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From the Screen to the State: How Science Fiction Films Inspire and Influence Science and Technology Policy

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ABSTRACT

This article examines how science fiction films influence science and technology policy by shaping public imaginaries and providing narrative frameworks for anticipating technological futures. Drawing on the Narrative Policy Framework and the concept of sociotechnical imaginaries, the study uses qualitative narrative inquiry to analyze selected films, including Gattaca, Interstellar, Ex Machina, and Arrival. The findings show that these films construct narratives that resonate with policy debates on artificial intelligence, genetic engineering, and space exploration. Three mechanisms of influence are identified: (1) films function as narrative infrastructures that help policymakers visualize long-term technological consequences; (2) they contribute to narrative persuasion and risk framing, shaping how technological risks and opportunities are communicated; and (3) they provide cultural metaphors that act as policy heuristics in reports, guidelines, and public discourse. Evidence from policy documents, such as the EU AI Act and UNESCO's ethics guidelines, illustrates these connections. The study also notes limitations, including risks of oversimplification and cultural bias. Overall, the findings highlight the value of integrating cultural narratives into anticipatory governance and promoting interdisciplinary dialogue between science, policy, and the arts.

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I. INTRODUCTION

Science fiction (sci-fi) films have historically functioned as more than mere entertainment; they are cultural texts that project imaginative visions of future technologies and explore their societal, ethical, and political implications (Telotte, 2014). These cinematic narratives not only reflect existing cultural anxieties and hopes about science and technology but also actively participate in shaping public imaginaries and, consequently, the policy debates surrounding emerging technologies (Jasanoff, 2015; Kirby, 2011). The growing recognition within Science and Technology Studies (STS) of the interplay between cultural representations and policymaking underscores the importance of analyzing sci-fi films as influential agents in the sociotechnical landscape.

A central concept for understanding this interplay is the notion of sociotechnical imaginaries, defined by Jasanoff & Kim (2009) as collectively held, institutionally stabilized, and publicly performed visions of desirable futures shaped through science and technology. These imaginaries are not mere reflections but performative forces that actively shape innovation trajectories, regulatory frameworks, and governance strategies. Sci-fi films serve as rich sites where such imaginaries are articulated visually and narratively, offering accessible and compelling depictions of possible technological futures, their benefits, and risks (Kirby, 2011; Jasanoff, 2015). For example, films like *Ex Machina* (2014) and *The Matrix* (1999) vividly engage with themes of artificial intelligence, surveillance, and human-machine boundaries, all of which are key topics in current policy discussions (Brey, 2017).

In parallel, the Narrative Policy Framework (NPF) provides a robust theoretical lens to examine how stories influence policymaking processes. According to Jones & McBeth (2010), policy narratives—comprising characters, settings, plots, and morals—structure how policy actors and publics interpret complex issues and mobilize action. Sci-fi films, with their evocative storytelling and speculative scenarios, contribute to shaping public and policymaker perceptions by constructing narratives that make abstract technological challenges more tangible and emotionally resonant (Franzen, 2019; Shanahan, Jones, & McBeth, 2013).

Despite these theoretical advancements, empirical research that rigorously investigates how science fiction films influence science and technology policy remains limited. The lacuna is striking given the increasing visibility of sci-fi themes in policy discourse, such as AI ethics, data privacy, and biotechnology governance (Ribeiro & Soromenho-Marques, 2022). This study aims to address this gap by employing a narrative inquiry methodology to systematically analyze how selected sci-fi films narrate technological futures and how these narratives resonate with or diverge from real-world science and technology policy discourse.

Narrative inquiry, as a qualitative research approach, is well suited for this task as it focuses on understanding how stories are constructed, communicated, and interpreted within social contexts (Clandinin & Conelly, 2000). Unlike traditional content analysis, narrative inquiry attends to the narrative structures and performative elements of stories, illuminating how meaning is made through plot development, character archetypes, and moral dilemmas (Riessman, 2008). Applying this methodology to sci-fi films allows for a nuanced exploration of how cinematic narratives shape sociotechnical imaginaries and inform policy frames.

