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Mutants, Sentinels, and Cerebro: Messages About Technology and Society in Science Fiction Films

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ABSTRACT

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Much like myth telling stories to teach a lesson, science fiction films caution viewers of the effects of powerful technology usage in culture today. This thesis examines *X-Men* to show how relevant principles found in myth continue to be relevant to media consumption. Using media ecology to inform the reader about the technological environment (Mumford, 1944), this analysis of technology portrayed in *X-Men* shows the implications real world technology, such as radiation, weapons, and artificial intelligence, has on contemporary society. Using mythical criticism to analyze the myth of Prometheus in modern day, this thesis shows that with proper accountability, technology may eventually be a tool unbound from the fear it generates. *X-Men* evaluates the natural human fear that comes from technology including, fear of fusion, fear of defeat, and fear of technological agency overcoming the human agent (Rushing and Frentz, 1989, but instead of leaving us hopeless, *X-Men* shows that technology can help society progress despite its potential for destruction.

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Introduction

Technology plays a significant role in society and in entertainment. People hold an ambivalent attitude about technology that is often illustrated in science fiction films. In the 2016 film *X-Men: Days of Future Past,* the X-Men are persecuted by sentinels, a weapon technology created by humans to defeat all mutant-kind. Mutants are fighting for survival against humans, even though they are on the same side. The leader of the X-Men, Charles Xavier, is suffering pain as he watches and feels the anguish felt by the mutants who are fighting and dying in this war. He is not physically in battle but is able to be connected to every living organism—mutant or human—because of technology that he invented called Cerebro. Cerebro allows Charles Xavier to be aware of all mutants and humans so that he can know what situations they are in and how they are feeling. As the movie travels between scenes in time, Charles Xavier's past self is learning how to handle Cerebro and must use it to save the world. As the sentinels are killing the mutants, young Charles Xavier is overwhelmed with the pain that he feels. He is visited by his older self who tells him that what he feels will make him stronger and that he must continue to fight. He says, "You're afraid and Cerebro knows it." The technology of Cerebro is powerful, independent from Charles Xavier, and while it has the potential for good and connection, it also has the potential to destroy entire civilizations. I argue that this film is doing more than merely entertaining the audience, it is presenting an allegory that explores the promise and peril of technology.

Technology has a lot of power in society. It is hard to understand and is capable of many things, good and bad. The following paper will examine how the portrayal of technology in media influences and warns against culture's perception of technology, as shown allegorically throughout the *X-Men* series. An example of this is portrayed in *X2* (2003) as he battles the

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power of technologies such as Cerebro and the radiation that created the X gene. Just when the audience is convinced that technology is ultimately good, *X-Men* enemies Stryker and Magneto prove us wrong; the villainous Army commander and the perceived convicted enemy of Charles Xavier show how technology's power is dangerous to all. Stryker takes control of Cerebro, and as he is about to wipe out the entire population of mutants in one sweep, Magneto changes the plan by directing the target to humankind. Overall, the X-Men save the day, but not without acknowledging the danger that comes from powerful technology in culture.

Does technology hold too much power in society? Is society giving technology the power, or does its very existence make the power of technology inevitable? The purpose of this thesis is to advance the argument that technology offers both a promise and a burden—and the darker side of the promise of technology is borne out in our entertainment, like in *X-Men.* In this thesis, I will argue that the cautionary narrative about technology in these films follows the myth of Prometheus. To that end, I will conduct a mythical criticism of three *X-Men* films in order to explore the overlap between the myth and the message of the films. To bolster the idea that technology shapes culture, I reference Neil Postman, as he feels that technology influences culture in every sense. In addition to that, I will cite Marshall McLuhan and Jacques Ellul's focus on technology's place in society and Lewis Mumford's ideas on machines. However, before addressing these scholars' thoughts on technology and society, I will first frame this thesis through a discussion of medium theory.

Literature Review

Medium theory is concerned with the unique characteristics of each distinct medium or kind of media. Analyzing the medium is important because it reveals that media are more than just conduits for the transmission of information between two or more environments; they are

also shapers of new social environments. Medium theory looks at the macro level of medium

questions, focusing on the effects of the medium culturally (Meyrowitz, 1994). This interaction

between communication, consciousness, and culture has been adapted into what is called media

ecology (Flayhan, 2001). For the purpose of this study, I will use media ecology to help analyze

the role of technology in the *X-Men* series.

The study of media ecology has been well-defined by several media scholars. In simple

terms, media ecology is the study of media as an environment; moreover, media ecology is the

interaction between people and their technology (Postman, 1970, p. 161). Media ecology is about

how technology and media both directly and indirectly affect the livelihood and abilities of

human beings. It represents the transition from human beings' reliance on a natural environment

to adapting to and accommodating a digital and mechanical environment. Postman (1970)

succinctly states, "Media ecology looks into the matter of how media of communication affect

human perception, understanding, feelings, and value; and how our interaction with media

facilitates or impedes our chances of survival" (p. 161).

Media ecology scholars take mostly a skeptical viewpoint of the hold technology has on

society because of its ability to separate itself from human control. Among these scholars,

Jacques Ellul holds one of these pessimistic opinions of technology's role in disrupting human

potential. In *The Technological Society*, Ellul (1964) addresses how the power of technology can

alter human interaction and can ultimately be destructive to society. He says, "What man seeks is

evidently an absolute distraction, a total obliviousness of himself and his problems, and the

simultaneous fusion of his consciousness with an omnipresent technical diversion" (p. 380). The

elements of technological machinery make technology an instrument that holds the power to not

only distract, but to completely desensitize its viewers, blurring the line between the fictional world and the real world.

Lance Strate (2017) expands on this idea, discussing the ways that media ecology dissects how media plays a leading role in human affairs and how the very existence of the medium impacts the human condition. Culture's modern reliance on technology has created an ecosystem in which people interact daily with an online webscape. Society developed a security within the environment of technology, relying on the use of GPS, direct messaging, automobiles, and more, even if people do not fully understand how they work. Postman (2005) continues to argue that the introduction of new technologies such as television have made entertainment the "natural format for the representation of all experience" (p. 87). Authors like Postman and Ellul analyze both entertainment technology—technology whose purpose is to entertain, including television, movies, YouTube, social media etc.—and instrumental technology—technology whose purpose is to simplify life, including cars, computers, and other technological advancements. Referring to these technologies as "techniques," both Postman (2005) and Ellul (1964) demonstrate how media ecology highlights the space technology takes in society and how that influences and affects human activity.

Media ecology scholars discuss the role of both the media and the medium as pertaining to how they impact the foundation of culture. This exemplifies the notion that the medium changes the way audiences consume media, as noted by iconic media ecology scholar McLuhan. McLuhan (1964) states it simply: "The medium is the message" (p. 7). The medium is what controls human affiliation with media. Without the medium, there would be no content to form media and no action would be taken to develop new technology. The development of technology itself and the way that it is used for entertainment is addicting because it engages multiple senses

and it distracts us from a physical environment, sending contemporary culture into a cyberspace that holds much information and power over society.

Using arguments from Postman, Ellul, Mumford, and McLuhan, this essay will explore ambivalent cultural attitudes about the potentially destructive power of technology and how the potential for this power is portrayed in film. Media ecology scholars and science fiction films, such as *X-Men*, have explored the implications of pertinent contemporary technological developments. Marvel's *X-Men* movies use the potential of the aforementioned machine, Cerebro, to portray technology as extremely powerful and dangerous in their fictional world, which operates as an allegory for the effects of technology in real life. This portrayal of danger in society, in this case, is not just a more violent version of the technology in society, but a warning that technology holds significant influence in the world. I note the irony of warning against the effects of technology through the lens of a movie series that is produced and consumed with technology. In addition to Cerebro, *X-Men* portrays the dangers of technology through the very being of mutants with radiation technology and weapons technology. Expounding on the ideas of media ecology, the remainder of the literature review will explore how the very nature of technology makes its power inevitable.

The Power of Technology

Technological innovation has advanced the ability to communicate and calculate in significant ways. Technology has become both an instrument of advancement and addiction. More accurately, Postman (1991), in his book *Technopoly,* defines this as the incongruous relationship between the good technology can do and the bad technology is capable of. To go further, he refers to technology as both a friend and an enemy. Society is often unaware of the power all technology holds. But on the other hand, technology has also proved to be a great

"friend" to humanity by enabling further progress to occur. It is Postman's reference to tools as instruments that will be the reason this essay refers to technology such as AI, radiation, and weapons as instrumental technology.

Entertainment, such as television, film, and social media, can have a powerful influence. While the primary focus of this research will discuss instrumental technology and not entertainment, this kind of technology is still important to discuss. Adam Alter (2017) acknowledges that technology isn't set to be good or bad because it is not programmed to carry its own morals. However, when combined with today's media culture and binge behavior, apps and platforms can be designed to addict or to promote connection within a society (p. 8). Mass consumption and readily available technology used for entertainment make its nature very addicting because it is presented as entertaining (Postman, 2005). With consumers' need and desire for entertainment, technology used to host entertaining content has evolved into a more addictive and immersive content. Postman said, "The problem is not that television presents us with entertaining subject matter but that all subject is presented as entertaining" (2005, p. 87). Ultimately, the influence of entertainment platforms is ever-present in today's society and should be handled with careful intention because, while they add value, they also include many drawbacks. Moving forward, this literature review will assess the effects of instrumental technology, specifically radiation, weapons, and artificial intelligence.

