

| Drivers                                                 | Systems          |
|---------------------------------------------------------|------------------|
| Genetic counseling & testing for family planning divide | Optimized humans |
| Cradle of life                                          | Future workforce |
| Family affordability                                    | Retention        |
| Beyond one size                                         | Workforce needs  |
| Reimagining birth                                       | Demography       |
| Reproductive advantage                                  | Human capital    |



# Changing the Script, Not Just the Actors

## METAPHORS, WORLDVIEWS, VONNEGUT'S STORY SHAPES, AND MYTH



Reproductive services tied to employment, stratification between employees with benefits, and funding prioritizes economic outcomes over human well-being.

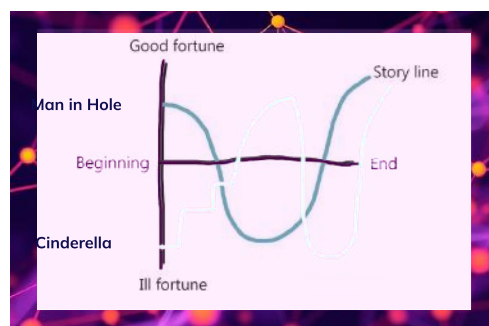
**Worldview:** (Neoliberalism) - AWT is a resource for addressing human capital shortages and optimizing workforce development.

**Vonnegut's Story Shape:** 1) "The main character starts in misery, gets a fortune, loses it, then finds more happiness than before (white line)." 2) "The main character gets into trouble, then gets out of it again and ends up better off for the experience (blue line)."

Source: Kurt Vonnegut

### Keyword Search

**Terms:** corporate fertility benefits, employer at freezing, workforce reproductive incentives, and genetic screening insurance



Source: Kurt Vonnegut

## INSTINCTS ARE NOT LAW

### KEY VALUES

**Myth: Self (Understanding)** - The Jungian archetype self means a yearning for paradise.

The most likely traits include:

- **Motto:** The truth will set you free
- **Core desire:** To find the truth
- **Goal:** To use intelligence and analysis to understand the world
- **Greatest fear:** Being duped or ignorant
- **Strategy:** Seeking out information and knowledge; self-reflection and understanding thought processes
- **Weakness:** Can study and never act
- **Talent:** Wisdom, intelligence
- **The sage is also known as:** The expert, scholar, detective, advisor, thinker, philosopher, academic, researcher, planner, professional, mentor, teacher, and contemplative.

Source: Carl Gustav Jung

### Neoliberal Values Indicators:

- Churches develop ministry responses to corporate reproductive benefits packages
- Christian financial advisor address reproductive benefits
- Church-affiliated hospitals are experiencing pressure to offer competitive reproductive services
- Religious schools, navigating genetic testing and enhancement pressures from parents
- Faith-based resistance movement against corporate reproduction, commodification
- Church endowments and pension funds are facing decisions about investment in reproductive tech
- Development of church-based mutual aid systems to help members afford fertility treatment outside of corporate benefits structures

Source: Author's research



# Mythic Narratives

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VONNEGUT

## CONSERVATIVE VALUES



Worldview: Traditional Values  
Metaphor: The Family Table

**Old Testament** - Traditionalists receive access to artificial womb technology as gifts in hopes of preserving families within their natural bonds. However, using artificial wombs separates reproduction from human connection, leading to a catastrophic fall from the established order.

## MORALITY



Worldview: Modern  
Metaphor: The Garden

**New Testament**- Everyone receives access to IVF, genetic screening, surrogacy, and AWT that expands their reproductive choices. However, they lose access due to additional restrictions and regulatory bands, yet achieve reproductive autonomy through justice frameworks.

## SECULARISM WITH BOUNDARIES



Worldview: Postmodern  
Metaphor: Instincts Are Not Law

**Bad to Worse**- Ethicists establish boundaries for AWT research to protect human dignity, and corporations exploit regulatory gaps to commodify reproduction. In response, government leaders fail to enforce protections, allowing widespread coercion, and marginalized populations lose bodily autonomy.

## BIOCAPITALISM-THE HUMAN FACTORY



Worldview: Neoliberalism  
Metaphor: Flip the Script, Not Just the Actors

**Cinderella** - Employers tie artificial womb access to employment benefits, expanding fertility options until inequality emerges. Employers compete by lowering costs and commodifying gestation.

**Man in the Hole** -Employers tie artificial womb access to employment benefits, eroding bodily autonomy and deepening stratification. Policy-makers remove gestation from employer control.