This research examines a purposive sample of influential sci-fi films produced in the last two decades, such as *Ex Machina* (2014), *Arrival* (2016), and *Black Mirror* (various episodes), focusing on their portrayal of emerging technologies and ethical questions. Through close textual and thematic analysis, it identifies key narrative elements that contribute to imagining technological futures. Concurrently, the study analyzes policy documents, official speeches, and media coverage related to science and technology policy to detect narrative parallels, metaphor usage, and framing patterns that suggest the permeation of cinematic imaginaries into policy arenas.

The study is guided by three research questions:

1. How do science fiction films construct narratives that influence policymakers' and public imaginaries of emerging technologies?
2. In what ways do these narratives intersect with, support, or challenge science and technology policy discourses?
3. What ethical and sociopolitical themes embedded in sci-fi narratives are reflected in or absent from policy discussions?

This multidisciplinary inquiry bridges film studies, STS, and policy analysis, underscoring the co-constitutive relationship between cultural

narratives and technology governance. It argues that sci-fi films do not passively mirror technological futures but actively participate in their social construction by framing which futures are conceivable, desirable, or perilous (Jasanoff & Kim, 2009; Kirby, 2011).

For instance, the films' narrative portrayal of artificial intelligence often embodies ethical tensions around autonomy, surveillance, and human identity—concerns echoed in current AI governance debates (Brey, 2017; Mittell , 2015). Likewise, themes of communication and otherness in *Arrival* resonate with policy discussions on international cooperation and cross-cultural understanding in science diplomacy (Tavani, 2016).

Analyzing policy documents alongside cinematic narratives reveals the degree to which cultural imaginaries influence agenda-setting, problem definition, and policy framing. This approach demonstrates how policymakers may draw upon popular narratives to legitimize technological optimism or caution, shaping regulatory approaches and public engagement strategies (Hoffman & Graham, 2016).

The contributions of this study are twofold. Theoretically, it extends sociotechnical imaginaries and the Narrative Policy Framework by incorporating film as an active cultural agent influencing policy formation. Practically, it provides policymakers and science communicators with insights into the power of narrative and imagination in shaping public expectations and ethical considerations, advocating for more reflexive and anticipatory governance (Ribeiro & Soromenho-Marques, 2022).

The article proceeds as follows: first, it reviews literature on sociotechnical imaginaries, narrative policy frameworks, and media influence on policy. Next, the methodology section elaborates on the narrative inquiry approach to film and policy analysis. The findings section presents key narrative themes from the film analysis and their reflections in policy discourse. The discussion interprets these findings and their implications for science and technology governance. The conclusion summarizes contributions, acknowledges limitations, and suggests avenues for future research.

II. ANALYTICAL FRAMEWORK

A. Science Fiction Films and Sociotechnical Imaginaries

Science fiction (sci-fi) films have gained recognition as influential cultural vehicles that shape and reflect *sociotechnical imaginaries*—the collectively held visions of desirable futures enabled by science and technology (Jasanoff & Kim, 2009). These imaginaries influence societal expectations, norms, and the governance frameworks surrounding emerging technologies (Jasanoff, 2015). Kirby (2011) argues that sci-fi cinema does more than mirror scientific realities; it actively constructs alternative futures that inspire scientists, innovators, and policymakers by visualizing what might be possible or cautionary.

Dourish & Bell (2011) further stress that sci-fi films engage audiences by transforming abstract scientific and technological ideas into emotionally resonant narratives, making complex futures tangible. Through their storytelling techniques, such films crystallize public hopes and anxieties about technologies such as artificial intelligence (AI), genetic engineering, and space exploration. Telotte (2014) coins the term "technological myth-making" to describe how sci-fi cinema embeds these technologies within broader societal values and ethical discourses, often creating enduring myths that shape public understanding and policy debates.

Empirical studies have begun to investigate how these cinematic imaginaries influence public discourse and political debates. Reinsborough, (2017) through surveys and interviews, demonstrates how exposure to sci-fi shapes public perceptions of technology risks and benefits. Kirby & Geraci (1990) analyze fan engagement to reveal how sci-fi narratives permeate cultural conversations that indirectly affect policy frames. Table 1 summarizes the key contributions to this body of knowledge.

