**Where Your SMARTPHONE Comes From**

Making a smartphone is a global effort that stretches from California to China

The holiday shopping season is about to begin, and one item that's on many wish lists is a new smartphone. If you visit an electronics store to sample—and daydream about—the new hot models, check out the new iPhone 6 or 6 Plus. On the back, you'll notice these words: "Designed by Apple in California, Assembled in China." That's true enough, but the device in your hand—like a lot of things we buy these days—was produced in dozens of countries around the world.

**Designed in California**

At Apple's headquarters in Cupertino, California, designers, engineers, and programmers work on research and development. What should the next iPhone look like? What should it be able to do?

Once they answer the what questions, they have to figure out the how. After all, it's one thing to dream up a device that can make calls, surf the Web, shoot photos and video, play music, download apps, calculate how much to tip a waiter, and turn on the TV from across the room. But how do you make it do all those things—yet still be small enough and light enough to stick in your pocket?

After the device has been planned to the tiniest detail, manufacturers all over the world start making the parts that will turn those ideas into reality.

**Parts From Five Continents**

Producing all the parts that make a smartphone smart is a global effort (see map). Take the iPhone 6's A8 processor chip. It's made by a company in Taiwan that also has factories in China, Singapore, and the United States. The Gorilla Glass for the touchscreen is made by Corning, a U.S. company with factories in Kentucky, South Korea, and Taiwan.

Apple keeps the majority of its suppliers secret, so most information about where parts are made comes from researchers who take iPhones apart and try to trace each part back to a manufacturer and location.

One key ingredient in smartphones and many other high-tech devices is rare-earth metals like terbium and yttrium. They're used to make magnets for the speakers and bright colors for the displays, among other things. Most rare-earth mines are in China, but they're also found in the U.S., Canada, and Australia.

**Assembled in China (and Brazil)**

Once all the parts are made, they're shipped to factories in China where iPhones are assembled. (Some are now assembled in Brazil as well.) Hundreds of thousands of workers in more than a dozen huge factories work 24/7 putting the pieces together and making sure they work. From there, iPhones are shipped to all corners of the globe.

**Apps and More**

That's just part of the story. In addition to the basic installed apps, countless developers have created thousands of other apps that you can download. The packaging had to be designed and manufactured. Marketers had to plan all campaigns. So if you're lucky enough to get a new smartphone this holiday season, whatever the brand, you'll be holding the world in your hand.

-Kathy Wilmore

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**GOING GLOBAL**

The top 10 countries where parts for Apple's iPhone 6 and 6 Plus are thought to be made, and the number of suppliers in each of the top 10 countries.

**Top-10 Parts Suppliers**

<table>
<thead>
<tr>
<th>Country</th>
<th>Parts Suppliers</th>
</tr>
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<tbody>
<tr>
<td>China</td>
<td>366</td>
</tr>
<tr>
<td>Japan</td>
<td>139</td>
</tr>
<tr>
<td>United States</td>
<td>61</td>
</tr>
<tr>
<td>Taiwan</td>
<td>42</td>
</tr>
<tr>
<td>South Korea</td>
<td>32</td>
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<tr>
<td>Philippines</td>
<td>24</td>
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<tr>
<td>Malaysia</td>
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<tr>
<td>Thailand</td>
<td>21</td>
</tr>
<tr>
<td>Singapore</td>
<td>17</td>
</tr>
<tr>
<td>Germany</td>
<td>13</td>
</tr>
</tbody>
</table>

*Another 44 suppliers are in 10 countries not in the top 10.*

**Source:** ComparaGuru.com

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**TALKING TELEPHONES**

Alexander Graham Bell, a teacher of the deaf, invented the telephone in 1876. Bell based his design on the telegraph, which sent coded messages over wires. Bell figured out how to send sound.

The first public pay phone was installed at a Connecticut bank in 1899. Today, because of cell phones, the number of pay phones in the U.S. has dropped from more than 2 million in 2000 to only 243,000 today.

The modern rotary phone was introduced in 1919. To make a call, you put a finger in the hole over the number or letters you wanted, then rotated the dial. In the 1960s, rotary phones were replaced with push-button phones with keypads.

Martin Cooper (right) invented the handheld cell phone in 1973. Ten years later, the first commercial cell phone, the Motorola DynaTAC 8000X, went on sale for $3,995. It was 13 inches long, weighed 1.75 pounds, and stored just 10 numbers.

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