

Motorola studying modular smartphone

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When it comes to mobile applications, consumers can customize their phones with just a few taps. Motorola Mobility wants to make it that easy to personalize a gadget's hardware.

Motorola late Monday unveiled Project Ara, a [hardware](#) platform that would allow consumers to build their own smartphones by snapping modular parts into a frame. The Libertyville, Ill.-based company, owned by Google Inc., has been working on Project Ara for more than a year and is opening the design process to the public.

Project Ara marks Motorola's most ambitious effort yet in customizable mobile devices, a vision it introduced with this summer's launch of the Moto X. That smartphone lets consumers choose from an array of colors for the device's back plate and external hardware accents.

With Project Ara, the ability to customize the phone extends into the display, keyboard, camera, battery and processor. A shutterbug might opt for a high-definition display and a camera with lots of megapixels, while a frequent business traveler might choose a battery with extended life. A modular design also means a smartphone owner who wants to upgrade or replace a single part - a sluggish processor or a cracked screen, for example - could do so without buying a new device.

Motorola's goal is "to give you the power to decide what your phone does, how it looks, where and what it's made of, how much it costs, and how long you'll keep it," the company's Advanced Technology and Projects group said in a blog post. Motorola declined to comment

beyond the post.

Project Ara's modular phones appear far from hitting store shelves; the initiative has to overcome a number of engineering and design challenges before becoming reality.

Motorola is pushing forward by partnering with Phonebloks, a modular [mobile phone](#) concept created by Netherlands-based designer Dave Hakkens. He posted a YouTube video last month explaining his idea and generated significant online buzz, with the video garnering nearly 17 million views.

As Hakkens explained in a follow-up video on the Phonebloks website, he talked with a number of companies and discovered that Motorola was already working on a similar concept. The two groups joined forces, though Hakkens said Phonebloks will stay independently funded.

Motorola said in its blog post that it will tap the Phonebloks community for feedback. The company also has hired Dscout, a Chicago technology firm, to manage an ongoing consumer research program. Volunteers who sign up online to be "research scouts" will be asked to complete a series of tasks, such as answering questions and snapping photos. Responses are submitted through a mobile application.

Tens of thousands of participants have already signed up - about twice the number of volunteers that typically complete projects with Dscout, said Chief Executive Michael Winnick. The Ara program is expected to run for about a year, and Dscout volunteers might get first crack at early prototypes of the modular phone.

Dscout has worked with Motorola before, but the Ara project stands out in its "level of ambition and scale," said Winnick, adding that it also is "very rare for a large organization to be out there and open" about new

product development.

Chris Jansen, a Chicagoan who works in information security and saw the Phonebloks YouTube video, signed up to be a research scout for Ara. He was drawn to "designing a phone in an entirely new way based on community feedback, especially because it takes the idea of 'you can upgrade what's important to you' out of the control of the carriers."

The Ara project also attracted Alex Pedenko, co-founder of Chicago-based startup Swingbyte. He used to build his own PCs and is intrigued by the potential to customize a mobile [phone](#) with components such as an air-quality sensor or barometer.

"It opens the door for third-party accessories that people haven't even thought of right now," said Pedenko, whose company makes a gadget that clips onto a golf club and collects data on a player's swing.

Technology companies have experimented with modular [mobile devices](#) in the past. Handspring, the maker of the Palm Pilot personal digital assistant, offered modules such as an MP3 player or GPS unit that plugged into the gadget like a video game cartridge.

Project Ara envisions components fitting into a frame called the endoskeleton, Motorola said in its blog post.

The concept faces hurdles in consumer adoption and engineering. For starters, the ability to choose a battery or processor might appeal only to a narrow technical crowd. And consumers have to understand that customizing one aspect of a device has implications for the other parts, said Jefferson Wang, senior partner at IBB Consulting. Opting for a sophisticated camera, for example, might require a more powerful processor and additional storage.

On the engineering side, Motorola will have to make sure all of the mix-and-match modules work together seamlessly.

"Even now, with all the features that are continually released for every new device, there are still things that don't work and security loopholes," Wang said, adding: "Imagine when you open this up on the hardware and software layer for everyone to innovate."

Motorola and Google are major proponents of open software platforms such as Android, Google's mobile operating system. Motorola said it wants to "do for hardware what the Android platform has done for software," including fostering a community of independent developers.

Joe Born, the Chicago-based inventor of an alarm clock dock for Android phones, said the open nature of the software platform has created a "Wild West" atmosphere because there's no "centralized authority" akin to Apple's oversight of its iOS system.

"In the long run, all that experimentation and innovation does build to a richer overall experience," Born said.

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