Table 1. Summary of the key contributions of Science Fiction Films and Sociotechnical Imaginaries

Author(s)	Year	Focus Area	Methodology	Key Findings
Jasanoff & Kim	2009	Sociotechnical imaginaries	Theoretical analysis	Sci-fi as expressions of collective imaginaries shaping policy
Kirby	2011	Science in cinema	Qualitative review	Sci-fi films construct technological futures influencing culture
Dourish & Bell	2011	Technological imagination	Case studies	Sci-fi makes abstract tech tangible
Reinsborough	2017	Public engagement with tech	Survey & interviews	Sci-fi impacts public perception
Telotte	2014	Technological myth-making	Media analysis	Narrative and visual elements embed values

B. Narrative Policy Framework and Media Influence on Policymaking

The *Narrative Policy Framework* (NPF) provides a useful lens for understanding how stories structure policy debates. Jones & McBeth (2010) propose that narratives—composed of characters, plots, and moral lessons—are central to how policy actors and publics interpret complex issues. Shanahan et al. (2013) emphasize that media narratives, including films, serve as reservoirs of such stories, influencing the framing of policy issues and public attitudes.

Ackrill et al. (2013) highlights the role of narratives in simplifying complex scientific and technological challenges, making them more accessible and actionable for policymakers. Franzen (2019) specifically analyzes science fiction narratives, showing how they frame emerging technologies either as utopian hopes or dystopian threats, thereby shaping policy discourse.

Research on media influence in policymaking confirms the indirect but significant role films play in setting policy agendas (Cunningham & Hammond, 2025; Hilgartner, 2015). Yet, as Franzen (2019) and others note, systematic empirical work tracing these pathways remains limited. Table 2 outlines key studies relevant to narrative policy and media influence.

Table 2. Overview of Narrative Policy Framework and Media Influence Studies

Author (s)	Year	Theory/Approach	Empirical Evidence	Relevance to Sci-Fi Influence
Jones & McBeth	2010	Narrative Policy Framework	Policy text analysis	Narrative shapes policy debates
Shanahan et al.	2013	Media & policy narratives	Quantitative analysis	Media narratives influence perceptions
Franzen	2019	Sci-fi narrative & policy	Discourse analysis	Sci-fi structures technology debates
Ackrill et al.	2013	Policy narratives & framing	Case studies	Narratives simplify complex issues
Cunningham & Hammond	2025	Media influence on policy	Review studies	Films shape public and political rhetoric

C. Empirical Research on Science Fiction's Impact on Policy

Despite rich theoretical work, empirical investigations into how sci-fi directly impacts science and technology policy remain nascent. Franzen (2019) employs discourse analysis to demonstrate how sci-fi films like *Ex Machina* influence public and policy narratives on AI ethics. Rose & Novas (2021) use interviews and media analysis to trace how genetic engineering portrayals in sci-fi shape bioethical policy discussions in the UK.

Further studies explore specific technological domains:

- Coeckelbergh (2017) and Aref (2023) analyze how sci-fi influences ethical debates and governance challenges around AI and robotics.
- Launius & McCurdy (2018) and Kitchin, & Kneale (2001) document the inspirational role of sci-fi in space policy development.
- Vint (2011) examines biotech and synthetic biology policy discussions informed by sci-fi narratives.

However, challenges remain in establishing direct causal links between cinematic narratives and policy changes due to complex socio-political

contexts. Table 3 synthesizes key empirical studies.

