

## THE FUTURE OF MOORE'S LAW

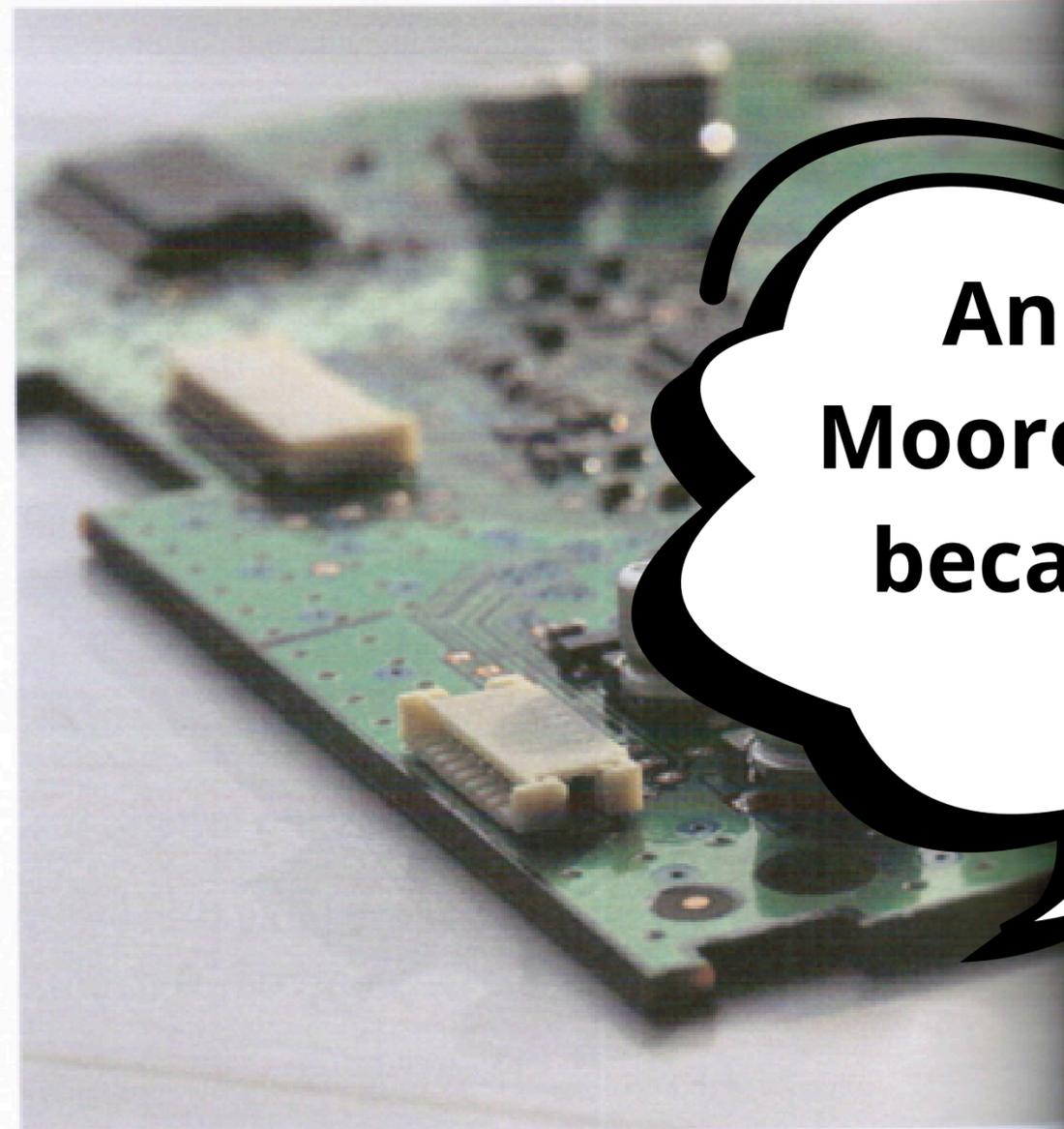
Everybody wants their electronic devices to be as small as possible. Most digital devices use silicon transistors. Transistors are the "neurons" of digital devices: we can create very complex circuits using them as fundamental units.

To make devices smaller, we need to increase the number of transistors on an integrated circuit (IC). In 1965, Intel's co-founder Gordon Moore predicted this: "The number of transistors on an IC will double every two years". Obviously, his prediction (called now Moore's Law) was not mathematical, but the tendency worked very well for more than four decades: about every 18 months, the size of transistors in a chip halved, so the number of transistors doubled.

But around 2010, Moore's law wasn't working anymore. Why was this happening? Transistors were so small (approximately 10 nanometers) that they were leaking electrical current and the IC was starting to overheat.

To fight overheating, big businesses installed cooling systems in server rooms, but they were very expensive. So some of these companies stopped demanding smaller transistors and R&D funds to build them decreased. That is why Moore's law was coming to an end.

Does this mean that electronic devices can't be smaller? Absolutely not. Silicon transistors are getting closer to their size limit, but other technologies are appearing, e.g. quantum electronics. But that's another story...



**Answer: Why Moore's prediction became Moore's law?**



**Complete these activities**

1. **True (T) or False (F).** Explain if the following statements are T or F in your own words, based on the text. Make the false statements true.
  - a) The majority of digital devices use transistors made of silicon.
  - b) Moore's Law predicted the future of transistors exactly.
  - c) Moore's Law is valid nowadays.
  - d) We can have a thousand transistors in 1 mm.
2. **Long answers.**
  - a) Why did overheating occur?
  - b) Why did some companies stop demanding smaller transistors?
  - c) Will electronic devices be even smaller?

**Complete these activities**

### Inspecting the text

3. **Synonyms.** Find in the text two words that mean the same as each of the following:

- a) approximately      b) firms

4. **Tense soup.** Find two examples for each of the following verb tenses in the text:

Present simple	Past simple	Present continuous	Past continuous
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5. **Going beyond.** Acronyms.

a) What does R&D stand for?

b) Do you know the meaning of the following acronyms?

- i) RAM      ii) ROM      iii) USB

c) Can you think of other examples in the field of electronics?