Radioactive Technology

Radiation can generally be defined by the action of emitting energy as waves or particles in the form of sound, heat, or light (Mirion Technologies, 2015). Radiation interacts with molecules to create energy. Classifying radiation as ionizing or non-ionizing is determined by whether electrons are knocked off of atoms due to the interaction with the radiation. Ionizing

radiation is more of a health threat to humans and takes more energy, while non-ionizing

radiation has little effect on humans and takes little energy. Non-ionizing radiation is used for

things such as radio and microwaves; however, there are still risks involved (Mirion

Technologies, 2015). Radiation is found in places from power lines to ultraviolet light to gamma

rays and is used throughout the world daily.

Like other forms of technology, radiation can be seen as both a "friend" and "enemy" in

society. Hospitals use radiation for good in a variety of ways, including but not limited to X-ray,

CT, and PET machines, to inform doctors about the human body and also to perform radioactive

treatments. In addition to modern medicine, helpful radiation elements are used in society daily

throughout the world. These technologies include smoke detectors, radiography, and food

sterilization (Mirion Technologies, 2015). Additionally, radiation is used in and is a byproduct of

nuclear power and nuclear weaponry.

Nuclear weaponry began developing during World War II under the Manhattan Project,

which was led by the United States. This project led to the development of atomic bombs,

including the bombs used at Hiroshima and Nagasaki. After these attacks, many studies surveyed

the long-term effects of the high exposure to radiation. The memory of these tragic events

resulted in fear of lethal radiation technology (Kraft, 2009, p. 175). After the bombing, people

became afraid to work in areas exposed to radiation hazards and that the repercussions of the

event would have a lasting effect for generations.

Radiation poses a threat because it is invisible to the human eye but can cause fatal

disease and genetic changes (Kraft, 2009). Biological research on ionizing radiation has found

that radiation has the most profound effects on tissue in the blood system (Kraft, 2009, p. 177).

With concentrated effort in evaluating the genetic effects from World War II, biologists were

able to establish that radiation damage can result in "failure to replenish the natural loss of erythrocytes, granulocytes, and platelets from the blood, leading to infection, hemorrhage, and anemia, referred to as radiation sickness or bone-marrow syndrome, and led ultimately to death" (Kraft, 2009, p. 177). The world is still seeing the effects of postwar radiation today, with the aforementioned health inconsistencies, risk of cancer, and genetic mutations.

Research involving the direct correlation of genetic mutations and radiation is unclear, but it is important to keep studying the possibility of mutation from radiation so standards for radiation exposure can be set for the general population (National Research Council, 2015). The genetic effects of radiation are hard to fully understand because radiation effects people differently due to the degree of radiation exposure and diverse genetics. It is also deemed inhumane to test radiation on humans if they do not need it for medical reasons. Therefore, genetic mutation research is often performed on other organisms (National Research Council, 2015). Overall, radiation technology can be used as a threat and should be handled carefully and with set boundaries. While there is much use for radiation for the good of mankind, there are several factors that make it a danger to the world.

Artificial Intelligence

While technology has both positive and negative consequences, society often fears technological advancement. Artificial intelligence is one example of a technological advancement that has been helpful to society in countless ways, but also has the potential of much danger to human perception and interaction. Technology is more than just an instrument. It is equipped with its own potential for social change determined by algorithms that are programmed to work in a way similar to the human brain. Society cannot be ignorant about the way technology works or else people will see the same execution of dangerous technology as

seen in *X-Men*; this is arguably a warning against the power of technology in the realm of science fiction and in reality as well (Postman, 2005, p. 157). Artificial intelligence technology introduces an entirely new set of dangers to society, as the potential for harm can be much more than physical.

The human brain sets us apart in the ecosystem. Mumford (1967) argues there is a close relationship between technology and biology. In addition, humankind did not invent the idea of toolmaking or survival. In this way people cannot distinctly set themselves apart from other organisms. However, people have taken this ability to function creatively further. As Mumford (1967) explains, "There was nothing uniquely human in toolmaking until it was modified by linguistic symbols, esthetic designs, and socially transmitted knowledge" (p. 5). Society has used technology to advance in many ways that have contributed to the growth of both the physical environment and now the online environment, making the world more connected than ever.

Artificial intelligence technology becomes more prominent in culture every day (Liu, 2020). For context, artificial intelligence is a communication science where machines can simulate human characteristics through calculated interactions that are considered intelligent (Gunkel, 2020). As artificial intelligence technology advances, people are separated from "good old-fashioned AI," known as GOFAI, and have transitioned into machine learning. GOFAI is a system of programmed algorithms that are capable of only what humans tell them to do. Machine learning algorithms utilize artificial neural networks similar to the human brain that have been developed to function with data that is not necessarily controlled by the human developers that created the intelligence (Gunkel, 2020).

The ability of machines to mimic human beings makes machines both dangerous and useful to society. In Darowski's compilation of essays on the ages of X-Men (2014), he includes

Clancy Smith's essay where he discusses these two opposing ideas in describing sentinels in *X-Men*, saying,

> On the one hand it is seen as a means of emancipation from toil and the eradication of scarcity to bring about a free, flourishing future for mankind. On the other, it has been seen as the realm wherein mankind was not meant to venture far, invariably leading to enslavement or annihilation. (Darowski & Smith, 2014, p. 74)

Mumford further explains the relationships between machines and human organisms. Ultimately machines have been developed to constitute their own environments, not just take part of the environment. They are sophisticated and are more than just objects within reality (Mumford, 1944). Mumford continues to point out that man is always interacting with his environment. Just as in natural environments, in technical environments people are confronted with danger and seek nourishment in regard to survival.

The very notion that machines are capable of performing tasks that human beings perform makes artificial intelligence dangerous, not only because people rely on it but because it has the power of both destruction and construction. Technology holds significant power to create mass chaos in culture, much like technology that is portrayed in science fiction films. So, while it is efficient and accommodates human needs, technology also holds the capacity to cause destruction and diminish human potential.

Weapons Technology

Weapons are derived from technological innovation. Holding both the power for good and evil, weapons play an important role in society as they are used to protect and to harm. Weapons technology, whether used positively or negatively, is a necessity because of its very existence. Weapons play an important role in defense for the military. Nuclear bombs, in

addition to causing mass radiation energy, were designed to be powerful, lethal weapons used to warn off enemies during World War II. Society was worried about what this radiation exposure would do to them (Berger, 1976). Likewise, similar fates of fear and destruction are decided in science fiction films. Weapons are often used as solutions to problems. In dystopian movies, this eventually turns into nuclear annihilation.

Technology can be seen in two ways in culture: There are technological determinists and technological instrumentalists. Technological determinism is a philosophy where technology "can drive human behavior and culture in directions that are often unplanned and unforeseen," while technological instrumentalism believes technology is a tool that is motivated and developed by people for specific use (Newport, 2020, p. 49). As technological instrumentalism becomes more popular, society is affected by powerful technology.

Technological determinism implies that military tactics and techniques are determined by technological change (Echeverría Rey, 2010). Weapons are used to determine what actions people will take in battle. Weapons innovation in war has turned into a competition where newer technological advancements—very dangerous technology—are necessary to be ahead. Weapon technology has caused a great deal of devastation in the world. The potential for destruction from weapons has been portrayed throughout many media platforms, specifically in movies, television, and video games. While weapons are beneficial and necessary to creating a powerful army, there is great potential for unnecessary destruction.

Mumford (1967) discusses the power of machines and their role in society. He challenges the common view of technology that it is limited to tangible inventions. As mentioned previously, he seeks to dispel the myth that primitive man was predominantly a tool-making species. Rather, language is what sets man apart. In his book *Technics and Civilization*,

Mumford (1934) argues that as memory became more tangible and allowed for things that had been learned to be passed on to others, symbol-creation set man apart even further. Dreams were very important to the beginning of language because people were able to distinguish things they had dreamt about and communicate them with others. They developed a large potential for good and evil by being able to vocalize and express their views. In describing the outcome of this, Mumford said that if a man had not dreamed about dragons and hippogriffs, he might never have thought of the atom (1934). The dream inspired many things, myths being one. Terrible nightmares inspired many to develop new technologies that held immense power. Mumford references heavy machinery and metal tools, such as the loom and plow, that helped to develop society. However, Mumford argued that the "megamachine" was the biggest motivator because it was what he called the new social structure. Mythical ideas, such as deities in the sky, spawned from Mumford's idea because they inspired fear and obedience to large populations. These ideas were built off people's fear of heavy machinery and the power it had in society, both physically and socially (Mumford, 1967). Overall, Mumford's metaphor of the machine shows how society has taken the fear of machinery, including weaponry, and built stories from it to lighten the burden of its potential. Machines, not just weaponry, are continuously advancing in society.

What is a Myth?

This thesis will use mythical criticism to analyze how entertainment and cultural interactions with technology are portrayed in the media to highlight how society has an ambivalent attitude toward technology. First it is important to note the definition of a myth. The dictionary defines a myth as "a traditional story, especially one concerning the early history of a people or explaining some natural or social phenomenon, and typically involving supernatural beings or events" (Fowler, 1949). Roland Barthes (1972), in *Mythologies*, focuses on

mythological connections to history and how myths function to transform history into nature (p. 129). However, he goes on to say that "myth is not defined by the object of its message, but by the way in which it utters this message: there are formal limits to myth, there are no 'substantial ones'" (Barthes, 1972). In accordance with McLuhan, the medium in which the myth is being told is the message. Therefore, *Myth Today* argues that myth both points out and informs about something. It teaches society an idea and then encourages society to accept its teachings (Barthes, 1972). Janice Hocker Rushing and Thomas Frentz define myth as "the historical text that unites singular public expressions into a narrative" (1989, p. 64). Mythical stories are metaphors for human affairs and their connection to different environments.

