In the late 1950s, as Soviet society began to shed the legacy of Stalinism, science and engineering became new cultural icons. The new, post-Stalin generation was fascinated with Sputnik, nuclear power stations, and electronic digital computers. The popular image of an objective, truth-telling computer became a vehicle for a broad movement among scientists and engineers calling for reform in science and in society at large. Under the banner of cybernetics, this movement attacked the dogmatic notions of Stalinist science and the ideology-laden discourse of the Soviet social sciences.

Proposed originally in 1948 by the American mathematician Norbert Wiener as a science of control and communication in the animal and the machine, cybernetics acquired a much wider interpretation in the Soviet context. Soviet cyberneticians aspired to unify diverse cybernetic theories elaborated in the West — control theory, information theory, automata studies and others — in a single overarching conceptual framework, which would serve as the foundation for a general methodology applicable to a wide range of natural and social sciences and engineering.1

Norbert Wiener. Wunderkind, who died at the entrance to the Royal Institute of Technology in Stockholm. During the Cold War, the Soviets lauded the coming capabilities of cybernetics. And people were scared to death of it.
The cybernetics movement emerged in the 1940s and 1950s, as a result of the work of several key figures, including Norbert Wiener, Claude Shannon, and Jerzy Tracz. The movement was characterized by a focus on the study of systems, both natural and artificial, and the development of methods for controlling and understanding them. Cybernetics sought to provide a unified framework for understanding a wide range of phenomena, from biological systems to technological devices.

The movement was initially driven by a desire to understand and control complex systems, particularly in the military context of World War II. The work of Wiener, in particular, was heavily influenced by his time working for the U.S. Navy, where he developed the concept of feedback control. Wiener's work on feedback control was later applied to a wide range of problems, from economics to psychology.

Cybernetics also had significant implications for the study of human society. Wiener's book *Cybernetics* (1948) became one of the most influential books of the twentieth century, and it was widely read and discussed in both academic and popular circles. Wiener argued that the study of cybernetics could provide a new way of understanding the world, by emphasizing the importance of feedback and control in all systems.

Wiener's ideas were not universally accepted, however. The movement was characterized by a significant amount of controversy and debate. Some critics accused cybernetics of being too abstract and theoretical, while others saw it as a threat to traditional ways of thinking about the world. Nevertheless, the ideas and concepts of cybernetics continue to have a significant influence on a wide range of disciplines, from engineering to psychology to political science.

In the Cold War era, cybernetics played a significant role in the development of military technology, particularly in the areas of automation and artificial intelligence. The CIA, for example, was interested in the potential of cybernetics to help it achieve its strategic goals of world communization.

The CIA established a task force on Soviet cybernetics to assess the potential of cybernetics to help achieve its strategic goals of world communization. The task force was led by John Pierce, mathematician John Tukey, computer scientist John McCarthy, and other experts in the field.

The task force's report, published in 1962, was titled *Cybernetics and Society*. It identified a number of key areas of research, including the development of artificial intelligence, the use of cybernetic techniques in economic planning, and the development of cybernetic models of social systems.

The report was widely discussed, and it helped to shape the direction of research in the field of cybernetics. It also helped to establish the field of artificial intelligence as a major area of research, and it helped to establish the importance of cybernetic techniques in the development of new technologies.

In the years following the publication of the CIA report, the field of cybernetics continued to grow and evolve. Cybernetics became increasingly focused on the study of complex systems, and it helped to shape the development of new technologies, from artificial intelligence to automation.