## FIVE STRATEGIC QUESTIONS AND OPTIONS

**Question 1:** How can traditional family structures adapt to declining birth rates while maintaining core values when considering reproductive technologies?

**Metaphor:** The Family Table

### Horizon 1: Getting Started

- Traditional families prefer natural fertility to build moral societies, but natural conception alone cannot address declining birth rates.

### Horizon 2: Key Strategic Activities/Actions

- Honor the family structure and thoughtfully integrate reproductive technology that restores natural fertility. Austria's restricted policies reflect this perspective, but struggle with declining birth and medical tourism.
- Define boundaries based on supporting rather than replacing natural processes and promote preventative steps to discourage medical tourism.
- Religious influence varies significantly across regional and national regulations, leading to an uneven application that supports rather than replaces natural fertility.
- Challenge jurisdictional regulations that limit workable boundaries for collaboration across regions.
- Develop frameworks that respect traditional values while allowing beneficial medical assistance to everyone.

### Horizon 3: Vision

- Innovators and medical professionals collaborate to implement necessary medical interventions within divine boundaries.



#### Consciousness: Two Babies Talking in the Womb...

It is a thought-provoking idea. What if you could remember? In a way, isn't that what consciousness is all about—remembering the truth of who we truly are?

#Womb consciousness



#### First UK birth following womb transplant

For the first time in the UK, a woman has given birth following a womb transplant. New mother Grace and father Angus have named their baby Amy Isabel after her sister Amy, w...

#Womb Transplant

imperial.nhs.uk · Jan 1



#### Finland offers more perks to stop its declining birth rate women shrug it off

Finland's shift from having top family-friendly policies to reaching a 1.32 birth rate reveals a paradox where social support no longer guarantees higher fertility. This...

#H2 #Autonette #womb #Social #Economic #Population #Communal Birthing



#### I used my 55-year-old mum's body to have a baby in my 20s – she risked everything to help ...

She was about to undergo an 11-hour operation, but not because of any health problem. Instead, she was having her uterus removed, so it could be donated to me.

thesun.co.uk · Mar 23, 2025

## FIVE STRATEGIC QUESTIONS AND OPTIONS

**Question 2:** How can we honor innovation in reproductive technologies while preventing them from creating new forms of inequality and genetic privileges?

**Metaphor:** The Garden

### Horizon 1: Getting Started

- Human innovation drives the development of reproductive technologies.

### Horizon 2: Key Strategic Activities/Actions

- Address the genetic conflict theory openly as it relates to healthcare disparities and its influence on two-tiered systems that expand economic divides despite universal access.
- Inoculate reproductive tiered systems from gene privilege and abundant options that limit access by monitoring participants, accessibility, purpose, and outcomes.
- Reinvigorate healthcare systems to meet the demands for reproductive therapies and interventions while monitoring market-based development.

### Horizon 3: Vision

- We establish ethical boundaries beyond traditional prohibitions and temper technological enthusiasm to navigate a middle ground.

Fake news for now.

Utopia or dystopia?

Baby pods are here.



Source: Sophie Barthes, Benedek Fliegauf, Nurse.org Staff, and Marveline Merab

Source: Author's research

## FIVE STRATEGIC QUESTIONS AND OPTIONS

**Question 3:** How can society navigate the tension between technological innovation and reproduction, and the ethical boundaries needed to prevent harmful consequences?

**Metaphor:** Instincts Are Not Law

### Horizon 1: Getting Started

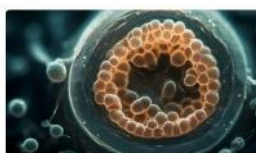
- Technological choice enhances reproductive freedom while creating new dependencies.

### Horizon 2: Key Strategic Activities/Actions

- Expand reproductive choice options while ensuring technology serves human flourishing rather than commercial interest. The UK's financial incentive approach to encouraging women to have more babies creates options but raises concerns about commercialization.
- Develop technologies that expand access while preserving connections to natural processes. Finland's reproductive healthcare benefits demonstrate how access can be equitable, but it still faces declining birth rates.
- Monitor tensions between traditionalists, other worldviews, and values regarding genetic technologies.
- Create dialogue spaces where religious and scientific leaders can find common ground. National policies reflect secular and religious political discourse.

### Horizon 3: Vision

- Innovators create reproductive advantages by pairing technology with equitable access and design solutions that benefit multiple generations.