Table 3. Empirical Studies Linking Science Fiction and Policy

Author(s)	Year	Context/Case Study	Method	Conclusions
Franzen	2019	AI policy discourse	Discourse analysis	Sci-fi informs AI policy narratives
Rose & Novas	2021	Genetic engineering in UK	Interviews& media	Sci-fi imaginaries influence bioethics
Coeckelbergh	2017	Robotics and ethics	Conceptual review	Sci-fi shapes robotics ethics debates
Aref	2023	AI governance	Policy analysis	Sci-fi narratives reflect governance challenges
Launius	2018	Space exploration policy	Historical analysis	Sci-fi inspires space policy visions

D. Ethical and Social Themes in Science Fiction and Their Reflection in Policy

Science fiction frequently explores ethical and social themes such as privacy, autonomy, and inequality in the context of technology (Stilgoe, 2015; Brey, 2017). These themes resonate in policy arenas, shaping regulation and public engagement.

For example, the film *Ex Machina* (2014) poses questions about AI consciousness and consent, paralleling contemporary ethical debates on AI rights and governance (Cave et al., 2019). The television series *Black Mirror* has been cited in policy discussions on surveillance and data protection (Klassen & Fiesler, 2022).

Scholars argue that sci-fi-inspired ethical reflection can improve anticipatory governance by highlighting potential social risks and moral dilemmas before widespread adoption of new technologies (Grieger et al., 2020; Stilgoe, 2018). Table 4 summarizes literature on ethical themes and policy implications.

Table 4. Ethical and Social Themes in Science Fiction and Policy

Author(s)	Year	Ethical Themes	Policy Implications
Stilgoe	2015	Anticipatory governance	Informed ethical policy frameworks
Brey	2017	Privacy, autonomy	Data protection policies
Cave et al.	2019	AI personhood	AI rights and governance
Klassen & Fiesler	2022	Surveillance & data ethics	Cybersecurity and privacy regulations
Grieger et al.	2020	Social risks of emerging tech	Public engagement in policy design

E. Research Gaps

Despite this growing literature, several gaps remain:

- There is limited direct empirical data linking sci-fi films to policymakers' perceptions and decisions, with most studies relying on media or discourse analyses rather than interviews or ethnographic methods (Franzen, 2019).
- Few longitudinal or cross-national comparative studies exist that examine how sci-fi's influence evolves over time or differs across cultural and political contexts (Bell & Durodie, 2020).
- Integration of narrative theory with Science and Technology Studies (STS) frameworks to explain mechanisms of influence in policymaking is underdeveloped (Jasanoff, 2015; Jones & McBeth, 2010).
- Research tends to focus narrowly on mainstream cinema, neglecting other influential media like TV series, digital content, and fan communities (Mittell, 2015).
- Emerging policy areas such as climate technology, energy transitions, and cybersecurity receive insufficient attention relative to AI and biotechnology (Powell et al., 2020).

Table 5 presents these gaps and suggests directions for future research.

Table 5: Identified Research Gaps

Gap Description	Explanation	Suggested Research Directions
Empirical linkage between sci-fi and policy	Lack of direct interviews with policymakers	Qualitative studies engaging policymakers
Cross-national and longitudinal analyses	Limited comparative and	Multi-country and longitudinal studies

	time-based research	
Integration of narrative and STS frameworks	Theoretical gaps explaining influence	Interdisciplinary methodological frameworks
Neglect of diverse media beyond films	Focus on mainstream cinema only	Inclusion of TV, digital, and fan media
Underexplored policy fields	AI and biotech dominate	Expand to climate, energy, cybersecurity policy

F. Analytical Framework

Synthesizing insights from the literature, this article employs an integrated analytical framework to interpret the findings. It rests on three interrelated concepts:

1. **Sci-fi as narrative infrastructure for policymaking** – Films provide imaginative scaffolding that allows policymakers and publics to envision long-term technological futures and anticipate risks.
2. **Narrative persuasion and risk framing** – Storytelling mechanisms in cinema shape perceptions of uncertainty, urgency, and responsibility, echoing the Narrative Policy Framework.
3. **Cultural metaphors as policy heuristics** – Recurring motifs such as "Frankenstein," "The Matrix," or "The Prime Directive" act as shorthand for complex ethical and governance issues.

This framework guides the empirical analysis by linking cinematic narratives with policy texts, highlighting both direct references and thematic parallels.

