

## UNIT 10

### The Evolution of Computer Technology: Past, Present, and Future

<https://www.forbes.com/sites/timbajarin/2024/02/01/three-technologies-driving-the-next-25-years-of-computing/>

#### 1 Discuss the following questions.

1. What do you know about the history of computers? Which developments do you think were the most significant in shaping computer technology as it is today?
2. Which technological development do you personally find most impressive or concerning?
3. What ethical issues arise from rapid developments in computer technology (e.g. privacy, surveillance, AI decision-making)?
4. Do you think computer technology creates more opportunities or more inequalities? Why?
5. What do you expect to happen in computer technology over the next 25 years?
6. Which technologies do you think will drive the next 25 years of computing?
7. What skills do you think will be essential for future generations in a highly computerized world?

#### 2 Put the verbs in the correct tense.

(Adapted from <https://www.forbes.com/sites/timbajarin/2024/02/01/three-technologies-driving-the-next-25-years-of-computing/>)

|         |        |      |      |        |       |           |
|---------|--------|------|------|--------|-------|-----------|
| allow   | become | hear | be   | marvel | debut | follow    |
| outline | strike | join | play | listen |       | introduce |

When I \_\_\_\_\_ Creative Strategies in 1981, I was shifted to cover the nascent PC industry. That same year, IBM introduced its PC, and by examining this development, I \_\_\_\_\_ one of the first PC analysts to report on the PC market. This early advantage \_\_\_\_\_ me a front-row view of the history of personal computing. When I joined my company, the computing industry \_\_\_\_\_ in play since mainframe computers became prominent in the 1950s and 60s. Then, in the mid-60s, minicomputers \_\_\_\_\_.

We saw the first personal computer \_\_\_\_\_ when Eddie Roberts debuted the Altair 8800 in 1975. The Apple I and II \_\_\_\_\_ in 1976 and 1978, and the IBM PC in 1981. At the 25th birthday party of the IBM PC, held in San Jose, CA, at the iconic Children's Tech Museum in 2006, I \_\_\_\_\_ much about IBM's thoughts on building its first PC and the risks of bringing it to market. They \_\_\_\_\_ their history in computing and, 25 years later, \_\_\_\_\_ at how much the personal computer has impacted all aspects of our lives.

But as I \_\_\_\_\_ to these PC pioneers talk about the first 25 years of personal computing and share their computing journey since the 1950s, it \_\_\_\_\_ me that the significant role all types of computing \_\_\_\_\_ from its inception was to move our world from an analog one to a digital one.

Before computers \_\_\_\_\_ (**be**) ubiquitous, tasks for work, education, and personal business were accomplished by workers in some analog form. Business forms and letters \_\_\_\_\_ (**write**) by hand. We \_\_\_\_\_ (**read**) our papers in analog printouts. Just about everything around us was analog. Analog vacuum tubes \_\_\_\_\_ (**power**) the early televisions. Our radio and communications \_\_\_\_\_ (**use**) some analog technology to deliver the intended content.

Even at the 25-year mark in 2006, we \_\_\_\_\_ still \_\_\_\_\_ (**work**) to convert technology from analog to digital, and, in some ways, we \_\_\_\_\_ still \_\_\_\_\_ (**do**) that today.

As I \_\_\_\_\_ (**ponder**) the transformation from analog to digital, which \_\_\_\_\_ (**start**) in earnest in the mid-1950s, I \_\_\_\_\_ (**realize**) that the process has taken over 60 years or so. But today, that transition from analog to digital \_\_\_\_\_ mainly \_\_\_\_\_ (**complete**).

That's why I recently started thinking about what the next 25 years of digital technology would look like, and so far, I \_\_\_\_\_ (**identify**) three big tech trends that \_\_\_\_\_ (**shape**) the tech landscape during this period.

### 3 Add the missing article or / if no article is needed

(Adapted from <https://www.forbes.com/sites/timbajarin/2024/02/01/three-technologies-driving-the-next-25-years-of-computing/>)

#### -Artificial Intelligence

\_\_\_\_\_ first technology is rather obvious, given \_\_\_\_\_ interest and impact of \_\_\_\_\_ artificial intelligence so far. We are only scratching the surface of how \_\_\_\_\_ AI will impact all aspects of our \_\_\_\_\_ lives, as digital technology already has today. \_\_\_\_\_ important factor in this development is the availability of powerful hardware, as well as \_\_\_\_\_ growing reliance on data-driven systems.