**The science of IVF: What to know about Alabama's 'extrauterine children' ruling**  
The Alabama Supreme Court landmark ruling that frozen embryos are "extrauterine children" represents a profound legal shift that threatens access to in vitro...  
#womb #H3 #Human Development Systems #Extrauterine Children #Autonnette  
npr.org · Mar 11, 2025



**Advent Week 2: Embodying the Communal Womb**  
In the first week we wait in the dark. There can be much tension in the dark, but we should also remember it is a time to gestate the habit of rest, allowing life to move through...  
#Womb Art  
kellyisola.com · Jan 1



**The Archetype of the Womb**  
Once, there was an archetype of a nurturing womb in the collective human psyche, offering comfort and assurance. This archetype was a strong and persistent one. Modern...  
#Archetype of the Womb  
medium.com · Jan 1



**The Womb — Rebecca Louise Law**  
In her solo exhibition at Frederik Meijer Gardens & Sculpture Park the artist integrates glass sculptures, ceramics, paintings, and dried flowers to symbolically link the...  
#Womb Art  
rebeccalouiselaw.com · Jan 1

Source: Author's research



## FIVE STRATEGIC QUESTIONS AND OPTIONS

**Question 4:** How can reproductive technology support population needs while respecting ecological limits and fostering intergenerational sustainability?

**Metaphor:** Nurturing Life within Limits

### Horizon 1: Getting Started

- Sustainable reproduction balances human population needs within planetary boundaries.

### Horizon 2: Key Strategic Activities/Actions

- Consider immediate human needs and long-term ecological impacts in reproductive policies. Nordic countries like Finland lead in integrating environmental considerations into family policies.
- Focus dialogues on intergenerational sustainability to connect human reproduction to broader ecological systems.
- Develop traditional wisdom and scientific understanding of sustainability narratives.
- Create reproductive narratives that drive major policy shifts toward ecological balance. Countries with stronger environmental movements show greater integration of ecological concerns and reproductive policies.

### Horizon 3: Vision

- Everyone has access to technological interventions that undergo comprehensive ecological assessments before becoming sustainable solutions.



#### It Is Too Soon for Clinical Trials on Artificial Wombs

By Vardit Ravitsky and Louise King  
Implementing artificial technology raises questions about forced medical interventions and reproductive autonomy in an...  
#H2 #Autonnette #womb #Technological #Clinical Trials #



#### Artificial placenta: A new lifeline for premature babies?

The front line of artificial womb development involved competing approaches. CHOP's fluid-filled pod has an umbilical connection, Michigan's artificial placenta has...  
#H2 #Technological #Artificial Placenta #Autonnette #womb



#### Groundbreaking study advances human in vitro gametogenesis for infertility treatment

Infertility affects approximately 1 in 6 people in their lifetime worldwide, according to the World Health Organization (WHO). Infertility - as defined by the American Society f...  
news-medical.net · Mar 10, 2025



#### Uterus transplantation: current status in 2024 | European Journal of Transplantation

Uterus transplantation (UTx) has evolved as an effective treatment for women with absolute uterine-factor infertility (AUI). From its tentative beginnings, this approach...  
#womb #H3 #Transplantation  
eujtransplantation.com · Mar 23, 2025



## FIVE STRATEGIC QUESTIONS AND OPTIONS

**Question 5:** How can society use reproductive technologies to address population needs without modifying human life or creating new iniquities?

**Metaphor:** Changing the Script, Not Just the Actors

### Horizon 1: Getting Started

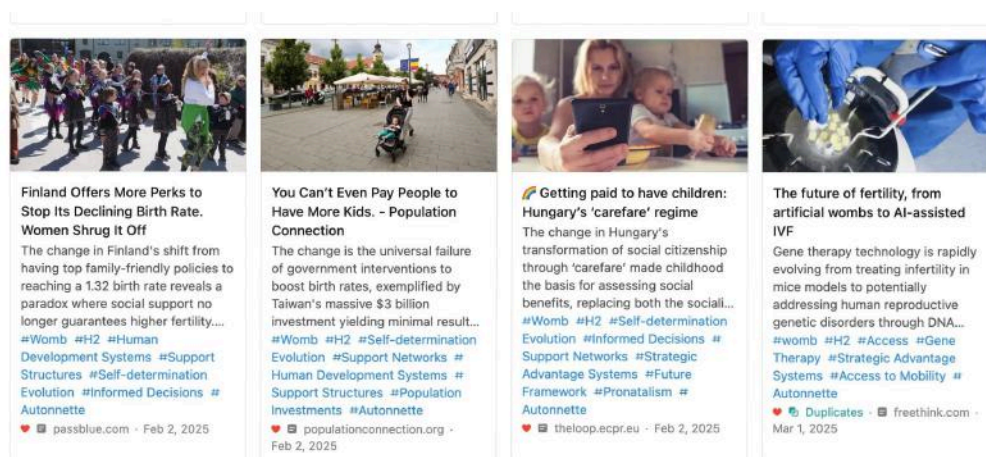
- Economic approaches to reproduction solve demographic challenges while risking human modification.

