STS REVIEWER

WILLIAM NELSON "BILL" JOY

- An American computer architect, software developer and entrepreneur
- He wrote an article, **Why the Future Doesn't Need Us?, in 2000**

Article: Why the Future Doesn't Need Us?

- In the article, Bill Joy shared his deep concerns about modern technologies, focusing on genetic engineering, nanotechnology and robotics.
- He discussed the potential damages that these technologies might bring in the future

Global Context in 2000

- **Technological Acceleration**
  - The late 1990s and early 2000s were marked by explosive growth in computing, internet connectivity, and biotechnology.
  - The **Human Genome Project** was nearing completion, raising hopes—and fears—about genetic engineering.
  - Early research into **artificial intelligence** and **nanotechnology** was gaining momentum and entering public discourse.
- **The Dot-Com Bubble**
  - The tech economy was booming, but the **dot-com bubble** was just beginning to burst. This brought both excitement and uncertainty about the future of innovation.
- **Globalization and Connectivity**
  - The internet was rapidly connecting the world, increasing access to information and tools—but also raising concerns about **global inequality** and **technology misuse**. }
- **Millennium Turn**
  - With the dawn of the 21st century, many were reflecting on humanity's direction. Events like **Y2K** had just highlighted our dependence on digital systems.

ROBOTICS

- It will allow us to create a greater than human non-biological intelligence.
- **Unintended consequences:** Bill Joy argues that as technology, including robotics and artificial intelligence, becomes increasingly **powerful** and **autonomous**, it could lead to unintended and potentially **catastrophic consequences.**

- **Self-replicating machines**: Joy raises the possibility of self-replicating machines, which could lead to a scenario where robots or AI systems can reproduce and evolve independently.
- **Loss of control**: The article emphasizes the potential loss of human control over technology. Joy is concerned that as robots and AI become more sophisticated, they may operate in ways that are difficult for humans to predict or control, which could lead to unintended and harmful outcomes.
- **Ethical and moral dilemmas**: He suggests that as robots and AI systems become more advanced and capable of making decisions, questions may arise about their rights, responsibilities, and ethical considerations, potentially challenging our understanding of what it means to be human.
- **Dual-use technology**: Joy also expresses concerns about the dualuse nature of technology, where the same advancements in robotics and AI that can benefit society can also be used for harmful purposes, including warfare or other destructive applications.

  "The real problem about robotics isn't whether they move or look like us—the real issue arises when they start to think like us."

GENETIC ENGINEERING

- It will allow us to reprogram our own biology
- **Unintended consequences**: Joy expresses concerns about the potential unintended consequences of genetic engineering. He fears that the ability to manipulate genes and create genetically modified organisms could lead to unforeseen ecological or health risks.
- **Biotechnology and Bioterrorism**: The article highlights the potential for misuse of genetic engineering for bioterrorism or other malicious purposes. Joy discusses how the same biotechnological advancements that have the potential to cure diseases could also be used to create dangerous biological agents.
    - **BIOTECHNOLOGY** - is the use of biology to develop new products, methods and organisms intended to improve human health and society. **BIOTERRORISM** - the deliberate release of viruses, bacteria, toxins or other harmful agents to cause illness or death in people, animals or plants. (weaponization)
- **White Plague**: mad scientist creates a virus capable of wiping out humanity
- **Ethical and moral dilemmas**: Joy raises concerns about the possibility of designer babies and genetic enhancements, which could challenge traditional notions of human nature and ethics.

- **Loss of biodiversity:** Joy is concerned that genetic engineering could inadvertently result in a loss of biodiversity, as it might lead to the widespread use of genetically modified organisms that outcompete or replace natural species.

NANOTECHNOLOGY

- It will allow us to manipulate matter at the molecular and atomic scale.
- **Unintended consequences:** Joy expresses concerns about the potential unintended consequences of nanotechnology. He fears that the ability to manipulate matter at the nanoscale could lead to unforeseen risks, including the creation of selfreplicating nanobots or harmful nanoscale materials.
    - Joy discusses the **"gray goo"** scenario, a hypothetical situation in which selfreplicating nanobots run amok and consume all matter on Earth, turning it into a mass of self-replicating nanomachines.
- **Ethical and safety concerns**: Joy raises ethical and safety concerns related to nanotechnology, especially in areas like medicine. He worries about the potential for nanotechnology to be used for unethical purposes or to create harmful nanoscale weapons.

GNR TECHNOLOGY

- **He feared that:** *"We are creating the tools that could eventually eliminate the human race."*
- **Nuclear bomb Atomic bomb or these GNR technology?**
- **His Core Message:**
    - *"Just because we can develop something doesn't mean we should."*
- He urged scientists, technologists, and society as a whole to **pause, reflect, and regulate** before moving forward blindly with innovations that could destroy us.
- In essence, Bill Joy's message in "Why the Future Doesn't Need Us" is a plea for humanity, a call for responsible innovation—urging humanity to harness technology for good while guarding against its potential to harm or destroy us.

INFORMATION AGE

Information

- knowledge communicated or received concerning a particular fact or circumstance
    - Knowledge is Science

Age: A period in history

Information Age

- Also known as Computer Age, Digital Age and the New Media Age
- It is associated with the development of computers
- It is considered a historic period in the 21st century.
- characterized by the rapid shift from traditional industry
- It is marked by a very fast growth in communication and information technology.
- Information Age tells the story of how our lives have been transformed by information and communication technologies over the last 200 years. It is a journey through the history of modern communications from Gutenberg to social media.

PRE-GUTENBERG WORLD

- Information is processed in a tedious manner
- Books were written and produced by hand
- They were made in surfaces of clay, wax, papyrus and parchment
- The hand-produced book and other reading materials were restricted only to those people who can afford to buy these materials— elite group.
- Information was only relayed to other through a word-of-mouth channels

GUTENBERG ERA

Johannes Gutenberg

- A German craftsman and inventor who originated a method of printing from movable type.
    - **PRINTING PRESS**

GUTENBERG WORLD

- Gutenberg's printing press was considered a history-changing invention, making books widely accessible
- Opened the door to exceptional mass communication
- It helped disseminate knowledge wider and faster than ever before.
- Scientific and geographic discoveries spread at a fast rate

GUTENBERG ERA: Sparked the Reformation, scientific revolution, and democratization of knowledge

POST GUTENBERG WORLD/INFORMATION AGE

- The Rise of Digital Age
- With the advent of modern technologies, printing presses are not only tools used in spreading information.
- Computers, cellphones, radio, television, and others are now readily available to pass information from one individual to another from here to even faraway places
- Drastically altered communication, education, commerce, and social interaction, emphasizing speed, personalization, and global connectivity.

- Its key feature is the transformation of how we access, share, and use information.

SOCIAL MEDIA

Instagram

- Kevin Systrom and Mike Krieger *(October 2010)*

Google

- Larry Page and Sergey Brin

YouTube

- Chad Hurley, Steve Chen and Jawed Karim *(Feb 14, 2005)*

Twitter

- Jack Dorsey, Noah Glass, Biz Stone, and Evan Williams *(March 2006)*

Facebook

- Mark Zuckerberg together with his fellow students in Harvard College *(February 4, 2004)*

WORLD WIDE WEB

Tim Berners-Lee: Refers to all public websites or pages that users can access on their local and other devices through the internet**.**

COMPUTERS

Charles Babbage: Father of Computer