Technology's Effect on Human Affairs

Technology affects human affairs in many ways—connection to a physical environment, potential for creation and free-thinking, distraction from reality, potential for destruction, and more. A willingness to accept technology into society without recognizing its potential for harm has the greatest effect on human affairs. In response to artificial intelligence technology, Rushkoff (2019) says, "We must not accept any technology as the default solution to our problems" (p. 125). Rushkoff acknowledges that with this kind of technology, people try to find a way to belong to a technological environment rather than finding a place for technology to fit into the world. The idea that technology can and should take over human intelligence has been accepted simply because society has allowed for this type of technology to exist. When machines start working outside of the sphere in which society allows them to work, their potential is dangerous because it is authentic. Society is becoming more comfortable revolving around what technology does for us rather than on human instinct (Postman, 1990, p. 34).

In terms of media ecology and the impact technology has on human capability, Rushkoff (2019) discusses how society needs human intervention, not technology, to control technology in order to maintain a value system that defines decisions. People make accommodations for technology that society built to accommodate the needs of society. Examples of this are getting out of the way of a moving vehicle or creating algorithms for artificial intelligence (Rushkoff, 2019, p. 126). Rushkoff (2019) also explains that human creation is being diminished by the perfect appearance of technology production. He states, "Our mechanomorphic culture is embracing a digital aesthetic that irons out anything uniquely human" (p. 90). Society has become accustomed to perfection and has forgotten about the reality of human creation. Society's craving for machine products has increased, taking away the need for human ideas, but people will always be part of the equation. Ellul (1990) says:

> We are not subjects in the midst of objects concerning which we may freely decide how to act. We are closely implicated in this technical universe. We are conditioned by it. We cannot put human beings on the one side and equipment on the other. We have to set human beings, too, in the technical universe. (p. 37)

This combined effort will help humans control technology rather than the other way around. Technology takes up space in its environment and people must interact with it responsibly, both as an instrument and for entertainment.

Entertainment

Film and television are not developed for the sole purpose of entertaining (Johnson, 2016). Film allows for society to communicate messages via images, not just words (Postman, 2005, p. 7). Within the entertainment industry, science fiction tends to create an exchange between viewer and creator to frame attitudes (Rushing & Frentz, 1989) toward "the machine"

that reflects "both an invitation and a warning; it is simultaneously fascinating and threatening, both superior to and somehow inferior to the punier humans who build operate and sometimes are subjugated by it" (Porush, 1985, p. 7). This idea is shown in multiple media examples as the science fiction world creates both utopian and dystopian films (Rushing & Frentz, 1989). According to Winner (1997), the portrayal of Utopian views tends to sway toward the side that new technology will offer greater wealth and freedom, idealized politics, fulfilling communities, and personal fulfillment (p. 1001). This idea elicits hope that technology will elevate the human experience and create an idealistic society. Dystopian views are "a uniquely modern form of fiction whose emergence parallels, reflects, and warns against the growing potentialities of modern technology" (Beauchamp,1986, p. 53). In dystopias, according to Beauchamp, there are two sorts of fears: one is that the machine will control man, and the other is that man will be changed into a machine (p. 59).

The Portrayal of Technology in Entertainment

Portrayals of technology in the media are often dramatized for effect. Dystopian novels often use technology in a way that completely alters society as they know it. Like *X-Men*, dystopian novels and films are a response to societal tragedy, playing on the fear of world destruction by technology (Scholes & Ostenson, 2013, p. 11). There is an increased risk when using technology. If people are not using technology responsibly, it is capable of creating very dangerous situations. People are all susceptible to the framing of media and the power of technology.

The story of *X-Men* began long before the days of Wolverine and Deadpool as a science fiction comic that heroically portrayed technological dysfunctions in society through stories of young, atypical superheroes. *X-Men* explores the implications of pertinent contemporary

technological developments by implementing fictional ideas that derive from real-life tragedy. After the bombing of Hiroshima, science fiction became historically important in American culture because Americans were more familiar with nuclear energy and have lived in fear based on experience (Berger, 1976). This made *X-Men* even more appealing, as it started with human offspring that were exposed to a large amount of radiation caused by the Manhattan Project. Likewise, many other movies incorporated real-life experiences to show cultural development through science fiction.

The presence of cultural reflection in movies has been portrayed throughout the history of media. According to Kirby (2014), in the early 1900s, mad scientists and inventors were continuously being depicted in media, one example being *Frankenstein*. The Manhattan Project in the 1950s led to more than just *X-Men*, but also films like *Frogs* (1972). The emergence of computer science in the 1980s led to films such as *The Terminator* (1984) and *Robocop* (1987). Scientific discoveries with machines and machine learning in the 2000s led to films such as *Wall-E* (2008) and *Avatar* (2009). Other Marvel movies have involved biomedical research such as *Captain America* (2011) (Kirby, 2014). Incorporating cultural experiences into film has been prominent throughout the history of media. As *X-Men* developed and transformed through the years, Stan Lee encouraged cultural reflection within his plots. As technology was advancing in the world, the problems the X-Men faced reflected technological development in the real world.

With great actors and the extension of a new class of superheroes, *X-Men* took off in popularity with the first movie in the year 2000. Two years after the creation of Google, people were just starting to get comfortable with the internet and had little understanding of what technology was coming. The first-generation movies, starring Patrick Stewart and Ian McKellen, include more traditional technology with a focus of high-tech shuttles and battle suits, as well as

some less traditional, such as a hoverchair and secret base made with alien technology. Moving into the more recent movies such as *X-Men: Days of Future Past* and *X-Men: Apocalypse,* technology shifted into high-tech weaponry, human enhancement, and artificial intelligence. However, the most prominent technology in *X-Men* was the intelligent Cerebro machine, radiation, and weaponry. The following analysis will argue that media, specifically *X-Men*, portrays technology through an exaggerated lens to create an outlet to fictionally address pertinent issues in a way that diffuses the politicization of the discussion of technology's capabilities. This will show both that technology has both a positive and negative effect on culture and that this effect is portrayed historically throughout the science fiction series *X-Men.*

Collective Participation in Entertainment

Media portrays the advancements of modern technology in different ways, alluding to the idea that society has an ambivalent relationship with modern technology; however, it is still an essential part of society, and while it can be seen negatively, it will remain an important and growing field. Langdon Winner (1997), a political theorist focused on technological change, explains this ambivalence, saying,

> Whether taken in optimistic or pessimistic variants, there was something of an agreement that modern technology had certain essential qualities, among which one could list a particular kind of rationality—instrumental rationality, the relentless search for efficiency and a kind of historical momentum with indelible features that rendered other kinds of social and cultural influences upon the character of social life far less potent. (p. 997)

The entire world is interconnected because of media technology (McLuhan, 1962). Media scholar McLuhan (1964) invites this idea, calling it a "global village."

The introduction of new technologies extends the reach of both body and mind in ways that would irreversibly alter an individual's interaction with both the environment and the rest of the global village (McLuhan, 1964). This results in the creation of a vastly complex and sophisticated universal neural system that can be accessed by anybody with the desire and the necessary technology. In accordance with the idea of a global village, McLuhan (1964) goes on to explain that, as a society,

> we live mythically and integrally. . . . In the electric age, when the central nervous system is technologically extended to involve the whole of mankind and to incorporate the the whole of mankind in us, we necessarily participate . . . in the consequences of our every action. (p. 4)

The concept of the global village makes technology a necessity, but that does not negate the fact that it will have positive or negative implications.

Like McLuhan's theory of the "global village," Carl Jung (1973) believed that the world is connected through similar views and experiences. Jungian theory introduces the idea of the "collective unconscious." Jung (1973) explains how dreams communicate, saying that dreams convey "many different things: concrete imagery, thoughts, judgments, views, directives, tendencies which were unconscious either because of repression or mere lack of realization" (p. 24). Dreams are made up of a combination of personal and universal experiences; they are the representation of an individual's personality merged with the phenomenon that is the "collective unconscious" (DeLaszlo, 1959). Universal experiences are interwoven throughout the collective unconscious through common images and shared knowledge. Jungian scholar Mary Ann Mattoon (2020) further expounds on how dreams can be used to increase consciousness and reveal the hidden part of the human psyche. She furthers her idea, saying, "Simply paying

attention to dreams and working through the interpretation process increases consciousness a great deal more" (p. 132).

Jung plays off of the ideas of his mentor, Sigmund Freud, expanding on Freud's personality structure. His personality structure displays the development of human behavior and the complex dynamic of the preconscious, conscious, and unconscious mind. Within this structure, repressed memories exist in the unconscious mind; the preconscious mind stores memories or ideas that are hidden or undeveloped inside the mind that have the opportunity to become conscious; and the conscious mind is the mental process by which an individual can understand and think rationally (Freud, 1935). The ego is a guiding factor that governs instincts and protects the mind as a mediator between a person's conscious and unconscious (Freud, 1962, p. 15). Carl Jung refers to the processes of the conscious and unconscious as the psyche. That which a person does not want to acknowledge about themselves is repressed into the unconscious where it lives an active life outside of the ego's restraints, emerging into consciousness through processes such as dreams. Jung calls the repressed part of the personality the shadow. "The shadow" is suppressed by the self, or ego, to shield others from its own perceived oddness toward them or from the possible discomfort it may cause others (Mattoon, 2020).