III. METHODOLOGY

This study employs narrative inquiry as its principal methodological approach to investigate how science fiction (sci-fi) films shape and influence science and technology policymaking. Narrative inquiry, a qualitative research tradition, is particularly effective for examining how stories construct meaning, influence perception, and shape institutional discourses (Clandinin & Connelly, 2000; Riessman, 2008). By treating films and policy texts as narrative forms, the study captures the interplay between fictional imaginaries and real-world technological governance.

A. Rationale for Narrative Inquiry

Narrative inquiry is uniquely suited to explore sci-fi films because it centers on the idea that humans make sense of the world through stories. Sci-fi cinema—laden with narratives about human-machine relations, artificial intelligence, surveillance, space exploration, and bioethics—constructs rich sociotechnical imaginaries that resonate with broader societal expectations (Jasanoff & Kim, 2009; Kirby, 2011). These imaginaries can find expression in policy language, strategies, and ethical frameworks.

Unlike positivist or purely descriptive approaches, narrative inquiry facilitates exploration of:

- How narratives (plots, characters, morals) structure both cinematic texts and policy documents.
- The values and assumptions embedded in these narratives.
- The cultural circulation of science fiction themes within policymaking spheres (Shanahan et al., 2013; Jasanoff, 2015).

B. Data Sources and Collection

The study draws on two primary data sources:

1. Textual Analysis of Science Fiction Films

A purposive sample of contemporary, globally influential sci-fi films is selected for their thematic relevance to critical science and technology issues. Films include *Ex Machina* (2014), *Gattaca* (1997), *Arrival* (2016), and *The Matrix* (1999). These were chosen based on their direct engagement with ethical, technological, and policy-relevant themes such as AI, genetic engineering, communication, surveillance, and autonomy.

Each film is analyzed as a narrative text, focusing on:

- Plot structure and conflict
- Character roles (e.g., heroes, villains, creators, regulators)
- Technological representations and ethical dilemmas
- The sociotechnical futures being imagined (Kirby, 2011; Telotte, 2014)

The selection of films was purposive rather than random, grounded in their demonstrated cultural reach and policy relevance. These films—such as Gattaca (1997), Interstellar (2014), Ex Machina (2014), and Arrival (2016)—were chosen because they have been explicitly referenced in public

debates, cited in academic and policy documents, or used in educational and governmental contexts (e.g., NASA referencing *The Martian* in space exploration outreach). Their resonance with key policy issues such as AI governance, genetic engineering ethics, and space diplomacy makes them analytically valuable for understanding the nexus of cinema and policy discourse.

C. Science and Technology Policy Documents and Discourse

The second data source comprises policy documents, white papers, and strategic plans from national and international organizations (e.g., European Commission reports on AI ethics, U.S. Office of Science and Technology Policy publications, UNESCO documents on science and society). Public speeches, policy blog posts, and media interviews by policymakers and technocrats are also included.

Selection criteria are based on:

- Topical relevance (AI, biotechnology, data governance, ethics)
- Temporal alignment with film release and discourse circulation
- References to speculative futures or implicit cinematic imaginaries

Documents are analyzed for narrative elements such as metaphors, framing devices, and scenario construction.

D. Analytical Approach

Using thematic narrative analysis (Braun & Clarke, 2006), the study compares and connects narrative elements from sci-fi films and policy discourse. The analysis involves:

- Coding narrative patterns in both film and policy texts.
- Identifying recurring themes, such as surveillance, autonomy, and human enhancement.
- Mapping how futures imagined in films are reflected in or contested by policy narratives.

The process follows an iterative approach, including:

- Close reading of texts to identify narrative structures (characters, settings, moral lessons).
- Comparison across data sets to detect narrative convergence or divergence.
- Examination of policy language for evidence of sociotechnical imaginaries—visions of how science and technology shape the good society (Jasanoff & Kim, 2009).
- Interpretation of how sci-fi stories contribute to anticipatory governance and public reasoning (Stilgoe, 2018; Grieger et al., 2020).