Over \_\_\_\_\_ next 25 years, the processors needed to power the AI revolution will increase exponentially. In these early stages, we are already seeing intense work on \_\_\_\_\_ semiconductor designs and roadmaps focused on powering AI apps, solutions, and services that can power AI that we can't even imagine today. I do not doubt AI will be one of \_\_\_\_\_ most critical technologies that will advance and drive computing in \_\_\_\_\_ next 25 years.

### 4 Add the missing preposition.

(Adapted from <https://www.forbes.com/sites/timbajarin/2024/02/01/three-technologies-driving-the-next-25-years-of-computing/>)

#### -Quantum Computing

Quantum computing is also \_\_\_\_\_ its very early stages, but it will also dramatically impact our digital world \_\_\_\_\_ the next 25 years.

Quantum computing is expected to dramatically change the field \_\_\_\_\_ AI and machine learning, leading to benefits such as hyper-personalized shopping suggestions and advanced smart home tools. It will impact various industries. Quantum computing is expected to benefit a variety \_\_\_\_\_ sectors, including privacy, finance, healthcare, entertainment, and technology. However, it may also disrupt privacy and cybersecurity if proper security measures are not \_\_\_\_\_ place.

It will allow \_\_\_\_\_ breakthroughs \_\_\_\_\_ robotics, more precise surgical equipment and almost all digital tools needed to do our jobs more accurately and efficiently. Quantum computers are also expected to positively impact technology \_\_\_\_\_ optimizing supply chains, improving traffic routing, enhancing financial portfolio management, and streamlining various processes. I am not an expert \_\_\_\_\_ quantum computing, but \_\_\_\_\_ my meetings with key players working \_\_\_\_\_ this field, it is evident that this technology will be fundamental \_\_\_\_\_ driving our next 25 years \_\_\_\_\_ technologies forward.

### 5 Complete the sentences with derived forms of the words in brackets.

(Adapted from <https://www.forbes.com/sites/timbajarin/2024/02/01/three-technologies-driving-the-next-25-years-of-computing/>)

#### -Transforming our 2D digital world to a 3D spatial world

For almost all digital computing to date, tasks are done and viewed in 2D. There are exceptions in some situations where 3D \_\_\_\_\_ (**model**), \_\_\_\_\_, (**visualize**) and high-powered 3D CAD are used in specialized vertical \_\_\_\_\_ (**apply**).

However, for the rest of the world, our computing is in 2D. That is okay, given how 2D computing has \_\_\_\_\_ (**drama**) impacted all aspects of our work and \_\_\_\_\_ (**person**) lives so far. In essence, it has made our real (**reality**) world better. But we are starting our next significant computing journey, moving much of everything we do in 2D to 3D virtual, \_\_\_\_\_ (**space**) worlds. I have been working on XR projects with enterprise companies for three years, and \_\_\_\_\_ (**surprise**), some of them started working in virtual reality as early as 2016. ISMGuide.com, with some input from me, created a \_\_\_\_\_ (**dedicate**) Metaverse Resource Center website with \_\_\_\_\_ (**current**) close to 300 case studies of companies already using VR. Major firms like Walmart, Nike, Siemens, The Mayo Clinic, Gucci, and others are today using virtual technology for \_\_\_\_\_ (**train**), \_\_\_\_\_ (**sell**), and services.

## 6 Choose the correct word to fill in the gap.

(Adapted from <https://www.forbes.com/sites/timbajarin/2024/02/01/three-technologies-driving-the-next-25-years-of-computing/>)

|                   |                  |                  |                |                |                   |                 |
|-------------------|------------------|------------------|----------------|----------------|-------------------|-----------------|
| <b>innovation</b> | <b>targeted</b>  | <b>customers</b> | <b>keynote</b> | <b>demo</b>    | <b>enterprise</b> | <b>games</b>    |
| <b>mainstream</b> | <b>potential</b> | <b>shape</b>     | <b>release</b> | <b>spatial</b> | <b>generation</b> | <b>personal</b> |