### Horizon 2: Key Strategic Activities/Actions

- Address demographic needs while ensuring technologies enhance rather than reduce human dignity. Corporate influence and reproductive technologies vary significantly between market-oriented and social-welfare states.
- Effective systems must balance people and productivity needs, address workforce needs, and preserve reproduction as a human function rather than an economic one.
- Decrease reproductive healthcare disparities to counter employment tied to reproductive services.
- Develop universal frameworks that respect diverse values and approaches. Countries with national healthcare systems, like Finland, show more equitable access patterns than market-dominated systems.

### Horizon 3: Vision

- Our reproductive systems balance productivity needs with fundamental human dignity.



# Conclusion

Faith leaders face critical decisions about reproductive technologies as societies navigate declining fertility rates through 2035. At the heart of this report is a central ethical question: How should faith communities discern which uses of reproductive technology honor human dignity and relational values in an era of rapid demographic change? I applied a causal layered analysis to uncover worldviews and the myths shaping them. This method reveals deeper layers beneath surface debates, enabling faith communities to engage thoughtfully with emerging technologies. By integrating theological principles with social realities, leaders can guide ethical discernment that respects both individual dignity and communal bonds amid evolving demographic landscapes.

These future narratives will continue to evolve in response to the dynamics of interest in AWT in the following ways:

- Traditional family structures adapt to declining birth rates while maintaining core values by considering reproductive technologies that restore natural fertility.
- We respect the innovation in reproductive technologies while also preventing leaders from creating new forms of inequality and genetic privileges. By openly addressing genetic conflict theory as it relates to healthcare disparities and its influence on systems that expand economic divides despite universal access, everybody wins.
- Society can navigate the tension between technological innovation and reproduction, and the ethical boundaries needed to prevent harmful consequences, by expanding reproductive choice options while ensuring that technology serves human flourishing rather than commercial interests.
- Leaders can apply reproductive technology options to support population needs while respecting ecological limits and fostering intergenerational sustainability.
- Society can use reproductive technologies to address demographic needs without modifying human life or creating new injustices by offering options that enhance rather than diminish human dignity.



"Not ideas, but material and ideal interest, directly govern men's conduct. Yet very frequently the world images that have been created by ideas have, like a switchman, determined the tracks along which action has been pushed by the dynamics of interest."

~Max Weber

# Appendix A

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## THE FUTURE OF THE WOMB

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# Appendix A

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## THE FUTURE OF THE WOMB

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300 scan hits

Interviews: Dr. Rubye Braye, Dr. Leslie Dillard, Pastor Deborah Gibbs, Bishop Larry Jackson, Simone McKelevy, Priest Skip Walker, Kia Walker, Elder Alandra Williams, and Fred Whitted



# Appendix B

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## REPRODUCTIVE OPTIONS AND EXPLANATIONS

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# Artificial Womb Technology



The world's first artificial womb for humans: Scientists in the Netherlands say they are within 10 years of developing one that could save the lives of premature babies. Premature birth, before 37 weeks, is globally the biggest cause of death among newborns. But the development also raises ethical questions about the future of baby-making. **Source Photo:** Lisa Mandemaker and The Maxima Medical Centre.

- **Bio bag** (polyethylene fluid-filled system)-Polyethylene fluid-filled system developed by CHOP (Children's Hospital of Philadelphia) that maintains premature infants in a womb-like environment with an umbilical connection
- **EVE therapy** (artificial placenta with breathing tubes)-Artificial placenta system using specialized breathing tubes, targets earlier gestational ages
- **EMO-free blood connection system**-China's approach that connects fetal blood directly to the parent's blood system using a membrane structure, eliminating expensive ECMO equipment
- **Double-sac/ liquid fuel chamber system**-Sophisticated two-chamber design with adaptive expansion that allows fetal movement and prevents surfactant washout

