

Beyond the System: Embracing Curiosity and Creativity in Science and Technology

A Philosophical Movie Analysis of *Tomorrowland*

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*Tomorrowland (2015) isn't merely a collision of society, culture, and technology wrapped in a hopeful utopian vision — it also provokes us to examine humanity's role in wielding knowledge. The sharper questions arise immediately: Is technology inherently neutral, or is it swayed by vested interests? Should scientific activity be freed and even given the space to lead the direction of human civilization? The film becomes even more compelling because it's directed by Brad Bird, who also created extraordinary works like *Ratatouille* and *The Incredibles*.*

In today's modern world, we've come to realize that technology, on the one hand, offers incredible conveniences — quick access to information, the ability to solve complex problems, and progress in so many areas. But on the other, technology also brings consequences that demand critical reflection. If we trace history from the time of Francis Bacon to the 20th

century, the freedom to explore science and technology has always been a crucial element of human progress. Bacon, in his *Novum Organum*, saw *the advancement of science as humanity's calling to improve the world*. This freedom should *never be restricted* because it is what propels growth and innovation.

However, modern history reminds us that science cannot be separated from moral responsibility. This freedom seems to need limits. After World War II and the use of the atomic bomb, the way scientists and philosophers viewed science and technological achievements began to shift. *Progress in knowledge was no longer seen as neutral*. Scientists began to recognize the ethical dimensions of their work. History gives us examples like J. Robert Oppenheimer, who firmly opposed the continuation of hydrogen bomb research. Then there's the *Einstein-Russell Manifesto*, which highlighted the need for morality in confronting nuclear threats. Richard Feynman, too, awakened the world to the reality that the *Challenger* disaster was not just a technological failure but a failure of human accountability.

From a philosophical standpoint, thinkers like Jacques Ellul, Neil Postman, and Don Ihde have grappled with the challenges technology poses. Edmund Husserl also addressed this concern in his work *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*. The critique of instrumental rationality, especially from the Frankfurt School, has also highlighted the risks of a purely mechanistic view of progress.

This film carries a message: we need a world led and developed by scientists, doctors, engineers, and artists — *not politicians and corporate stakeholders with their own narrow agendas*. However, I see this vision not as a call for the kind of *closed technocracy criticized by Karl Popper*. Instead, the narrative envisions a future where creativity and collective intelligence drive progress — not rigid, instrumental rationality, but a dynamic openness that fosters meaningful relationships between subjects and objects.

A bit of background: Movie Analysis

The film begins with a flashback from John Frank Walker and Casey Newton, where they share their experiences with *dreams, visions, and the existence of Tomorrowland*. The main character, John Frank Walker — played by George Clooney as an adult — is introduced as a young boy

brimming with optimism and a passion for creating technology. For him, science is all about *exploration*, and *failure in experiments isn't something to fear*.

When young Walker presents his invention — a jetpack — at the World's Fair inventor competition, the jury, led by Governor Nix (the leader of Tomorrowland), dismisses it with a cold and cynical attitude. Nix argues that the invention is useless because *it doesn't work*. What's the point of a jetpack if it doesn't contribute to *making the world a better place*, he asks, especially since it still has flaws? Walker explains that he created it because *he was tired of waiting for others to build things — he wanted to do it himself*. He also asks a simple but powerful question: ***why can't this be fun?*** To Walker, if someone saw people flying down the street on a jetpack, it could spark their imagination and ***open up new possibilities*** through *inspiration*. Ironically, this jetpack later becomes the key to Walker “saving the world” near the end of the film.

Despite the criticism, Walker believes that even if it fails now, he'll keep trying until it works. There's a heartfelt moment between young Walker and his father, who dismisses the project as a waste of time because it doesn't function properly. Walker responds with an important insight: *he's optimistic and won't give up*. Young Walker exemplifies the true spirit of a scientist — combining *curiosity, imagination, and exploration*.

It's through this drive that he meets Athena, who introduces herself as “I am the future.” Athena is actually an anthropomorphic robot in the form of a young girl with a magnetic personality. She's fascinated by Walker's passion and decides to give him access to Tomorrowland. The World's Fair inventor competition, where this all takes place, has a backdrop featuring Walt Disney's famous “It's a Small World” ride. This little detail is meaningful — it symbolizes the idea of making *children's dreams* a reality. Children are just born with this amazing spark of *curiosity and imagination*. They're like little philosophers or scientists, always asking countless questions and trying to understand how everything works. But it's unfortunate how that sense of wonder often fades as we grow older. You can totally see that in adult Walker — he's lost that bright, hopeful side he used to have when he was a kid. Instead, he's bitter and jaded after being kicked out of Tomorrowland for inventing something considered dangerous.