Like the collective unconscious, Jung argues that there is a "cultural shadow" (page number?) Similar to how the shadow presents itself through dreams and the unconscious, the "cultural shadow" presents itself through cinema (Jung, 1966). Since the shadow is a limitation to a person's consciousness, the shadow that defines a cultural point of view would be the fear that mankind may be replaced by technology (Rushing & Frentz, 1989). According to Jung, film is one of the most important venues for exposing shadow culture, since it "enables us to experience without danger to ourselves all the excitements, passions, and fantasies which have to

be repressed in a humanistic age" (1971, p. 479; Rushing & Frentz, 1989). A cultural psyche is a self-regulating system that strives to create balance, much like a personal psyche strives to create balance. Jean Gebser (1997) identifies several "structures of consciousness," one of these designated structures being mythic (p. 82). Jung offers that each "structure" of consciousness is a part of one's overall psyche (Johnson, 2016).

Mythical Criticism

Myths are examples of cultural shadows, as they are "best understood as a repressed but evolving myth" (Rushing and Frentz, 1989, p. 64). Myth is able to become the "center of mass consciousness" because electronic mediums allow for the ideas to reach people globally (Johnson, 2016, p. 4). This analysis will use the myth of Prometheus. The myth of Prometheus tells the story of how mankind came into possession of fire, enabling man to form civilization. Prometheus stole the eternal flame on Mount Olympus and gave it to man. Zeus punished Prometheus by chaining him to a mountain and having an eagle peck out his liver each night. The myth of Prometheus teaches there are consequences for every action. Additionally, once humans were given fire, it could not be taken away. The fire inspired people to imagine, create, challenge, and more. It gave them freedom, but also great suffering (Haque, 2016). The study of Prometheanism is the study of the advancement of modern technology.

Methods

When conducting a mythical criticism, it is necessary to start by identifying a myth that is relevant to contemporary culture through both a historical and popular media lens, additionally dissecting the myth into symbols, storylines and character arcs in order to develop a more refined theory toward media. For the purpose of this study, the myth of Prometheus was chosen, looking specifically at technology and its connection to fire within the myth. Following this step,

researchers would choose a communications theory that fits within the realm of symbols that are explored within the chosen myth. For example, the myth of Prometheus is about technology and the transaction between technology and humans, which fits directly with the theory of media ecology. The next step is to divide on a case study, focusing on a form of media that includes the proper symbols, character arc, and storylines that were found in the chosen myth. Once this media is chosen, researchers will dissect the content of this media and record themes of symbols and storylines that align back to the myth. The case study for this thesis is *X-Men.* This superficial viewing or reading of the media will lead into the next step of reflecting on the connections between the myth, theory, and case study. At this point, it is important to turn to literature to elevate the discussion of these connections that will lend a hand to the analysis. Once these ideas and understanding have been more clearly defined, researchers should rewatch the movies through a more specific lens that will highlight the themes and symbols that are important within the reading of the myth. This can be done through a series of coding for symbols and specific events, as well as extensive note taking focused on characters, scenes that relate to history, the myth, and real life, etc. The coding will be specific to the myth at hand. Identifying scenes that will exemplify these themes and symbols will allow a direct focus on the various aspects of the myth that connect to the tangible aspects of the modern world. For this thesis, this process focused on the characters of Zeus and Prometheus, elements of technology, and the effects of this technology on the characters. Finally, the connections that are found within this case study, real life, and the myth should extrapolate takeaways related to the myth that show how the myth has evolved to the present day in a meaningful way.

X-Men shows that ignorant usage of technology leads to non-purposeful technological advancement and that knowledgeable usage of technology leads to sharing the world in a way

where humans and technology are yoked, creating a more efficient society. When people do not take the time to fully understand technological innovation and the effects it can have on society, people are giving away control of the technological environment. Technology has the potential to be both beneficial and dangerous in this society, depending on the power people give it and the role they choose to play. *X-Men* evaluates the natural human fear that comes from technology including, fear of being surpassed, fear of destruction, and fear of losing the environment to technology, but instead of leaving us hopeless, *X-Men* shows that with the proper responsibility from humanity, technology can ultimately be a tool untethered from the fear it elicits.

Media ecology studies technology as it affects humankind. The progression of technology in culture has created a technological environment in which society interacts daily. This environment mimics the natural environment in many ways but is ultimately a place where technology interacts with humankind. Uses, including taking action toward developing technology and furthering its use in lives or living in fear and ignorance of it, allow technology to have more control over us. There are different types of accommodations that humans have to make with technology.

This a common theme in the series of *X-Men*. On a microcosmic level, humans accommodate their lifestyles to technology all the time. For example, when a person buys a car, they will need to buy a house with a garage to accommodate the car. This represents a major life change made by an individual to accommodate the car, a form of technology, in order to make the individual's life more enjoyable. Alternatively, technology can become so autonomous that an individual's adapting to the technology becomes less about making the individual's life more functional and more about interacting with a completely independent technological-individual. For example, in *X-Men*, the mutants are a product of radiation technology but they don't function

in the same way as a car in society. They are complete individuals and humans have to adapt to their existence because they are sharing the environment with the mutants. People work hard to create technology that is adaptable and makes life easier. However, as technological advancements progress, individuals will be able to design technologies for which people will have to begin making accommodations (Rushkoff, 2019). People are the distinction between accommodating technology and creating technology to accommodate us. People are the ones who have the unique opportunity to decide the role technology plays in society--whether it merits the work, effort, and attention to accommodate their lives to the technology and its needs. Thus, according to Rushkoff and as shown in *X-Men*, people are responsible for technology's role in society. Overall, technology gains power from human ignorance.

The premise of *X-Men* is that radiation affected individual children's DNA to the point that they eventually evolved, becoming mutants--beings with various kinds of abilities--who then go on to interact with, fight against, and sometimes try to adapt to the often hostile environments, physical and technological, in which they live. Just as Cerebro has both the power to help and build connections and the power to wipe out an entire civilization, technologies such as artificial intelligence, radiation, and weaponry have power for both good and evil. Radiation is the cause of many wonderful medical discoveries; it is a large part of the reason cancer patients have a chance for survival and how others can identify health problems. Radiation has also allowed society to have modern conveniences such as the microwave and heat technology. While these things have improved the lives of many, radiation has also killed many in the crossfires of a nuclear war. For every good consequence of technology, there is also bad. Weapons have the power to protect and build and defend, but they also have the potential to destroy and kill innocent people. Finally, artificial intelligence is what brought society amazing modern

commodities such as Google Translate and facial recognition, but AI can also be categorized as a fear that is communicated through society's discourse on the technology. AI gives technology the ability to think like a person and produce perfectly calculated and creative results. The presence of this technology takes away the need for unique human thought and could ultimately diminish the reputation of mankind altogether. The idea of machines thinking for themselves without the guidance of human morals is a dangerous thought.

This analysis will show the discourse within technology and how X-Men portrays this dilemma through Cerebro, mutants, and weapons. Cerebro is in the center of that dilemma. This intelligent machine that works with Charles Xavier's mutant capabilities has the power to do both good and evil. On one hand, Charles Xavier is able to enter mutant's minds and feel what they feel. He is able to feel connected to every single mutant and human, to know what they need, and to comfort them. On the other hand, Cerebro has the ability to wipe out every single person on the planet. While some mutants possess goodness and contribute to protecting mankind, many mutants want to destroy humans.

With the brief history of media ecology theory and the background on AI, radiation, and weapons, this analysis will expound on the role technological society plays on mankind. With this approach to media ecology, this analysis will look at instrumental technology through an original lens. This is relevant to society culturally, because it teaches society that staying informed is the best defense against technology. In recognizing that technology has given society so many tools for success, people must proceed with caution and protect what is uniquely human at whatever cost. Applying this idea to media ecology theory will fill the gap of how the technological environment is portrayed in the media, specifically *X-Men*, and what effect that has on human affairs.

To further analyze research on the power of technology and the technological environment developed from media ecology scholars, this paper will analyze the dichotomy between how technology is being represented and how it functions in society. Researchers continue to dive further into whether the pros of technology are worth the risk of the potential cons that are a byproduct of technology. Society faces a technological dilemma between the efficiency and usefulness of technology and the potential for destruction and diminishment of human performance due to technology. The aforementioned research on the power of technology will help lead the discussion in this future research.

This study will use mythical criticism to examine how depictions of technology in science fiction films, specifically *X-Men,* convey cultural ambivalence about technology., especially by framing views about technology through an analysis of the *X-Men* series. This analysis will first identify technological themes of myth and will also focus on the cultural shadow and attitudes toward technology throughout *X-Men.* Rushing and Frentz (1989) argue that the myth of Prometheus is present in many popular science fiction films. In their paper, they echo Beauchamp's two fears that are present in dystopian films, which are man fusing with machine and machine taking over for man. In addition to this, Rushing and Frentz add the fear of agent versus agency, as defined by Kenneth Burke. Agents are the individuals or groups of people who perform in an act. Examples of this include characters, motives, hosts, locations, and organizations. Agency is the technique or method by which the agent achieves their goals (Burke, 1962). I suggest that these three fears are also prevalent in the *X-Men* series, as evidenced by three important technical roles in the narrative. In line with the three fears of technology shown in movies, this study will look at these three instrumental technologies: radiation, weapons, and artificial intelligence.