# Appendix C

## REPRODUCTIVE OPTIONS AND EXPLANATIONS

# Reproductive Alternatives



Source Image: AI generated

Uterus transplants are becoming more common, opening up the possibility of pregnancy and parenthood to people with certain health conditions. **Source Photo:** Carol Yepes and Tanya Lewis

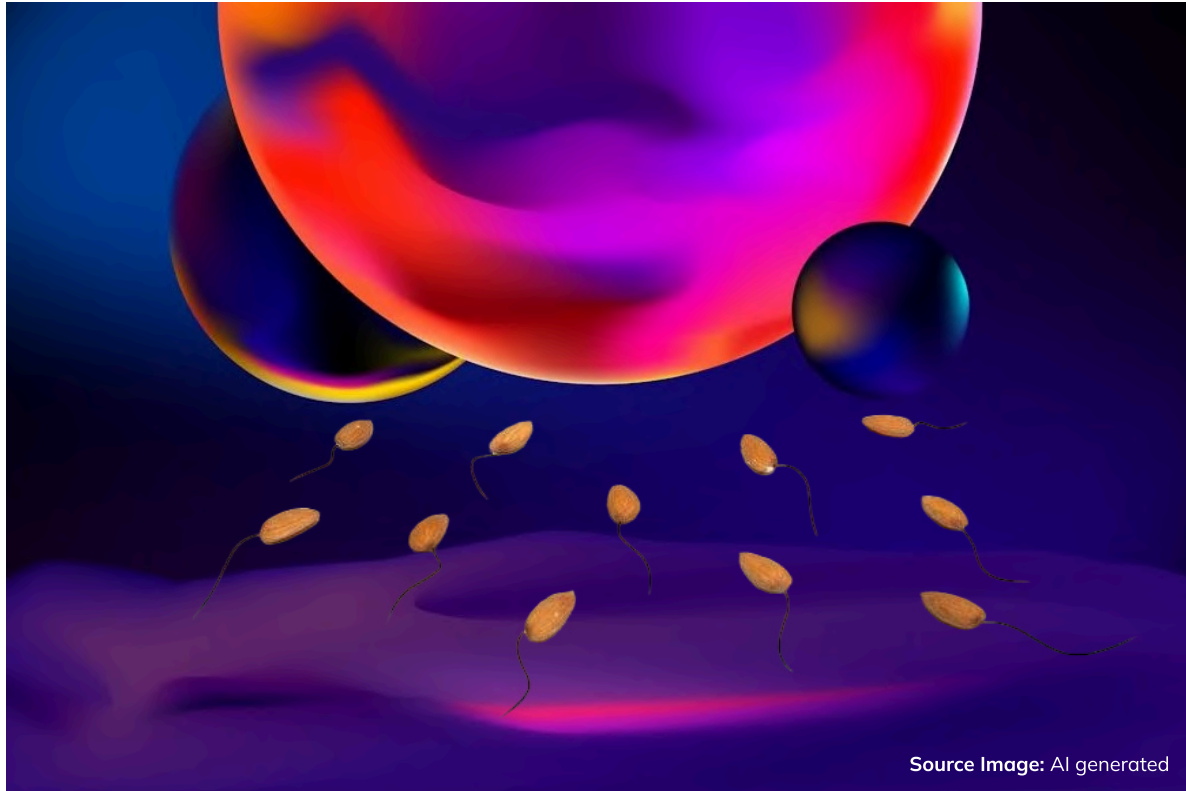
- **Womb transplants**-Surgical transplantation of a uterus for those needing a womb
- **Gene therapy**-Tech to insert or replace embryonic DNA to prevent diseases or enhance traits
- **Gene editing**- A method of gene therapy
- **IVG** (in vitro gametogenesis)-Creating egg or sperm cells from stem cells in a laboratory
- **IVF** (in vitro fertilization)-Fertilizing eggs with sperm outside the body and implanting embryos in the uterus
- **Genetic selection and screening**-Testing embryos to select for desired traits or screen out genetic diseases
- **Intracytoplasmic sperm injection**-Injecting a single sperm directly into an egg to facilitate fertilization
- **Stem cell therapy**-Using stem cells to improve reproductive health or fertility
- **Blood platelet therapy**-Using platelet-rich plasma to enhance uterine lining or ovarian function
- **Human growth hormones**-Hormone treatments to support fertility or fetal development
- **AI Fertility Tools**-Digital platforms using artificial intelligence to optimize fertility treatment and timing

Source: Author's research

# Appendix D

## REPRODUCTIVE OPTIONS AND EXPLANATIONS

# Progressive Reproduction



Source Image: AI generated

Researchers found that perspectives on posthumous reproduction are influenced by social, cultural, and ethical considerations. Most of society generally maintains a reserved and critical stance on this issue, with stronger opposition to male surrogacy. The ethical and legal implications of posthumous reproduction highlight the need for legal regulations and public awareness initiatives.