Another key character, Casey Newton, enters the story after adult Walker has been banished. Casey is depicted as having scientific and engineering skills far beyond her father's. Her younger brother is basically a total whiz with technology — he can dig up pretty much any info online. And even though Casey's not a little kid anymore, she's still bursting with energy, insanely curious, and never just settles for the status quo. There's this hilarious bit in the car where Casey's *rattling off questions* like there's no tomorrow, and Athena basically has to fake a breakdown to make her pause for a second. Once Casey, Walker, and Athena finally team up, they kick off an adventure that really digs into how technology and human life are all wrapped up together, looking at imagination, responsibility, and the hope we hold for what's ahead.

What is the real core of the problem?

When Casey, Walker, and Athena captured, Governor Nix launches into this kind of speech: "*Let's imagine... if you caught a glimpse of the future and it terrified you, what would you do with that information? Who would you tell? Politicians? Industry leaders? And how would you convince them — through data, facts? Good luck. The only facts they won't challenge are the ones that keep everything running smoothly and the money rolling in.*"

Nix also points out that humanity has already been warned about the planet's destruction, caused by its own behavior. But *people don't care* — in fact, they even learn to enjoy the idea of their own downfall. *They turn genuine threats into entertainment* — movies, books, video games — instead of taking steps to prevent them. Neil Postman, in his book *Amusing Ourselves to Death*, argues that media doesn't just deliver messages — it *restructures* them. There's something that changes in the messages we receive. Television, for example, has shifted the way people live, transforming a *culture of literacy* into a *culture of watching*. Even more so, media has been hijacked by entertainment content, designed to lull modern people into complacency, worn out by the grind of urban life. Nix finds it frustrating that people choose not to act, even when there's still a chance to do better. To him, an optimistic future demands effort and sacrifice, while letting things fall apart doesn't require a thing.

Ironically, *Nix becomes the very thing he criticizes*. As the leader of Tomorrowland, a supposed utopia built on innovation to save the world, he gives in to despair instead. Rather than making things right, he uses technology to reinforce his vision of destruction, hoping to scare people into

doing the right thing. But that strategy fails — it just makes everyone more afraid and indifferent. *Nix put more trust in the system than in humanity.*

On the other hand, there is a growing awareness of the negative effects of technological advancements, both in the media and in discussions within the classroom. In one scene, Casey tries raising her hand in class, asking questions, but the teachers ignore her. The classroom feels totally one-way and rigid. The teachers passionately talk about all these global problems, including those caused by technology — like nuclear issues — but never discuss how to solve them. Eventually, one teacher finally responds to Casey, and she asks what we can actually do about it. Right then, the bell rings, class ends, and her question goes unanswered. Again, it's a picture of a stale classroom atmosphere and a *heavy sense of pessimism toward the world and the impact of technology.*

Attitudes Toward Humanity and Technology

Here, we see a tension between two positions: surrendering to the status quo and letting the system run its course, as *the issue is seen as rooted in humanity*, versus recognizing that there are *fundamental problems in the structure of technology* as it evolves within human culture. Remember that at the beginning of the film, Nix poses an important question: “Does it work?” Failure in creating technology is not tolerated. This sentence explains the first position.

This **first position** emphasizes *instrumental rationality*, which downplays opinions and the dynamism of life. A static system is perceived as providing long-term security compared to the unpredictability of dynamic change. In this view, *objectivity* is held in high regard, and science is seen as an *exact discipline* that presents *neutral facts*. If errors occur, they are attributed to subjective human faults. However, *even objectivity has now been called into question* by philosophers of science.

