


Chapter 16

E–Collaboration Technologies With Generative AI Tools

Tarana Afrin Chandel

 <https://orcid.org/0000-0002-8605-6018>

Integral University, India

ABSTRACT

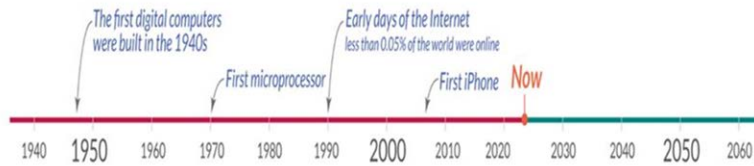
E-collaboration technologies, which enable individuals and teams to work together across distances and time zones, are essential for modern organizations. With the integration of Generative AI, these technologies are evolving to provide more dynamic and adaptive collaborative environments. Generative AI tools can enhance productivity with automation, summarizing discussions, and generating data-driven insights in real time. These tools enable more efficient communication through the creation of language models that can translate languages, generate reports, and even simulate brainstorming sessions with virtual teams. These advancements improve productivity, foster innovation, and enhance inclusivity by breaking language barriers and providing accessibility features. However, challenges such as data privacy, ethical concerns, and over-reliance on AI must be addressed to ensure responsible use. By combining the power of e-collaboration technologies and Generative AI, organizations can achieve a smarter, more connected, and ethically responsible future of work.

1. INTRODUCTION

The rapid pace of technological advancement is indeed remarkable. In just a few decades, we've gone from rudimentary computers reliant on punch cards and room-sized machines to smartphones that are millions of times more powerful and fit in our pockets. In just eight decades, we have moved from the first digital computers known as Atanasoff-Berry Computer (ABC) built in England in 1943 [Paul A. freiberger and Micheal R Swaine, 2022] and the ENIAC, built in the United States in 1945 which were completed in 1945 [1] to advanced technologies which are already reshaping industries [Max Roser, 2022] as shown in figure1 . These rapid progression highlights how quickly emerging technologies can become integral to our daily life.

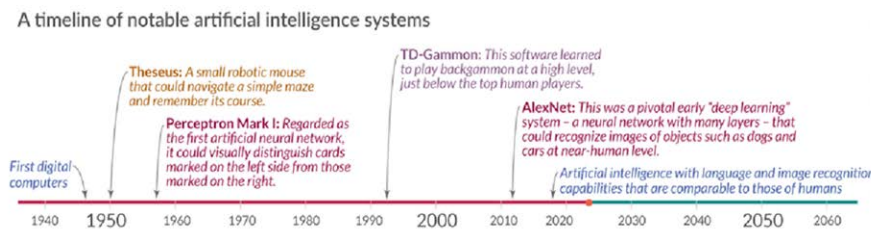
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Figure 1. Beginning of digital era



As technology advances exponentially, AI, and more specifically generative AI, is becoming a key driver of innovation. The ability of AI models to generate text, art, code, and even music showcases how we're not just advancing in processing power, but in creative capabilities as well. This leap represents a profound shift from using machines merely as tools to creating systems that can collaborate with humans in unprecedented ways. Just as early computers and mobile phones revolutionized their respective eras, AI, especially generative AI, is likely to redefine creativity, automation, and the way we interact with machines. This reflects the change on how generative AI fits into this trajectory of rapid innovation. Since the beginning of this history, computer engineers strived to design machine as similar to human intelligence as shown in figure 2

Figure 2. From digital computer to AI



The first remote controlled mouse was built by Claude Shannon in 1950 [Daniel Kleinarchive, 2018]. This was the ever beginning of machine learning; a robotic maze-solving mouse known as Theseus [Paul A. freiberger and Micheal R Swaine, 2022; Daniel Kleinarchive, 2018]. In the era of 1950 and 1960, the basic concept of artificial intelligence (AI) was established involving symbolic reasoning and problem-solving. Alan Turing and John McCarthy laid the foundation of AI in 1955 [Paul A. freiberger and Micheal R Swaine, 2022; P. Paoli, 2021; Gil Press, 2016] by proposing theories and developing software programs demonstrating machine learning capabilities. In 1956, the terminology **Artificial intelligence** was first tossed by McCarthy [Chris Smith, 2006] in first academic conference, Five years later Alan Turing wrote a paper on the motion of machines being able to simulate human beings and the ability to do intelligent things, such as play Chess [Turing50] [Chris Smith, 2006]. Generative artificial intelligence (GAI) is the subset of AI that focuses on the development and creation of system capabili-

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