Source: Arif Hüdai Köken, Özlem Kara, Nebahat Ince , and Mustafa Kara

- **Posthumous reproduction**-Using stored genetic material to conceive children after a person's death
- **Designer babies** (gene editing)-Genetic engineering to create children with selected enhanced traits beyond disease prevention
- **Embryo modeling** (lab-grown bios for research)-Creating lab-grown embryo-like structures for research or therapeutic purposes
- **Fetal organ transplantation** (fetus to fetus kidney transplants)-Performing organ transplants between fetuses in utero
- **Lab-grown fetuses**-Developing complete fetuses entirely in laboratory conditions from the embryonic stage
- **Ovarian rejuvenation** (postponing menopause)-Treatments to restore ovarian function and postpone menopause
- **Ovarian blood vessels** (oBV enhancements)-Improving blood flow to the ovaries to enhance fertility
- **Complete ectogenesis** (full gestation outside the womb)-Growing a fetus entirely outside a human body from conception to birth

Source: Author's research



# Appendix E

## STRATEGIC ADVANTAGE FOR HUMANITY: FACTS AND ALTERNATIVES

- Fact: Natural family formation builds moral societies but cannot address declining birth rates alone.
- Alternative: Medical interventions may be necessary, but must respect divine boundaries.
- Fact: Human innovation produces reproductive technologies.
- Alternative: Ethicists place ethical boundaries beyond traditional prohibitions and unchecked technological enthusiasms to create a middle ground.
- Fact: Families gain reproductive freedom through technological options and may become dependent on artificial systems.
- Alternative: Innovators create a strategic advantage for humanity by combining technological innovation with equitable access and developing solutions that benefit multiple generations.
- Fact: Policymakers address demographic challenges through economic approaches to reproduction, risking human commodification.
- Alternative: Stakeholders may benefit from designing effective systems that balance productivity needs with fundamental human dignity.



**Exclusive: A record-breaking baby has been born from an embryo that's over 30 years old**  
The embryos were created in 1994, while the expectant father was still a toddler, and donated via a Christian "embryo adoption" agency.  
#Embryo Adoption #Values  
technologyreview.com · Dec 28, 2025



**AquaWomb: Artificial womb in glass tank could save premature babies**  
A Netherlands-based startup, Aqua Womb, is exploring the potential of making a womb-like life support system for extremely premature infants.  
#AquaWomb #Technological #Values  
interestingengineering.com · Jan 1



**Ectogenesis at Home? Artificial Wombs and Access to Care - Medical Humanities**  
Speculative artificial womb design; Concept and design installation: Hendrik-Jan Grievink, Lisa Mandemaker (Next Nature Network); Photography: Bram Sae...  
#ArtificialWombTechnology (AWT) #Technological #Values  
blogs.bmj.com · 11:27 AM



**Fetal development by week: Your baby in the womb**  
Nestled comfortably in the womb, your baby is constantly growing and changing. Use this timeline to learn what your baby's up to and how they're developing throughout...  
#Babycenter App #Technological #Womb #h2 #Human Development Systems #Autonnette  
babycenter.com · Jan 1



**Can trans women get pregnant? Here's everything you need to know about womb transplants**  
Womb transplant technology is advancing from successful procedures for gender women to potential future applications for transgender women, but those...  
#Womb #H3 #Access #Womb Technology Options #Transplant #Transgender #Strategic Advantage Systems #Uterine Infertility #Access to Mobility #Autonnette  
Duplicates ·