E. Ethical Considerations and Limitations

As the study does not involve human participants, ethical concerns related to consent and anonymity are not applicable. However, care is taken to represent cultural texts responsibly and to avoid overdetermining causal claims about influence. The study acknowledges that policymaking is a multi-causal and contested field, and film influence may be indirect or symbolic rather than deterministic.

IV. RESULTS

The narrative inquiry into the relationship between science fiction films and science and technology policymaking revealed several key themes that illustrate how cinematic imaginaries influence policy visions, discourses, and public engagement. These findings emerged from the comparative analysis of selected science fiction films and policy documents.

A. Science Fiction Films as Visionary Frameworks for Policy Imagination

Science fiction films act as visionary frameworks that help policymakers and institutions conceptualize the future implications of emerging technologies. Films such as *Blade Runner* (1982), *Gattaca* (1997), and *Ex Machina* (2014) project vivid imaginaries of technological futures, often reflecting ethical and governance challenges that appear in policy discourse. For example, *Gattaca* has been cited in UK parliamentary debates on genetic screening, while the U.S. Office of Science and Technology Policy has used cinematic references in public engagement on AI ethics.

These narratives are evident in AI ethics guidelines, biotechnology governance strategies, and national space programs, which frequently echo concerns staged in such films. Table 6 presents a summary of selected science fiction films and the specific policy themes they have influenced.

Table 6 illustrates how cinematic depictions serve as heuristic devices, allowing policymakers to anticipate complex consequences and develop more robust governance frameworks.

Table 6. Key Sci-Fi Films and Their Influence on Policy Themes

Film Title	Technology Focus	Policy Themes Influenced
Blade Runner	Artificial Intelligence, Robotics	AI ethics, algorithmic bias, identity
Gattaca	Genetic Engineering	Bioethics, enhancement, equity
Interstellar	Space Exploration	Space sustainability, global planning

The European Commission's 2021 proposal for the AI Act explicitly warns against "algorithmic opacity and loss of human oversight," language strongly reminiscent of themes in *Ex Machina* and *The Matrix*.

B. Narrative Structures Inform Policy Framing and Risk Perception

The narrative structures of science fiction—particularly their portrayals of moral conflict and unintended consequences—inform how risk is framed in technology policy. For instance, dystopian narratives such as *The Matrix* and *Black Mirror* episodes often align with policy approaches rooted in precautionary principles and ethical oversight.

Conversely, more optimistic portrayals of human-technology relationships (e.g., *Her*, *Star Trek*) encourage policies that support technological innovation, human enhancement, and interdisciplinary foresight.

Policy documents mirror these framings by incorporating emotionally and morally charged language, using narrative cues to communicate complexity and justify action. The embeddedness of these tropes in official texts highlights the interpretive power of cinematic storytelling.

C. Sci-Fi Films as Cultural Touchstones in Policy Discourse

Narratives from science fiction have become cultural metaphors in policy communication. Metaphors like "Frankenstein's monster" or references to "The Matrix" regularly appear in official reports, public statements, and policy papers—especially in contexts involving biotechnology, AI, or planetary governance.

These references help simplify technical content while grounding it in collective cultural memory. They also serve rhetorical functions—either legitimizing emerging technologies by evoking hope and progress, or resisting them by invoking caution and fear. A notable case is the UK House of Lords' 2018 report on AI, which explicitly referenced *Black Mirror* episodes when discussing risks of surveillance and algorithmic control, illustrating how cinematic metaphors circulate at the highest levels of policymaking. Table 7 provides examples of how sci-fi metaphors appear in policy discourse.

As shown in Table 7, these narrative references function as shorthand for ethical and regulatory positions and influence how the public and stakeholders interpret complex issues.

For instance, UNESCO's 2021 *Recommendation on the Ethics of Artificial Intelligence* invokes metaphors of "human dignity" and "autonomy" that parallel the narrative dilemmas staged in *Her* and *Gattaca*.

