Important update: Arm Announces End of Life Timeline for Mbed. This site will be archived in July 2026. **Read the full announcement.** (https://os.mbed.com/blog/entry/Important-Update-on-Mbed/)

Founders interview (/handbook/Founders-interview)

This content relates to a deprecated version of Mbed

Mbed 2 is now deprecated. For the latest version please see the Mbed OS documentation (https://os.mbed.com/docs/latest).

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An interview with the mbed originators

Simon Ford and Chris Styles talk about how mbed was developed.

The mbed project began in 2005 when two ARM employees met for a tea break to discuss some extracurricular projects they'd been helping out with; an undergraduate project and some after-school electronics clubs. Both we??re frustrated with the results.

"We were working in these educational environments with some pretty nifty microcontroller technology, and the students were getting excited by it," said Chris Styles, ARM Support. "They'd see the potential for the technology and run with it, speculating about what they could build." But when it came to executing on these ideas, the response was never as inspiring; "Nice idea, but unfortunately it isn't as easy to build." The implementation details were consistently getting in the way of even conceptually simple designs.

Another problem also came up. "Chris was getting stuck because all the school systems were locked down, and he couldn't install anything," said Simon Ford, ARM R&D. "So he was playing with the idea for running the tools online." But it didn't hang together until the second core idea was born. "A week later we had the USB disk programming idea, and then we knew it could fly; not long after that, we had built a first proof-of-concept of the basic system."

For the next year or so, the mbed project continued to develop as an out-of-hours skunk-works project. "No one would really take us that seriously, and probably rightly so," said Simon. "We knew we were on to something, but we hadn't seen the bigger picture. We were still focused on the cool technology, and on schools and universities."

At the same time, ARM's partners were starting to develop microcontrollers based on the new 32-bit ARM Cortex-M3 core, and it was becoming obvious this was going to shake up the industry. "The microcontrollers that were starting to filter through we're really impressive; more powerful than the processors that were running your mobile phone not too long ago," said Simon. "all sorts of interfaces for connecting to different modules and peripherals, and with things like Ethernet built in, they could get on the internet too." That alone would be interesting, but with the prices getting as low as $1, the new opportunities were going to be huge.

It was helping industries exploit this opportunity that became the real focus for mbed. The turning point came during a sabbatical in Australia, with two books that influenced the direction of the project.

The first book was "Deschooling Society" (Ivan Illich, 1971), which talks about the growth of institutionalised education and the impact it has had on the way people perceive education. "I realised we'd been thinking about education in terms of formally taught education." said Simon. The reality is most people with engineering interests teach themselves things all the time. "I suddenly saw this idea was applicable to anyone wanting to experiment with microcontrollers, whatever their situation." In particular, that meant any companies or industries that could benefit from introducing microcontrollers. "In hindsight it is obvious, but that was a real turning point for us"

The second book was "The Paradox of Choice" (Barry Schwartz, 2004), which talks of the paralysis people feel when presented with too much choice, to the point of not being able to make decisions or progress. "We'd been having lots of similar discussions about how overwhelming it was for someone new to come in to microcontrollers," said Chris. "This research helped formalise our thoughts, and we took the position that as the 'experts', we should be making a lot of decisions on behalf of the user, at least until they knew better."

These insights formed the vision for mbed; Rapid Prototyping for Microcontrollers. The focus was on making getting started as simple as possible, and optimising how efficiently you could test out an idea, rather than the efficiency of the solution itself. With the wider potential, ARM R&D took on the project. "We started researching things like form-factor, libraries, support and community", said Chris. "By mid 2007, we had a whole setup running," said Simon. "It was along way from where we are now, but meant we could really start trials and iterate the solution."

ARM MCU Partners began to get involved, the development team grew, and mbed was developed through to being a real product. "mbed is a pretty unique solution with some clear goals, and we've been trialling it long enough to know it really works." said Simon. "We've built up some great technology and a knowledgeable team, and hope our work will help lots of new industries take advantage of the opportunities these microcontrollers present. If we can do that, everyone involved will benefit."

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