Going forward, in addition to media ecology, this analysis will mirror the technique

shown by Rushing and Frentz (1989) in their study "The Frankenstein Myth in Contemporary

Cinema" to look at the Promethean aspects of three *X-Men* movies: *X2, X3,* and *Days of Future*

Past. To do so, researchers will look at the presence of fusion, defeat, and agent/agency in

specific technologies addressed in these three movies. These technologies will be discussed as

they are represented in the films and in reality. The process in which this thesis will work to

analyze these non-fictional technologies (radiation, weapons, and AI) and fictional technologies

(mutants, sentinels, and Cerebro) in conjunction with the cultural fears each one elicits is shown

in Figure 1. Ultimately, the following analysis will show how nonfictional technologies lead to

shared cultural fears that *X-Men* then plays on to create an entertaining story of the potential the

technological environment holds.

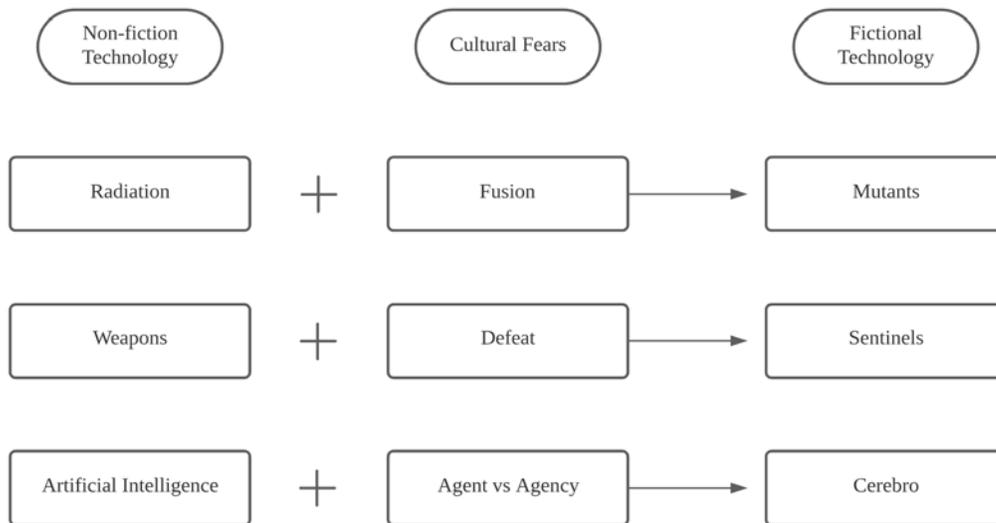| Non-fiction Technology		Cultural Fears		Fictional Technology
Radiation	+	Fusion	→	Mutants
Weapons	+	Defeat	→	Sentinels
Artificial Intelligence	+	Agent vs Agency	→	Cerebro

Figure 1. *Roadmap for analysis.*

The first technology that will be analyzed is radiation, which is portrayed in *X-Men* with

the presence of mutants. The fear that corresponds with this technology is fusion because it

shows how technology merges with human beings to create an entirely new construct. The

second technology that will be analyzed is weapons, which are represented in the films as

sentinels. The fear that corresponds with this technology is defeat because weapons have the

power to create mass destruction. Lastly, this thesis will analyze artificial intelligence, which

corresponds with Cerebro. This is an example of the societal fear of fusion technology because

AI takes humanistic characteristics and applies them to technology. Researchers are concerned

with how science fiction films are framing the way society views technology and how the

mythical portrayal of technology in films represents technological ideas generated from real-life

incidents as a call for humanity to take action in using technology responsibly.

<div align="center">**Analysis**</div>

In the *X-Men* series, mutants and humans alike are motivated by fear to do many extreme

things. Their motivation bounces off one another and events spiral until things finally become

unhinged and mistakes must be reversed, simply because history continually repeats itself.

Stubborn attitudes on each side make it seem impossible to live together. Charles Xavier justifies

this idea, saying, "Sharing the world has never been humanity's defining attribute" (Singer,

2003). He is commenting on the realities of human warfare in response to technology. As the

humans' fear and perception of the mutants' danger to them grows, the mutants' fear of

humankind destroying them also grows. Eventually, the characters in *X-Men* use radiation,

weapons, and artificial intelligence. The following analysis will discuss how these technologies

are depicted in the *X-Men* series.

Radiation

Radiation is one technology shown throughout the series of *X-Men* that connects the

symbolism of fire within the myth of Prometheus to technology seen both in these movies, as

well as in real life. This lends hand to the reason that *X-Men* was chosen for this analysis, being

the historical reflection that is prominent throughout the series. As new technology has surfaced and cultural woes have occurred, the *X-Men* franchise has told exaggerated stories of real-life fears about technology, starting with the fear of radiation and the X gene. As *X-Men* was being written in the 1960s, writers were informed by a world that did not know several technologies available today. However, radiation use resulted in fear due to historical events such as the atomic bombings of Japan and the nuclear accidents at Chernobyl and Fukushima. Today there is still fear due to radiation's unknown potential. Some of these fears include mass destruction, cancer, tumors, and genetic mutation. The genetic mutation shown in the *X-Men* series likely drew on the fear of radiation prevalent in the 1960s.

Fear of fusion is related to technology because it is taking two or more separate particles and combining them to create something new. The fear of fusion corresponds to radiation technology as it inspires the fear that technology will eventually fuse with humans, creating something unknown and uncontrollable. The fear of fusion in terms of radiation and *X-Men* functions as the byproduct of human-created technology fusing with human genetics. It is chaotic and unpredictable, inciting fear-based action. This exact idea is shown repeatedly in the *X-Men* series through the appearance of mutants. Mutants are the result of human technology fusing with human DNA. This DNA creates several issues that cause chaos and fear among humans, leading to great destruction and oppression. Through its portrayal of radiation fusing with human genetics to create mutants with disastrous powers, the *X-Men* series explores the extreme possible consequences of technology, like radiation, gone awry.

Radiation doesn't play an overt part in the world or in the *X-Men* movies, but yet it is the foundation upon which the whole series operates. Radiation fusing with human genes causes mutations, causing mutants to develop. Similarly, in real life, the threat of destruction or vast

changes to the way humans live their lives do not seem pressing to most people, yet the threat of destruction by radiation is also a clear and present danger; the technology to cause major defects, destroy whole communities, and devastate ecosystems already exists. The only question is whether governments, individuals, or other entities will leverage the power of radiation to create this kind of destruction. *X-Men* draws parallels to real life, as radiation is not prevalent through most of the movies, but it has created the largest technological ripple in humanity and holds the most potential for destruction. Much like real life, where radiation has become something we see and interact with every day but hardly think about, while the potential for mass destruction and unknown factors lies in several places throughout the world within nuclear energy. This connects specifically to the myth of Prometheus and the potential fire holds for both chaos and peace.

The presence of radiation in *X-Men* directly relates to the chaotic nature of fire within the myth of Prometheus. In my viewing and analysis of the *X-Men* films, it is clear to see the emphasis on evolution throughout the films. A voiceover of Magneto talking about evolution often plays as the movies begin, and he often refers to humans as the dominant species that started from a single-celled organism. He then refers to mutantism as a byproduct of evolution. While radiation is not explicitly stated as the cause for the mutant problem, it can be assumed, due to the aforementioned historical connection and because of the nature of evolution. Charles Darwin noted a fitting example that illustrates how evolution is related to this process. Darwin's experimentation with finches is a typical example of adaptive radiation. About two million years ago, the finch's common ancestor landed on the Galapagos Islands. Since that period, Darwin's finches have developed into 15 distinct species, each with its own body size, beak shape, song, and eating habits. The supply chain of evolution is a unit in the process of genetics that has been transformed by some event, consequently modifying some characteristic of its successors.

Mutation is caused by ionizing radiation. As a result, ionizing radiation is a major source of evolution (Scoville, 2020). As seen in Darwin's finches, evolution occurs when a living organism fuses with a new environment to create something new. *X-Men* utilizes this radiation technology in its plot by fusing humanity with its technological environment, creating something new and chaotic, changing the ecosystem completely.

The unknown element of this technology makes imaginations run rampant as people predict what the existence of mutants will mean for humankind. For example, in the *X-Men* movies, Dr. Trask, living in the early 1970s, is an intelligent man who sees the negative potential of mutants on humankind. In response to these feelings, he creates machines called sentinels, set with technology equipped to take out mutants completely, utilizing the DNA of Mystique, a shapeshifter mutant. He assumes responsibility to prevent the possibility of mutants taking over humankind by prematurely creating a solution. *X-Men* shows how human reactions drive violent behavior in response to the fear and threat felt through technological fusion. This portrays how technology is often used as a solution to problems started with technology. The fear of fusion is present as radiation continues to be a constant threat that is leveraged against humanity.

One example of radiation and playing off of the fear of fusion is the end of the first movie in the *X-Men* series. Magneto, a main protagonist in the *X-Men* franchise, is fed up with the way humans think of mutants and the tyranny mutants are facing from human government figures. The humans want to enact a law that all mutants must identify themselves and report to the U.S. government that they are a mutant. Magneto is done hiding out and wants to make a scene so that his voice will be heard. When learning of Rogue, who possesses the unregulated ability to absorb and possibly remove the memories, physical strength, and abilities of anybody she comes in contact with, Magneto plans to use her to power his machine that will turn the world leaders into

mutants. This machine largely utilizes radiation as waves of energy are created to harness Rogue's and Magneto's powers, as well as to direct the mutant gene toward the humans. This scene not only clarifies that radiation is an important part of the mutant gene, but also largely comments on the idea that radiation has the ability to create mass destruction at any given time. Evolution needs an event to incite a reaction, but the reaction could be catastrophic if used for the wrong reasons.