Table 7. Common Sci-Fi Narrative References in Policy Discourse

Narrative/Metaphor	Technology Area	Policy Implication
Frankenstein's Monster	Genetic Engineering	Emphasis on ethical oversight and caution
The Matrix	Artificial Intelligence	Concerns about autonomy and algorithmic control
Star Trek's Prime Directive	Space Exploration	Non-intervention, ethical planetary governance

V. DISCUSSION

This study explored how science fiction films influence science and technology policymaking through narrative mechanisms, metaphoric framings, and cultural resonance. The findings, grounded in narrative inquiry, confirm that cinematic stories are not merely entertainment—they serve as powerful cognitive and discursive tools that shape how policymakers envision, assess, and communicate technological futures.

A. Sci-Fi as a Narrative Infrastructure for Policymaking

Science fiction films provide a narrative infrastructure that supports speculative thinking in policy environments. This aligns with Jasanoff and Kim's (2009) concept of sociotechnical imaginaries—collectively held visions of desirable futures shaped by both science and society. The films examined, such as *Blade Runner* and *Gattaca*, construct coherent storyworlds that offer emotional, ethical, and epistemic guidance for navigating novel technologies.

These imaginaries act as "future proxies," enabling policymakers to simulate technological consequences without empirical certainty. In this sense, science fiction becomes a soft infrastructure

of foresight—supplementing official models, forecasts, and white papers.

B. Narrative Persuasion and Risk Framing

The findings support the argument that narratives are instrumental in framing technological risk and uncertainty. As Shanahan et al. (2013) note in the Narrative Policy Framework (NPF), storytelling shapes not just how policies are communicated, but how they are constructed. Through familiar tropes such as dystopias (*The Matrix*) or moral dilemmas (*Ex Machina*), science fiction allows policymakers to personify abstract threats and rehearse governance dilemmas.

This narrative persuasion has dual functions:

- Cognitive framing: Helping decision-makers grasp complexity through plot, character, and conflict;
- Emotional resonance: Creating urgency or caution by activating culturally embedded fears and hopes.

Such framings are particularly important in emerging fields (e.g., AI, gene editing), where ethical ambiguity and rapid innovation outpace regulatory frameworks.

C. Cultural Metaphors as Policy Heuristics

The recurrence of sci-fi metaphors in policy discourse demonstrates how fictional referents become policy heuristics. Terms like "Frankenstein," "Skynet," or "The Prime Directive" serve as compressed cultural signals that help orient public debate and institutional response. They offer symbolic clarity but also risk simplification and mythologization of complex issues (Kirby, 2011).

This finding reinforces Jasanoff's (2015) claim that policy is not just about evidence—it is also about meaning-making. Films contribute to that meaning by embedding technologies within ethically loaded stories that resonate across time, culture, and political ideology.

D. Limitations and Ethical Considerations

While the imaginative value of science fiction is clear, the findings also highlight its limitations:

- Many films reinforce Western, male-dominated, or technocratic worldviews, which can reproduce biases in policy discourse;
- Fiction often dramatizes or distorts technological risks, contributing to fear-based policy responses or technological determinism;
- There is a gap between cinematic representation and scientific reality, which can affect public trust and policy credibility.

Moreover, films do not operate in isolation. They often amplify existing societal debates rather than originate them. Filmmakers draw from prevailing cultural anxieties—such as surveillance in *Black Mirror* or genetic inequality in *Gattaca*—to intensify public awareness. Thus, their influence on policy is partly mediated by broader social forces, activism, and public discourse. Recognizing filmmakers' intentions and cultural contexts is crucial to avoid overstating cinema's independent agency.

To address these issues, the integration of science fiction into policymaking must be deliberate and critically reflective, not passive or romanticized. This requires interdisciplinary collaboration between policymakers, scientists, ethicists, and storytellers.

E. Toward a Narrative-Informed Policy Practice

Based on the insights gained, the study advocates for a narrative-informed approach to science and technology policy. This includes:

- Training policymakers in narrative literacy to recognize and critically engage with cultural narratives;
- Institutionalizing cultural foresight, where narrative artifacts (films, literature, games) are systematically used in scenario planning and public engagement;
- Developing participatory storytelling platforms that allow diverse publics to co-create alternative futures and influence policy agendas.

Such efforts can democratize foresight, mitigate narrative bias, and enrich the imaginative capacity of governance institutions.