The **second position** highlights how *technological advancements can have negative impacts*. Instrumental rationality often suppresses human values. Do you recall how bureaucracy and overly mechanical systems can create a “distance” between individuals and the awareness of their actions? Hannah Arendt, in her analysis of Adolf Eichmann in *The Banality of Evil*, illustrates how perpetrators of atrocities aren't always overtly evil individuals but rather those who *adhere strictly to rules that suppress moral awareness.*

Modern systems create a *significant divide* between *subject* and *object*, *justifying the manipulation of objects* by

subjects for specific purposes. The real question is, what — or who — is being defined as the object here? When we see a tree, we often think of it in terms of furniture or profit. Humans, who were once regarded as persons or creations of God in the medieval context, are now seen as *resources to be allocated* within companies to enhance *efficiency* and *effectiveness*. An Indonesian philosopher, Reza A. A. Wattimena, once analyzed how the condition of instrumental rationality can be observed in the everyday use of this term: *human resources*. This term emerges in the modern era — a term that obviously didn't exist in ancient Greece. This isn't to say we need to abandon such terminology, but it's important to recognize that these terms didn't emerge out of nowhere. They are products of the spirit of the age, shaped by the movements and ideologies of the time.

This film offers another perspective — the **third position**. On one hand, it acknowledges human flaws. People make mistakes. But aren't mistakes meant to be corrected? In science, isn't the ability to be proven wrong actually a requirement for scientific statements, as Popper argued? Falsification is what drives science forward, and Popper also proposed this idea in *The Open Society*, which embraces the possibility of correction.

On the other hand, this position also recognizes issues within the system. Technological systems can indeed *dehumanize people*. Haven't we witnessed fragile mental health, insecurity, and loneliness amidst the constant noise of social media comments? Still, we cannot discard the progress these advancements have brought. It's undeniable that this progress has improved civilization — reducing mortality rates from childbirth and disease, enabling safer and more accurate exploration, all thanks to these developments.

What needs to be done is to *acknowledge the negative effects* and *work to fix them*, even *impose limits* when they threaten humanity. Isn't this precisely the moral responsibility of scientists that has become more apparent in recent times?

Ernst Bloch (1885–1977) was a philosopher who lived through a *turbulent era* — economic crises, world wars, the rise of fascist states, and the Cold War. But unlike some early Frankfurt School thinkers who viewed science and technology in a negative light, Bloch offered a path toward *optimism*. This aligns with Habermas, who remains *optimistic* about rationality. Bloch's massive works, including his "*philosophy of hope*," highlight the role of hope and dreams. Though he had Marxist influences, he didn't cling to any rigid *historical determinism*. For Bloch, history isn't some fixed, unstoppable

chain of events. Hope for a better world — the “*not yet*” — spurs people toward creative action and optimism. Current imperfections aren’t an excuse to sit back; they show that reality is incomplete and can still be improved.

The worries stirred up by technology should inspire learning and optimism. Like young Walker, who keeps working on things until it finally “*works,*” *people can learn and grow.* There’s a memorable moment when Casey reminds her dad of the story about two wolves — one good, one bad — and which one wins is *the one we choose to feed.* So, whether we give up or fight for change depends on whether we “feed” our *optimism* or our *pessimism.*

In Bloch’s view of the relationship between subject and object, he doesn’t see them as completely separate or static entities. Instead, Bloch sees the subject-object relationship as *dynamic* and *constantly evolving.* The subject *isn’t just a passive observer* of the object but plays an active, *creative role* in shaping reality. For him, the object isn’t entirely fixed either; it holds the *potential to change and transform through its interaction* with the subject.

In the film, Casey refuses to accept the world as it is. She stirs up trouble at her dad’s workplace, hoping to spark some kind of change. She also meets Athena, who piques her curiosity about Tomorrowland. Eventually, this leads her to meet the adult Frank Walker, who’s bitter and withdrawn. Together, they return to Tomorrowland and confront Governor Nix again. There’s hope in embracing that “*not yet,*” that *space of possibility,* to guide the world toward a better tomorrow. Remember Walker’s words when he was a kid: seeing someone using a jet pack on the street would be inspiring — it would *open up a whole world of possibilities.*

We often forget that the foundation of science and technological advancement is deeply rooted in the essence of human life — curiosity and creativity. Humans have an innate desire to understand the world and to explore. Isn’t it true that many fascinating discoveries were born out of creative imagination? Science isn’t just a collection of static facts that gradually become more accurate; it’s dynamic, involving human creativity that brings about innovation. That’s why, as a teacher, I try not just to teach repetitive content but also to create space for my students to explore different approaches. The courage [to experiment](#) in scientific activities opens up new possibilities

This process begins with an openness to mistakes, fragility, and even embracing inconsistencies. It involves acknowledging problems and then, with optimism, working to fix them. Even the awareness of moral responsibility in scientific knowledge activities affirms that epistemology is always ethical. This is the very spirit that drives progress — a blend of curiosity, creativity, the courage to face and overcome imperfections, and a deep appreciation for human values.