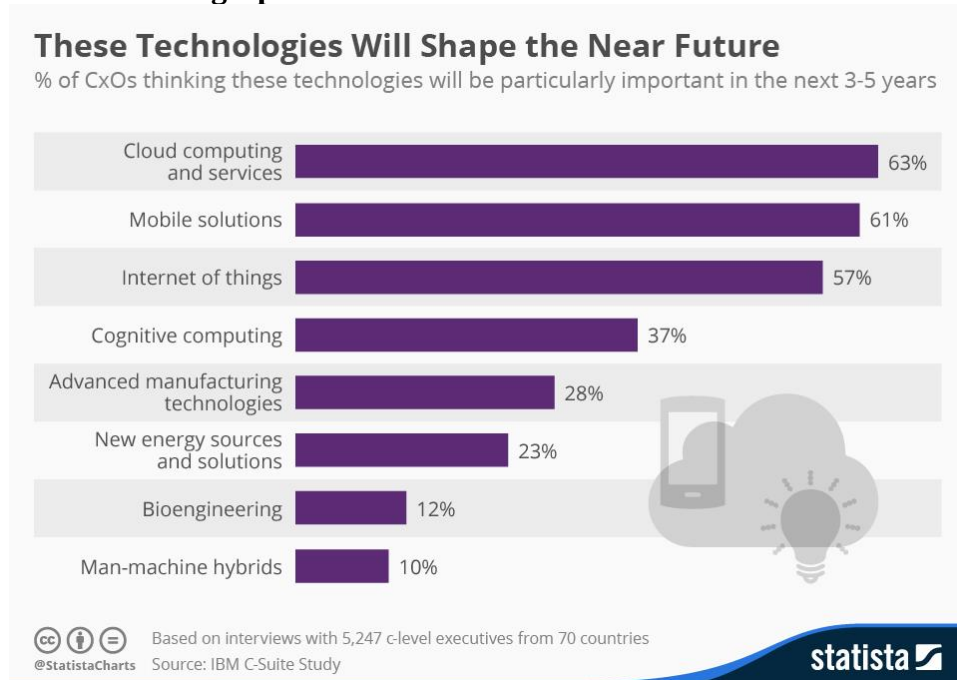
At CES 2024, Roland Busch, CEO of Siemens, gave an important \_\_\_\_\_ in which he showed multiple ways they are using VR and XR to create digital twins and help their \_\_\_\_\_ get everything from factories to products made faster. A side note is that Siemens and Sony are working together to create a new VR headset \_\_\_\_\_ at the Industrial Metaverse. Over the past eight years, we've seen tremendous \_\_\_\_\_ in VR, XR, and AR. But so far, it's only been adopted by \_\_\_\_\_ companies and gamers. The rest of us (especially \_\_\_\_\_ consumers) need to understand what VR is and why it's important outside of \_\_\_\_\_.

Apple's \_\_\_\_\_ of Vision Pro will help educate more mainstream users about the \_\_\_\_\_ of 3D spatial computing. While the Vision Pro is too expensive for consumers, it costs nothing to go into an Apple store and get a \_\_\_\_\_ to see what it delivers.

We know that besides the Sony headset with partner Siemens, Google, Samsung, and others are working on similar XR headsets for intro later this year or in 2025. They, too, see the handwriting on the wall. While virtual spatial computing is in its infancy, this technology will bring us from a 2D computing world to 3D \_\_\_\_\_ computing over the next 25 years. These companies and Apple want to take leadership roles to make \_\_\_\_\_ computing more immersive and change how we work, learn, and are entertained.

Other technologies in the works will \_\_\_\_\_ computing over the next 25 years, but I am convinced that the three listed above will be at the forefront of driving the next \_\_\_\_\_ of computing.

## 6 Describe the graph



## 7 Rewrite each sentence so that it has the same meaning as the original. Use the structure indicated.

1. Experts say that many routine jobs will be replaced by automation in the next 25 years.

It is said that

2. If companies invest more in artificial intelligence, computers will be used more efficiently in the future.

If companies invested

3. "Future computers will process data much faster than today's machines," the researcher said.

The researcher said that

4. If cyber security is not improved, sensitive data may be exposed to serious risks.

Unless

5. Many people believe that advanced AI systems are being developed to assist humans rather than replace them.

Advanced AI systems are believed

6. Scientists predict that quantum computers will be used to solve problems that are currently impossible.

Quantum computers are expected

7. If users do not update their software regularly, computer systems can be damaged by security threats.

|        |
|--------|
| Unless |
|        |

8. “Artificial intelligence will play a central role in future healthcare systems,” the expert explained.

|                           |
|---------------------------|
| The expert explained that |
|                           |

9. If more renewable energy were used, data centres would reduce their environmental impact.

|                          |
|--------------------------|
| The environmental impact |
|                          |

10. Many believe that personal data is being collected at an increasing rate by digital platforms.

|                           |
|---------------------------|
| Personal data is believed |
|                           |