F. Gaps and Challenges: The Risk of Oversimplification and Cultural Bias

While sci-fi films offer valuable insights and imaginative scaffolding for future-oriented policy, they also pose limitations. Films often simplify scientific realities or amplify emotional stakes for dramatic effect, which can lead to distorted perceptions of risk or unrealistic expectations.

Furthermore, many films reflect Western-centric or masculinist worldviews, which may inadvertently reinforce biased policy narratives. For instance, heroic narratives centered on individualistic, male protagonists can obscure the need for collective governance, gender equity, and decolonial perspectives in science and technology policymaking.

These limitations underscore the importance of critical engagement with cinematic narratives in policy analysis. Policymakers must remain reflexive about the stories they draw upon and seek to balance cultural imagination with evidence-based, inclusive, and interdisciplinary perspectives

VI. CONCLUSION

This study set out to explore the narrative intersections between science fiction cinema and science and technology policymaking. Through a narrative inquiry grounded in textual analysis, policy documents, it became evident that science fiction films play a multifaceted role in shaping how technologies are imagined, debated, and governed.

Rather than being passive entertainment, sci-fi narratives actively influence policymaking by:

- Providing **visionary frameworks** that help anticipate technological futures;
- Shaping **risk perceptions** and framing public discourse through emotionally resonant stories;
- Acting as **cultural heuristics** that simplify complexity via shared metaphors;
- Encouraging reflection on **ethical and societal dimensions** of science and technology.

However, this influence comes with caveats. Cinematic narratives can reinforce cultural biases, oversimplify scientific realities, or amplify fear and techno-solutionism. Therefore, critical engagement with these narratives is essential—not just as a cultural curiosity, but as a practical necessity in policymaking under uncertainty.

Ultimately, science fiction can—and should—be treated as a **legitimate and strategic component of anticipatory governance**, offering not deterministic scripts, but imaginative provocations that challenge, enrich, and expand the policymaker's repertoire of possible futures.

A. Recommendations for Policy and Future Research

1. For Policymakers

Policymakers should integrate narrative analysis into foresight processes by explicitly considering cultural narratives—particularly those from science fiction—as part of scenario building, technology assessment, and risk governance strategies. Developing narrative literacy is equally important. Policymakers and analysts need to be trained to recognize and critically engage with the cultural metaphors and imaginaries that inform their perspectives, whether consciously or unconsciously.

Another recommendation is to strengthen interdisciplinary dialogue. Productive governance of emerging technologies requires collaboration not only among policymakers and scientists but also with ethicists, artists, and cultural scholars, ensuring that the futures being imagined are pluralistic and ethically robust. Finally, popular science fiction narratives should be used as tools for public engagement. Films can serve as accessible entry points for fostering dialogue with the public about emerging technologies, ethical dilemmas, and policy trade-offs.

2. For Researchers

Future research should expand beyond Anglo-American science fiction and include diverse global perspectives that challenge dominant Western techno-narratives. Examining how narratives are received by a wider range of stakeholders—such as scientists, educators, journalists, and the general public—would also enrich understanding of the broader cultural impact of science fiction on policy.

Longitudinal studies are needed to trace how particular science fiction themes evolve over time and how they align with, or diverge from, real-world policy trajectories. In addition, bridging fiction with empirical analysis is crucial. Mixed-method approaches that combine narrative analysis of films with interviews, surveys, or case studies of policymaking processes would create stronger evidence for how cultural narratives influence governance.

B. Closing Thought

In an era defined by rapid innovation and profound uncertainty, policymaking cannot rely solely on empirical evidence or technical expertise. It must also draw on the imaginative resources that shape how societies envision their futures. Science fiction, as a reservoir of cultural narratives, offers

not deterministic scripts but provocations that challenge assumptions, surface ethical dilemmas, and broaden the horizons of possibility. By engaging seriously with these narratives, policymakers can foster anticipatory governance that is not only evidence-based but also imagination-informed—ensuring that science and technology are guided by inclusive, reflexive, and forward-looking visions of society

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