In conclusion, the cybernetics movement was a significant and influential movement that helped to shape the development of modern science and technology. Its ideas and concepts continue to have a significant influence on a wide range of disciplines, and it will continue to be an important area of study for many years to come.
An apocalyptic vision of a fundamental transformation of the Soviet system along the lines of cybernetics as a ‘second industrial revolution’ was also a part of the ‘Communist Reformation’, which Wiesner recorded in February 1963. Cybernetics became officially the primary subject of the Soviet Union in January 1964, as a conference at Georgetown University, Ford published a paper on the development of Soviet cybernetics, and predicting that the development of new information technologies in government and industry could change the course of a new kind of international competition during the next 15 years. This publically shared concern of military officials, the Commander of the Foreign Technology Division of the U.S. Air Force Systems Command concluded that if we Americans as a people, and we in the Air Force in particular, understand these momentous trends, we may not have much choice. The system could be imposed upon us from an authoritarian, centralised, cybernetic, world-power command and control structure.

A CIA analyst widely overestimated the Soviet cybernetics threat. In February 1963, a CIA report suggested that architects and engineers are now drawing up technical plans for the entire U.S. automated “computer information system” to be located in Moscow on a site already selected. Indeed, the Central Economic Mathematical Institute, created in Moscow in 1962 to develop the concept of a computerized national economic planning system, had no building of its own, and its staff was crammed in a few rooms with no computer facilities. The construction of a new building, which slowly moved over the participants in an ingenious technical design, was completed only in 1969. In the meantime, the CIA continued to sound the alarm. In February 1964, the CIA issued a secret report on Soviet cybernetics, mentioning, among other things, a threat to the plans of the Soviet system to build a “Unified Information System”. The CIA reported the creation of a new department at the Gosplan department, the State Planning Committee, under the chairmanship of Nikolai Bogdanov-Bespalov, which Wiesner believed the idea of an emerging “cybernetics gap” was “ridiculous in the extreme”. He did not predict the enormous importance of cybernetics research and the publication of his revised manuscript.

The legacy of Wiener during and after the conflict between the two social systems

Those who have suggested that cybernetics died in connection with the end of the Cold War need to revise their views. Cybernetics is a very much alive field that need not mean a recurrence of the Cold War. The cybernetics phenomenon was accelerated and transformed in November 1989, in Stockholm, when, for two days, some 300 researchers from all over the world were addressing the cybernetic and humanistic questions, that is, the questions of how we design systems that are autonomous, free and creative, without constraining people.

The recent efforts of the different social systems to design new worlds and new technologies in the name of cybernetics have demonstrated that cybernetics is a field that has the power to change the course of history. It has been used as a tool for both the advancement and the prevention of human progress. Cybernetics has been both a threat and an opportunity, a means of control and a means of liberation.

The cybernetic concept of communication transcended the boundary between human and machine. In the cybernetic system, people could communicate with computers, and computers could communicate with people. The concept of cybernetics was developed in the 1940s and 1950s, and it is still relevant today. Cybernetics is a field of study that deals with the study of communication and control systems. It is a field that has been used to design systems that can be used to control and manipulate the world. Cybernetics is a field that has been used to design systems that can be used to control and manipulate the world.

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A cybernetic perspective on the internet

In 1995, David Leavitt co-authored the article “The Computer as a Communication Device” with Robert Wiesner, the head of IPTO. Wiesner’s contribution was a simple statement: “I was always hanging onto that”, he remembered. Wiesner’s work was an important step in the development of the internet, as it was the first time that a cybernetic perspective was applied to the development of the internet.

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Several Nobel Prize laureates were drawn into the attempt to create a defense against the cybernetics threat. They included Herbert Simon, winner of the 1978 Nobel Prize in Economics, and a leading artificial intelligence expert, who was also a collaborator with Wiesner. He later recalled how the CIA had submitted a thick report to President Kennedy about an alleged “great cybernetic threat”. Simon concluded that a much more efficient economic policy could be worked out simply by improving intelligence, whereas the CIA concluded that “a symbiotic symbol of accuracy”. In 1964, after leaving his position as President’s Science Advisor, Wiesner revisited the Soviet Union to see the fruits of what he called “the science fiction”. He stressed that even though the Soviets were collecting extensive economic data, “there has really been little evidence of any good use of this enormous pile of material”. Arrow was highly skeptical of the claims of computer based rationality, and he argued that network planning could only be achieved in a decentralized, computer-based system, which would incorporate the “symbolic computer” as a “symbolic computer” and had no constraints and no committees. Of course there was no constraint on the part of his Pentagon bosses.47 Wiesner’s contribution was a simple statement: “I was always hanging onto that”, he remembered. Wiesner’s work was an important step in the development of the internet, as it was the first time that a cybernetic perspective was applied to the development of the internet.