# Appendix F

## STEEPVC: Artificial Womb Technology (AWT)

| Category                                                                         | Focus Areas                                                                                  | The Change                                                                                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Social (S)</b><br>Source: OECD<br>Movie titles: The Pod Generation, Womb      | Total fertility rates (TFR)<br>Emerging family structures<br>Reproductive self-determination | Declining TFR: <ul style="list-style-type: none"><li>3.3 children per woman in 1960</li><li>1.5 children per woman in 2022</li><li>0.7 children per woman in 2023</li></ul> |
| <b>Technological (T)</b><br>Movie title: Gattaca                                 | Fertility technology<br>Reproductive healthcare<br>AI fertility tools                        | AWT FDA approval<br>100 Womb transplants–50% success<br>IVG mouse to human progress<br>Gene therapy trials begins<br>ECMO to ECMO-free innovations                          |
| <b>Economic (E)</b><br>AWT avg cost: \$8300 initial and \$1400–\$2800 daily      | Workforce participation<br>Labor costs<br>Competitive markets                                | Silicon Valley investment shift from medical to consumer<br>Gender bias in funding increase<br>Employment tied to reproductive benefits limits access                       |
| <b>Environmental (E)</b><br>Movie title: Children of Men                         | Resource availability<br>Mortality impacts<br>Population needs                               | 2.4 million annual deaths in 2020 from preterm issue<br>37 lived in 2024<br>Resource requirements limit technology infrastructure<br>Geographic distribution barriers rise  |
| <b>Political (P)</b><br>TV: The Handmaid's Tale                                  | Control mechanisms<br>Legal framework<br>Government authority<br>Political role              | State personhood laws limit access<br>Regulatory uncertainty kills progress<br>FDA approval extends research                                                                |
| <b>Values (V)</b><br>Reproductive futurism, queer futurity, reproductive justice | Worldview diversity<br>Rights frameworks<br>Decisions autonomy                               | Prenatalism and antinatalism rise<br>Religious and cultural resistance rise<br>Natural over tech births stirs voices                                                        |
| <b>Cultural (C)</b><br>Book titles: Womb City, Eve, Womb                         | Pressure dynamics<br>Influence patterns<br>Community norms                                   | Traditional family norms decrease<br>Literary and cultural responses to reproduction in the US/UK increase                                                                  |



# Appendix G

## STEEPVC: Artificial Womb Technology (AWT)

| Category                                                                         | Focus Areas                                                                                  | Mobility and Self-Determination                                                                                                                                                                                          |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Social (S)</b><br>Source: OECD<br>Movie titles: The Pod Generation, Womb      | Total fertility rates (TFR)<br>Emerging family structures<br>Reproductive self-determination | <ul style="list-style-type: none"><li>Populations gain stability through voluntary fertility decline enabled by reproductive self-determination, despite government leaders attempting to increase birth rates</li></ul> |
| <b>Technological (T)</b><br>Movie title: Gattaca                                 | Fertility technology<br>Reproductive healthcare<br>AI fertility tools                        | <ul style="list-style-type: none"><li>Individuals access fertility technologies and AI-powered healthcare to exercise reproductive mobility and self-determination</li></ul>                                             |
| <b>Economic (E)</b><br>AWT avg cost: \$8300 initial and \$1400–\$2800 daily      | Workforce participation<br>Labor costs<br>Competitive markets                                | <ul style="list-style-type: none"><li>Workers gain reproductive mobility and self-determination when employers in competitive markets can offer fertility benefits, despite high labor cost</li></ul>                    |
| <b>Environmental (E)</b><br>Movie title: Children of Men                         | Resource availability<br>Mortality impacts<br>Population needs                               | <ul style="list-style-type: none"><li>People gain reproductive mobility and self-determination when their environment is stable enough to support both biological fertility and healthcare infrastructure</li></ul>      |
| <b>Political (P)</b><br>TV: The Handmaid's tale                                  | Control mechanisms<br>Legal frameworks<br>Government authority<br>Political roles            | <ul style="list-style-type: none"><li>People can access reproductive care when government leaders support cross-border mobility and autonomous decisions</li></ul>                                                       |
| <b>Values (V)</b><br>Reproductive futurism, queer futurity, reproductive justice | Worldview diversity<br>Rights frameworks<br>Decision autonomy                                | <ul style="list-style-type: none"><li>People gain access to reproductive mobility when rights frameworks protect diverse worldviews and autonomous decisions</li></ul>                                                   |
| <b>Cultural (C)</b><br>Book titles: Womb City, Eve, Womb                         | Pressure dynamics<br>Influence patterns<br>Community norms                                   | <ul style="list-style-type: none"><li>People navigate cultural pressures and community influences to access reproductive mobility and exercise self-determination</li></ul>                                              |