Aligning with the historical elements developed within myth, radiation has historical elements that add weight to the conversation of radiation technology seen in the real world and the fictional world of *X-Men*. While the fear of radiation has been lingering since World War II with nuclear weapons, this fear has slowly been silenced as radiation has become more relevant in daily life with useful tools such as microwaves, MRI machines, CT scans, and more. People have accepted this version of radiation or become desensitized to its potential. However, nuclear warfare is still a possibility as the technology is developed to the point that the threat is already here; the only question is whether social influences, national relations, or some other transnational catastrophe will result in the use of this dangerous technology to actually destroy or at least significantly decimate humanity.

In addition to telling the story of radiation technology and the physical effects that are caused by this advancement, the *X-Men* series shows the aftermath of using this technology culturally in an emotional capacity. The point of mythic cinema is to show the effects of technological downfall and creatively show that we are not yet doomed to this existence if we are responsible for our technology use as a collective group. Collective experiences allow for shadows to motivate our actions as humanity faces technological advancements that will impact the larger population, not just individuals. The social commentary about the effects of

technology are just as important as its uses. Mutants are made by radiation, and humans fear that.

Humans fear the thing that has been fused. Mutants have the fear of self being taken away as

their mutations don't manifest until puberty. They live a large part of their lives thinking they are

human and living in a world that makes mutants the enemy. The emotional toll of the effects of

radiation are immense and covered generously throughout the entire series of *X-Men*. Fear of the

unknown is a hard burden to bear, as people are living a life filled with great technology and then

finding out radiation could take it all away. As such, much of the *X-Men* series comments on

how the use of technology can have vast effects on humanity's interactions with each other and

what we will face in our lifetimes. One effect of the radiation technology that caused mutants to

evolve and is often overlooked is emotional damage. Emotions are not taken away just because

mutants carry the X gene.

In *X2: X-Men United*, humans are constantly turning on mutants. Bobby, with the ability

to create and turn into ice, is looking for a place of safety and peace. As Xavier's school has just

been attacked by anti-mutant humans, he goes home. While there, his family discovers he is a

mutant and almost immediately turns on him. His brother calls the police and falsely accuses the

mutants of harming the family. Bobby is abandoned by his family and rejected by the people

who raised him. William Stryker, an anti-mutant activist with great knowledge centered on

technology, converts his own son, a mutant, into a machine, obliterating the life that previously

existed. Stryker also experiments on Wolverine, turning him into a weapon and wiping him of all

his previous memories. The world already thinks mutants are zombies. Little did they know they

were forging the path to zombie-like creatures. Stryker also creates a serum that not only hurts

the mutants but decreases their abilities and turns them into zombie-like creatures hypnotized by

their enemies to hurt fellow mutants. Stryker uses this technology on many mutants, including

Magneto, to try and fight the mutant problem by controlling mutants and turning them against each other.

Mutants are referred to as a disease in the third film in the original *X-Men* trilogy, *X-Men: The Last Stand*, and humans have tortured a young mutant to find what they consider a cure for mutantism. Some mutants consider it extermination. However, no one on either side considers the possibility that some mutants would seek the treatment because it will benefit their lives. Humans only care that they won't have to fear mutants anymore, and mutants only care that they survive. Magneto and his supporters believe that mutants are the solution for homo sapiens, and that they are growing into a superior species by uniting the best of what humans have to give with the abilities that make them mutants. Wolverine takes the cure and uses it on Magneto. Lying there, vulnerable to the world, with his power fleeing from him, Magneto finally realizes the insecurities and dangers that come from being human. He realizes the potential for harm that effects of radiation technology can have. He no longer has defenses against the powerful and uncontrollable weaponized technology that has been used in this war, and that scares him.

Weapons

Just as radiation insights a certain fear of fusing technology with humans, weapons can also insight fear in different ways, including the fear of technology completely defeating humans. In *X-Men: Days of Future Past*, the sentinels created by Dr. Trask, as previously mentioned, have become more advanced and equipped with artificial intelligence technology, along with weapons technology and the ability to take on mutant abilities. These sentinels are set in a world that has been destroyed by all types of technology. The scene is dark with lots of fire and a world that looks as though it has been destroyed by the machines that humanity has created to find peace. The *X-Men* are still fighting these sentinels and slowly die off trying to protect

what is left of humanity. They get creative and realize that in utilizing their powers, they can send someone's consciousness back in time to reverse the cruel actions that have occurred from past events. The *X-Men* send Wolverine back in time so that he can convince Magneto and Charles Xavier to persuade Mystique not to kill Trask and not to give her DNA to the process of creating sentinels. While facing defeat, this scene shows not only that technology can cause destruction and darkness when used irresponsibly, but that this fate is not set. The opportunity to change the conversation about technology is possible if one is willing to learn about technology and its effects and transfer that knowledge into responsible action. *X-Men* cautions and warns people that mindlessly or carelessly using technology will ultimately lead to technology winning and humanity being defeated, especially if that technology lands in the wrong hands.

The following paragraphs will elaborate on how weapons shown in *X-Men* connect to the fear of defeat, as well as pertain to the use of fire within the myth of Prometheus. Weapons technology represented throughout the *X-Men* series include drones, nuclear warfare, guns, AI, and more. One cultural fear often represented in film is the fear of defeat. Defeat is the fear of coming head-to-head with technology and losing, leading to the overall obsoletion of humans. This is metaphorically told through the *X-Men* series when mutants are "losing the war" against technology. This could mean literal defeat in that humans are hurt or destroyed physically, homes are demolished, etc., or this could mean emotional and psychological defeat.

The fear that technology will eventually win and humans will become obsolete is portrayed regularly in popular media. Examples of this are shown in many dystopian film adaptations involving robots, zombies, new species, etc. This is emphasized significantly throughout the *X-Men* series, with a specific focus on weapons and weaponizing mutants. Underneath its ideological ambiguities, *X-Men* indicates that individuals have extended

themselves and grown dependent on their technology to act for them and that technology is thereby remaking the human agent in its own image, systematically redesigning its scene (Rushing & Frentz, 1989). *X-Men* successfully depicts the early phases of human extinction as a result of increased and exaggerated technology and automation. Weapons are a constant theme throughout these movies, as several scenes depict the consequences, including war, prohibition, segregation, and all-around fear of dangerous weaponized technology featuring sentinels, guns, mutants, and more.

Mutants and humans are motivated by fear, the underlying issue for all war and persecution developed in these movies. The humans are afraid of defeat because they don't know how to control the mutants. They fear that the power mutants hold, power they do not understand, will one day wipe them out, whether it's the mutants' fault or not. The mutants are afraid of the technology running through their veins, something that society has told them to be ashamed of since they were born. They are also afraid of the hatred and fear that motivates those they once called friends, family, and themselves, because that hatred and fear has helped to develop very powerful weapons and dangerous technology that might defeat them completely. This series shows many examples of the fear of defeat as mutants and humans rally against each other in protest and war with the help of technology. In *X2: X-Men United*, unification isn't as easy as it would seem. It seems almost impossible. Charles comments on the cultural woes revolving around the destruction of technology. Violence seems to be a recurring theme as humans and mutants are protesting and fighting for freedom. William Stryker, a former Army commander and human who hates mutants, has used technology to manipulate how mutants are viewed and contained. He uses his technological abilities to build weapons, as well as prisons. Stryker has contained Magneto in a prison made completely of plastic so his powers will not

work. Magneto and other imprisoned mutants are often mistreated and assaulted, causing severe and deadly damage. Later the film shows that Stryker is the one who experimented on Wolverine, making him the weaponized version he has become. Mutants often play defense in this film as humans are continuously attacking their school and residences. Stryker believes that mutants can be useful as long as they can be controlled, and he does experiments on his own son to show how this could work. He has created a serum that makes mutants slaves to his word, a state of hypnotism that takes their volition. Stryker believes anything can be controlled with technology. The very existence of mutants invites the possibility for something to counteract it because every action has an equal and opposite reaction. Stryker plays at this idea no matter the cost.

X-Men: Days of Future Past, as mentioned previously, begins in the future where popular characters that have been built up throughout the previous movies are dying at the "hands" of drone technology. Sentinels have always been pertinent in the *X-Men* franchise as they began as the antagonist on the side of humans against mutants. As modern technology has evolved in real life, these fictional sentinels have begun to follow suit and reflect more advanced technology, including weaponized UAVs. In contrast, these sentinels feature far more advanced weapon capabilities that have yet to be seen in modern societies. However, their presence helps to reflect the same militaristic need for better defense as part of the "war answer" which, in the case of the *X-Men: Days of Future Past* film, is exterminating all mutant-kind. It is this technology that is finally able to destroy mutants by mimicking their unique abilities alongside the inclusion of intensely destructive weapons. As the role of technology has become so vast, the same fear of defeat has become a reality for these mutants. Much like Postman (2005) and Strate (2017)

describe, the fictional world that combines mutants and humans has become a technological environment in which both must learn to interact.