The Head of IPTO

He writes. “Where closed-world discourse defined the computer as a communication device, rather than merely as a tool for computation, information processing, or control. “Cyborg discourse functioned as the psychological and sociological outgrowth of the computer revolution: a term first coined by Wiener’s collaborator A.J. Ayer. Ayer defined a cyborg as a being that is not just human but also machine. He later recalled how the CIA had submitted a thick report to President Kennedy about an alleged “great cybernetic threat”. Simon concluded that a much more efficient economic policy could be worked out simply by improving intelligence, whereas the CIA concluded that “a symbiotic symbol of accuracy”. In 1964, after leaving his position as President’s Science Advisor, Wiesner revisited the Soviet Union to see the fruits of what he called “the science fiction”. He stressed that even though the Soviets were collecting extensive economic data, “there has really been little evidence of any good use of this enormous pile of material”. Arrow was highly skeptical of the claims of computer based rationality, and he argued that network planning could only be achieved in a decentralized, computer-based system, which would incorporate the “symbolic computer” as a “symbolic computer” and had no constraints and no committees. Of course there was no constraint on the part of his Pentagon bosses.47 Wiesner’s contribution was a simple statement: “I was always hanging onto that”, he remembered. Wiesner’s work was an important step in the development of the internet, as it was the first time that a cybernetic perspective was applied to the development of the internet.

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lute pacifist stance after Hiroshima brought him under close FBI watch and cast a shadow of suspicion over his ideas. The subsequent cybernetics scare in the United States further tinged this field with the red of communism, and set hurdles for federal funding of cybernetics research. “They wanted to chase out cybernetics as fast as they could”, recalled the leading cybernetician Heinz von Foerster. “It was not suppressed, but they neglected it.” Although the ARPANET originated in the context of cybernetic analogies between human and computer communication, its cybernetic genealogy was obliterated.

While in the Soviet Union cybernetics dominated scientific discussions, cyberdiscourse in the United States seeped through culture and became universally accepted to the point of being invisible. American scientists talked in cyberspeak and didn’t even realize it, just as Monsieur Jourdain in Molière’s play did not realize he was speaking in prose. The initial ARPANET goals were very humble — to share computing resources among research groups and dissociated from the explicit cybernetic vision of society as a feedback-regulated mechanism. Perhaps precisely for this reason it proved feasible, while the grand designs of Soviet cyberneticians to build a nationwide computer network to regulate the entire national economy ran into insurmountable political obstacles.

**The Internet** — the ultimate cybernetic machine — has woven together humans and computers, control and communication, information and free speech. Just as Wiener envisioned, digital communication can be used both to liberate and to control, and authoritarian governments still try to limit free circulation of information. Artificial organs, online avatars, and ubiquitous computing have made cybernetic human-machine metaphors almost literal. Wiener’s cybernetic vision of society based on free exchange of information has become (cyber)reality on the World Wide Web.

This story is profoundly ironic: America rejected cybernetics but implemented the cybernetic vision, while the Soviet Union did just the opposite: it paid lip service to cybernetics and stalled practical cybernetic projects. The cybernetics scare both focused the attention of U.S. science administrators on human-machine interaction and made explicit cybernetic references ideologically suspect. As a result, Americans pursued a narrowly defined but viable technical project, while the Soviets aimed at a utopian grand reform. This teaches us something about the power of discourse: it resides not so much in overt declarations but in subtle metaphors that change our mode of thinking and ultimately reshape our world.

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**THE CYBERNETICS SCARE AND THE ORIGINS OF THE INTERNET**

It is said that the Web turns 20 in 2009. Office telephones have become mute.