# Appendix H

## STEEPVC: Artificial Womb Technology (AWT)

| Category                                                                         | Focus Areas                                                                                  | Strategic Advantage                                                                                                                                        |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Social (S)</b><br>Source: OECD<br>Movie titles: The Pod Generation, Womb      | Total fertility rates (TFR)<br>Emerging family structures<br>Reproductive self-determination | <ul style="list-style-type: none"><li>Populations gain stability when individuals exercise reproductive choices and determine family structures</li></ul>  |
| <b>Technological (T)</b><br>Movie title: Gattaca                                 | Fertility technology<br>Reproductive healthcare<br>AI fertility tools                        | <ul style="list-style-type: none"><li>Populations gain reproductive mobility when healthcare systems adopt fertility technology and tools</li></ul>        |
| <b>Economic (E)</b><br>AWT avg cost: \$8300 initial and \$1400–\$2800 daily      | Workforce participation<br>Labor costs<br>Competitive markets                                | <ul style="list-style-type: none"><li>Workforce populations gain self-determination and mobility when labor benefits include reproductive access</li></ul> |
| <b>Environmental (E)</b><br>Movie title: Children of Men                         | Resource availability<br>Mortality Impacts<br>Population Needs                               | <ul style="list-style-type: none"><li>Populations gain reproductive access when infrastructure resources are available</li></ul>                           |
| <b>Political (P)</b><br>TV: The Handmaid's tale                                  | Control mechanisms<br>Legal frameworks<br>Government authority<br>Political role             | <ul style="list-style-type: none"><li>Populations gain stability when governments protect access to mobility and self-determination</li></ul>              |
| <b>Values (V)</b><br>Reproductive futurism, queer futurity, reproductive justice | Worldview diversity<br>Rights framework<br>Decisions autonomy                                | <ul style="list-style-type: none"><li>People gain self-determination when their worldviews enable reproductive rights and decisions</li></ul>              |
| <b>Cultural (C)</b><br>Book titles: Womb City, Eve, Womb                         | Pressure dynamics<br>Influence patterns<br>Community norms                                   | <ul style="list-style-type: none"><li>People gain self-determination when community support reproductive autonomy despite cultural pressures</li></ul>     |

# Appendix I

## STEEPVC: Artificial Womb Technology (AWT)

| Category                                                                    | Focus Areas                                                                                  | Stability and Development                                                                                                                                                                     |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Social (S)</b><br>Source: OECD<br>Movie titles: The Pod Generation, Womb | Total fertility rates (TFR)<br>Emerging family structures<br>Reproductive self-determination | <ul style="list-style-type: none"><li>▪ Choice-base society sustained stable populations</li><li>▪ Control-base society face demographic decline</li></ul>                                    |
| <b>Technological (T)</b><br>Movie title: Gattaca                            | Fertility technology<br>Reproductive healthcare<br>AI fertility tools                        | <ul style="list-style-type: none"><li>▪ Populations with access to technology achieve better health outcomes</li><li>▪ Populations without technology face health disparities</li></ul>       |
| <b>Economic (E)</b><br>AWT avg cost: \$8300 initial and \$1400–\$2800 daily | Workforce participation<br>Labor costs<br>Competitive markets                                | <ul style="list-style-type: none"><li>▪ Wealthy populations gain advantages across generations</li><li>▪ Poor populations fall further behind across generations</li></ul>                    |
| <b>Environmental (E)</b><br>Movie title: Children of Men                    | Resource availability<br>Mortality Impacts<br>Population Needs                               | <ul style="list-style-type: none"><li>▪ Policy makers influence resource allocation</li><li>▪ Clinicians make medical decisions with those resources</li></ul>                                |
| <b>Political (P)</b><br>TV: The Handmaid's tale                             | Control mechanisms<br>Legal frameworks<br>Government authority<br>Political role             | <ul style="list-style-type: none"><li>▪ Governments lose legitimacy among technology-seeking populations</li><li>▪ Restricted populations emigrate to technology permissive nations</li></ul> |

# Appendix I

## STEELVC: Artificial Womb Technology (AWT)

### Category

### Focus Areas

### Stability and Development

#### Values (V)

Reproductive futurism, queer futurity, reproductive justice

Worldview diversity  
Rights framework  
Decisions autonomy

- Nations that permit worldview diversity create stable reproductive frameworks
- Nations that enforce single worldviews face endless conflict as technology makes diversity impossible to suppress

#### Cultural (C)

##### Book titles:

*Womb City, Eve, Womb*

Pressure dynamics  
Influence patterns  
Community norms

- Communities embracing diverse reproductive worldviews maintain social cohesion
- Communities enforcing reproductive worldviews face permanent fragmentation



Source Photo: Effektiver Altruismus München

Source: Author's research