Thus, much of the plot in *X-Men* is the characters learning to interact with this new technological environment, and the audience is able to see the rough process of the characters incorporating new technologies into society. As such, sentinels become a part of this environment that mutants and humans must both learn to navigate through. The drive for enhanced technology to "protect" humans from the perceived threat of mutant-kind eventually leads to the destruction of both groups—human and mutant. Much like the myth of Prometheus, the technology is adapting to a new environment and these two entities must learn to coexist. The following paragraphs will show how the plot of *X-Men* contributes to the attitudes of technology that echoes the teachings of the myth of Prometheus.

A lot of the plot of *X-Men* shows the ambivalent attitude toward technology. The divisive nature of the characters in the movies comes from their attitudes about the technology portrayed. The audience can clearly see that technology is both a friend and an enemy. *X-Men* does a good job of showing how different people have different perceptions of technology, creating an ambivalence, as well as commenting on major societal issues. The humans obviously fear the mutants because they are afraid of being defeated by advanced beings who were exposed to radiation. These fears are what cause the humans to create the sentinels in the first place. It is the humans' lack of trust in mutants that causes them to want to attack, and the cycle is endless. The continuous advancements in technology within the *X-Men* environment change the cultural attitudes about the very technology that exists and progresses throughout the films.

Much like Mumford (1967) mentioned about dream and myth, *X-Men* tells this exaggerated story of modern drone technology, ultimately lightening the burden of similar

technology seen in actual society. Combining weaponized drone and AI technology to create a sentinel that can overtly outfight any human or mutant shows the cultural fear people have about weaponized drone technology in reality. As weaponized drones become more prevalent in the military and more present in the media, *X-Men* plays to that fear to create a compelling and relevant story.

The technical universe displayed in the *X-Men* movies is not much different from the very one people are exposed to every day. It shows the potential technology can have when put into the wrong hands. Further, it shows the potential of technology when people lack empathy. The weaknesses of humans are overemphasized in *X-Men* when pertaining to drone technology. As such, because *X-Men* is based on historical events united with public expression, the narrative becomes mythical. The sentinels take on the function of a metaphor for human affairs and their real-life interactions with their environment, a technological one in the case of *X-Men*. This interaction is a metaphor for the interaction of drone technology, as it shows the cultural fear that consumes society but shows it in an entertaining way to lessen the intensity of the situation. Myths spawn from ideas inspired by fear and obedience. As drones become more commonplace, *X-Men* will continue to play on the potential of this technology. This leads to an ambivalent attitude about technology, as consumers are excited about its function but fear its potential.

Overall, *X-Men* is a retelling of the myth of Prometheus because it shows the consequences of technological advancements, such as the use of drones, nuclear technology, and guns, evidencing that there are consequences for every action. This teaches that the way people interact with and use drone technology will determine its role in society, and that is a great responsibility. When Prometheus gifted fire, the people on Earth were inspired, but that fire could not be taken away. The consequences that followed were permanent because the

technology now existed. With a knowledge of media ecology and understanding that all technology affects humankind, *X-Men* uses myth to caution and teach about the impact drone technology currently has and will have on society's development.

Artificial Intelligence

X-Men's portrayal of individual humans' connections with technology through scenes involving independent technology demonstrates the phenomenon of agent vs. agency. Agent vs. agency is a theory where humans are the agents and they are afraid of technology usurping their agency, leaving them as empty vessels. When tools overcome the human agent, what is left is an empty vessel for technology to consume, overcoming the very characteristics that make humans unique from technology, such as creative thought or emotion. Ellul explains this idea saying, "The individual can no longer live except in a climate of tension and overexcitement. He can no longer be a smiling skeptical spectator. He is indeed 'engaged,' but involuntarily so, since he has ceased to dominate his own thoughts and actions" (1964, p. 734). This results in a reversal of authority where technology has the power over humans instead of humans having the power over technology. Humanity becomes succored to technology's will, reversing the roles of technological accommodation.

The reliance on technology shown in the myth of Prometheus, as well as the nature of humans as pointed out by Lewis Mumford, is clearly developed throughout the plot of *X-Men*. The following paragraph will show how *X-Men* is an example of the technological and natural environments coexisting. Charles utilizes Cerebro to show Logan every mutant around the world. As he was doing so, he thoughtfully told Logan, "We are not as alone as you think.", expressing that the technological environment is vast and often a tool capable of taking on human characteristics. Charles Xavier uses Cerebro to magnify his telepathic abilities so that he can

locate and see all mutants and humans on the planet. Cerebro is the word for brain in Spanish, which is fitting as it symbolizes the combination of the human brain and technology, much like artificial intelligence. Cerebro is placed on Charles Xavier's head,emphasizing the connection between the technology and Charles' brain. It is also located in a spherical room in the basement of Xavier's school, signifying the shape of a brain and the repository of where the brain is placed in human anatomy. When Cerebro is in use, the connections between individuals projected three dimensionally in the room look like brain neurons.

The following paragraph will expand the idea of technological symbolism shown throughout the myth of Prometheus, and as applied in *X-Men*. Artificial intelligence technology symbolically reveals itself in several ways throughout the series. One of those ways is through specific mutant abilities involving the mind. Multiple mutants have these powers that are showcased throughout the series, including Charles Xavier, Jean Grey, and Jason Stryker. These mutants show us just how fragile the human brain can be and how dangerous it can be when combined with technology. All three of these mutants are telepathic. Charles is extremely powerful and can use his mind in incredible and resourceful ways, including reading people's mind and controlling them. Jean Grey's powers are magnified. She is telekinetic in addition to telepathic. She can also control and create fire. Like Charles, she is able to control Cerebro. Jason Stryker is able to control people and can place illusions in people's minds.

In *X2*, William Stryker uses his son Jason's powers to create a mind control serum. Stryker treats his son like a zombie, imagining Jason died when his powers developed and that his humanity left him. Stryker treats him like a machine and comes up with a plan to recreate Cerebro and use his son's power, along with his new mind control serum, to force Charles to locate and kill all the mutants on the planet. Much like artificial intelligence relies on systems

and processes, or algorithms, Stryker had to use a system of transmitting information and signals to produce his desired result. This function is similar to that of a brain neuron. Stryker uses Jason's powers to control Jason, who then controls Charles, who then will use his powers to locate all of the mutants, using an intelligent machine to kill them all. Magneto found out about this plan and decided to take things into his own hands. He infiltrates Stryker's Cerebro and uses Mystique to control Jason with his father's voice. Magneto has Jason control Charles into targeting all the humans and plans to wipe them out. He is fighting fire with fire. However, the *X-Men* take charge. Storm goes inside of Cerebro and distracts Jason with a storm, and he breaks concentration, releasing Charles from his control. This scene shows just how fragile combining the brain with technology can be and its potential for destroying society.

Charles Xavier has a good understanding of how technology can impact the brain. In one instance, he tries to help Logan restore memories that were taken away from him due to Stryker's experimentation. Charles Xavier showed a good example of how to resist the dangers of mixing the brain with technology. He wanted to help Wolverine slowly so that he could rely on his own brain rather than Charles's powers to restore his memories. Charles said, "Sometimes the mind needs to remember things on its own." Sometimes the abilities people have are better independent of technology. This is not to say that the combination of both can't deliver miraculous results. It shows that when someone understands the capacity of technology, it is easier to separate at what point humans should think freely and at what point technology is necessary.

The fear associated with artificial intelligence in the *X-Men* series is agency overcoming the agent; in this case agency is technology and the agents are the mutants. According to *X-Men*, people have become dependent on their technology to act for them, and technology is

redesigning its human agent, thus becoming an extension of its agent (Rushing & Frentz, 1989). The fear of having the tool overcome its creator is a real fear, especially as artificial intelligence progresses and is utilized in many different types of technologies. The following section will further examine on how the technological pieces within real life and *X-Men* collaborate to involve and expand the ideas found in the myth of Prometheus.

Myth of Prometheus in the 21st Century

Fire is an important symbol both in the myth of Prometheus and in *X-Men*, as it represents technology and the progress of humanity. Fire is both extremely dangerous and extremely useful. It represents both intelligence and destruction. It holds much power, for its potential is immense in the hands of nature and humanity. Fire bears no small burden as becoming involved with it, while necessary, can also be fatal.

While many might not draw the parallels between this technology in real life and in the movies, it is this very connection that confirms Mumford's (1967) ideas about myth. The Promethean myth uses fire as a symbol of technological advancement. It represents the idea that while not necessary for survival, fire contributed to a lot of advancement in society. In the myth of Prometheus, the tool and the weapon are not separate. Fire was used as a tool but had the potential for much evil at the hands of imperfect people. However, in order to advance, fire was necessary and sparked several technological advancements ahead. *X-Men* teaches the same principle with weapons, AI, and radiation technology.

Ultimately, *X-Men* is a retelling of the myth of Prometheus because it shows the consequences of technology advancements and that there are consequences for every action. This teaches that the way people interact with and use technology will determine its role in society and that is a great responsibility. When Prometheus gifted fire, the people on Earth were inspired

but that fire could not be taken away. The consequences to follow were permanent because the technology now exists. With a knowledge of media ecology and that all technology affects humankind, *X-Men* uses myth to caution and teach about the impact drone technology currently has and will have on society as it continues to develop.

In the myth of Prometheus, Zeus and Prometheus represent different characteristics and symbolize different parts of human nature. Prometheus, the protagonist of the myth, represents human intelligence, ingenuity and progress. However, he is also known as a trickster god, playing tricks and suffering the consequences (Britannica, 2021). When told that he couldn't give humans fire, something he very clearly thought they deserved and needed, he would not accept his answer. Instead, he stole the fire from Olympus and brought it to the humans, later suffering the consequences of his actions. Zeus is a protector, ruler, and father figure. He is just and wise, seeking peace everywhere. He does not put up with or support Prometheus's tricks. He is just in setting rules and expectations, as well as consequences.

In a superficial viewing of *X-Men*, one may be inclined to believe that Charles Xavier represents a Promethean figure throughout the series, as he is portrayed as the protagonist of the films, with Magneto as a Zeus, or foil, figure. However, *X-Men* flips the script and breathes new life into the myth of Prometheus, showing that the lessons taught in this myth are just as dynamic today as they were when introduced to culture. The following paragraphs will show how, at a deeper level, *X-Men* exemplifies this myth through the characters of Charles Xavier representing Zeus and Magneto representing Prometheus. Applying the myth to *X-Men* allows the reader to flip sides and learn even more than what is learned from the usual reading of the myth.

When Charles Xavier founded his school and assembled his first *X-Men* team, he had one goal in mind: to create a society in which mutants and humans could coexist peacefully. Xavier

sent out his team to stop evil mutants and save humans without ever implying that he was superior to them. He desired to fight the good fight and had a vision for the future. Unfortunately, due to the world's hostility and prejudice, this was a dream that never came true, but he strove to be the hero the mutant species needed. Charles Xavier showed more of a reactive approach to his goal of peace between mutants and humans. He had a higher vision of peace and executed this goal with honorable intentions. There is a reason so many mutants follow him and heed his every command, because he is a great leader and a trustworthy man. Due to his life experience and the nature of his power, Charles was able to see the good in everyone, and he tried to do the right thing. He is a father figure to many mutants and uses his power and hope to protect, share wisdom, and find peace.

Magneto, the anti-hero, has early memories of being stripped away from his parents and sent to a concentration camp where his powers manifested and grew, too late to be able to save his family. This life experience was the catalyst for Magneto's drive to protect mutant kind and set his belief that humankind would never accept differences. He believes in survival of the fittest and uses action rather than reaction when seeking to protect mutants. Magneto represents a fine line between good and evil that is established in the technological environment. While Magneto's heartbreaking origin makes it easier to root for him, he is still willing to cause a lot of collateral damage for the opportunity to have a better life. Magneto's vision for progress among mutant acceptance leads to many destructive tactics, such as almost wiping out half of humanity. His dedication to the movement also manifests throughout the series in many examples, including when he was locked up for killing the president when he was actually trying to save him, as he was a fellow mutant. He exemplifies intelligence and ingenuity. One could even refer to him as a trickster. Additionally, the liver in the myth of Prometheus symbolizes passion

dedicated to survival. The liver is usually associated with anger and wrath in Greek mythology and is seen as the source of passion or emotion. Much like Prometheus, Magneto was stuck in a cyclical motion of fighting for his passion and having it devoured, resulting in angry reactions. His passion and emotion, tied so heavily to his survival and that of mutant-kind, was regularly provoked.

X-Men has proven to be a prime example of the myth of Prometheus in modern storytelling, as it is able to illuminate the text of the myth and elevate it to further apply to the technological world of today. These principles, while epitomized succinctly in the *X-Men* series, appear in several media examples popular today. The lessons taught from looking into fears of technology and the myth of Prometheus can be found in several movies in the Marvel Cinematic Universe. The recent 2021 film, *Eternals*, has many outright mythological undertones and could arguably be accepted in the umbrella of the myth of Prometheus and humanity's interaction with technology. This topic could be meaningfully explored in many films to help educate and inspire discussion on technology in an entertaining and fulfilling way.

Conclusion

Applying the myth of Prometheus to *X-Men* allows the myth to create meaning in a new way that reflects cultural progression in technology throughout history. The previous descriptions of both Charles Xavier and Magneto provide a reading of Charles as Zeus and Magneto as Prometheus. To further express that point, the following paragraph will give examples of events in *X-Men* similar to the events in the myth of Prometheus. Much like the myth, Magneto and Charles Xavier are friends with similar intentions. However, once Charles realizes the way Magneto is willing to go about it, he shuts him out. In doing so, Magneto feels more motivated to promote his cause and goes behind Charles's back. His actions ultimately land

him in prison, forced to live in solitude. He must face the consequences of his actions, much like Prometheus did when he was chained to the mountain, destined to having his liver pecked out by a bird every day. In Greek mythology, the liver represents passion and emotion, often presenting itself as anger. Prometheus is literally having his passion pecked out every single day, just for it to grow again, showing his resilience and dedication to pushing progress in humanity. Similarly, while Magneto is in his plastic prison, he is removed from his passion and his individuality, his powers. However, his passion never fades, and when he escapes prison, he is ready to push his agenda over and over again. This is often motivated by not only passion, but anger as well. Charles mirrors Zeus by creating and protecting a school where mutants can be safe. He prioritizes mutant kind while keeping the peace with humanity.

The application of Magneto's and Xavier's roles in the modern telling of the myth of Prometheus prompts readers to look differently at their perception of the myth and how it illuminates these ideas in real life. Ultimately, the root of Magneto's and Charles's difference is technology, represented in the myth of Prometheus as fire. Fire symbolizes technology, the root of Zeus's and Prometheus's difference. Technology is also at the root of Charles's and Magneto's differences. *X-Men* furthers this conversation by introducing a new element: ice.

Fire is used regularly in *X-Men*, as both humans and mutants utilize the element to elevate themselves in their ongoing war. Magneto employs a mutant, Pyro, to use fire as a weapon, and humans retaliate. In the scenes where mutants and humans are literally fighting fire with fire, the war intensifies, and destruction ensues. In one battle, the Golden Gate Bridge is up in flames and eventually caves in, creating two worlds divided in isolation. However, another mutant with ice powers, named Bobby, is often put against Pyro. When Bobby and Pyro are pinned against each other, Bobby is always able to cool him off. He never destroys or kills Pyro,

but he's able to regulate the fire. Neither side necessarily loses, but they are more controlled. The solution to technology is not the use or creation of more technology. Rather, the opposite idea should be executed. Using the human agent to take responsibility and more fully commit to understanding and studying technology through discussion and deliberation can help familiarize the negative impact of technology on society. Bobby and Charles are on the side of both humanity and technology. They know both the dangers of technology and mutation but understand it well enough to know its potential for greatness. Using this ability allows for better outcomes and a more desirable future. Neil Postman (1991) explains that he does not advocate for the hatred of technology, nor blind love. Technology should be approached with a temperate disposition. *X-Men* shows us what people have been saying about technology, but takes us one step further. The problem is when the potential of technology is ignored.

This takeaway has been here since the myth of Prometheus and is being expanded with media such as *X-Men*. The fears analogized in the *X-Men* series exemplify the idea that in the end technology will fall short, and the words and power that individuals hold will reign superior. Compassion for others and a hope for understanding between two worlds remain vital as society continues to interact with its evolving technological environment, just as the humans in *X-Men* had to learn to interact with evolved mutants. The collision of two worlds is a primary theme throughout the *X-Men* series and represents a similar theme seen in real life. Humanity may not have to deal with man-killing robots or mutated DNA that causes superpowers, but humanity does have to learn how to live in a collision of two worlds—that of humanity and technology. Like any environment, people must learn not just reliance on this environment but how to adapt to and accommodate for it, just as the principles of *X-Men* teach.

    X-Men addresses the inherent human fears of technology, including fusion, defeat, and agent vs agency (Rushing and Frentz, 1989). This analysis of *X-Men* shows that with proper accountability, technology may eventually be a tool unbound from the fear it generates. The technological environment has created opportunities for man to adapt to a new world. Jacques Ellul explains the distinct desires of the human being and how the way we interact with machine can interrupt or expedite humanity's growth within this new environment, saying:

> Technique has penetrated the deepest recesses of the human being. The machine tends not only to create a new human environment, but also to modify man's very essence. The milieu in which he lives is no longer his. He must adapt himself, as though the world were new, to a universe for which he was not created… He was created with a certain essential unity, and he is fragmented by all the forces of the modern world. (1964, p. 852)

X-Men gives humanity the upper hand, teaching that being fragmented within the modern world does not have to be a negative thing, because of, not in spite of, our desire for unity. Unification seemed impossible for the X-Men as they were fighting against their technological environment. However, unification is what set them free to adapt to a universe in which they were destined to take part.

    The freedom of choice is essential as humanity learns to coexist with technology. Jacques Ellul says, "Freedom is not static but dynamic; not a vested interest, but a prize continually to be won. The moment man stops and resigns himself, he becomes subject to determinism. He is most enslaved when he thinks he is comfortably settled in freedom" (1964, p. 6). Much like a river, humanity is on a course to something great and that course is determined by many incidences. The current of a river is strong, determined in a course that is seemingly impossible to change. Like a river, the technological environment is vast. It can be intimidating to think of all of

technology's possible capabilities. It may seem that the course of technology is so strong that nothing can interrupt its direction to eventual destruction of humanity. Although many fears have been discussed throughout this thesis, I would not discourage fear in totality. Technology, like many things, holds great potential, and we are right to fear it, because it is our future. What is important is what that fear inspires. This is the lesson Magneto teaches and repeatedly fights for throughout the series. However, the course of technology is not unchangeable. *X-Men* teaches us that countless choices decide our fate. Charles Xavier explains, "Each choice is a ripple in the moment of time. Enough ripples and you change the tide. The future is never truly set." With hope, ownership, and wisdom, the fate of technology can be in our hands. Perhaps our fate of colliding with this new world will prove to be everything we desire and more, just like *X-Men*.

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