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2013 was a more amazing year than you think

BY VIVEK WADHWA December 30, 2013 at 9:26 am

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The success of the Tesla Model S has proven the viability and superiority of electric cars. (Don Campbell/The Herald-Palladium/Associated Press)

If you go by the headlines, the iPhone 5S and Google Glass were the big technology stories of 2013, and Twitter's IPO was the event of the year. The coverage of Glass focused mostly on its [privacy implications](#) — not its ability to change the world. And iPhone and Twitter were just more of the same. So we could end the year really disappointed because nothing dramatic seems to have happened on the technology front.

But look again, at the stories we missed. So much happened, in fact, that I believe we have set the stage for the transformation of entire industries.

Smaller has become cooler in computers.

Tablets sales continued to increase and have eclipsed PCs and desktops. The iPad mini, which at first seemed to be a disappointment, was a major success. Prices are

continuing to plunge as computing power and functionality grow exponentially. With the U.S. availability of the India-made [\\$37.99 Datawind tablet](#), there will be greater downward pressure. It won't be long before Amazon gives you a free tablet for signing up for Amazon Prime.

This will spell disaster for old-line computer companies such as Dell, Acer and Microsoft.

Electric cars proved their mettle.

Despite a disparaging review by The New York Times, which it later conceded had "[problems with precision and judgment](#)," and negative rumors about safety, range and reliability, Tesla achieved astonishing success. Its customers, who include me, [lauded the car](#). Its stock rose to new heights. Consumer Reports gave Tesla's Model S its highest ranking ever. The National Highway Traffic Safety Administration [reaffirmed](#) its 5-star safety ratings. Tesla has proven the viability of electric cars and demonstrated their superiority. All major car manufacturers are now developing electric cars for a market that will surely grow.

Technology is improving health care.

Quantified Self devices such as Fitbit and Nike Fuelband are becoming widely available. You even see these on the shelves of Apple Stores. Companies are running contests using these devices to encourage employees to get more exercise. Smartphone add-ons such as the [Alivecor](#) heart monitor are being prescribed by doctors. Interestingly, Apple recently [patented](#) a heart monitor sensor for the iPhone. Our smartphones are destined to become our prime medical advisers. I expect they will one day chide us to get more exercise, drink less alcohol and watch our calorie intake. They will tell us when we are about to get sick and which medicines to take. We will only turn to our doctors for refuge.

Rosie the Robot came one step closer to reality.

We have long been waiting for robots such as the housekeeper in "The Jetsons." These weren't practical to build because of the massive computing power required to understand human words and the sensors needed for the robots to "see" and move. Smartphones such as the iPhone 5S now have more computing power than the supercomputers of yesteryear, which fit into large buildings and required water cooling. With the shrinking of computers and sensors and their dramatic drops in price, we can now build the robots we dreamed of.

It is noteworthy that Google just purchased robotics developer, Boston Dynamics, as well as [seven others](#). With its self-driving car and these acquisitions, it seems that Google sees robots as big business. Amazon is also [installing](#) robots made by Kiva Systems to move boxes in its warehouses. Amazon founder (and Washington Post owner) Jeff Bezos said Amazon plans to use robotic drones to deliver goods.

Whether we realize it or not, the robotic revolution is underway. Robots have advanced to the point that for some types of goods, it is cheaper to manufacture in the United States than China. One such robot is Baxter from Rethink Robotics. It has two arms, a face that displays simulated emotion, and cameras and sensors that detect the motion of human beings who work next to it. It can perform assembly and move boxes — just

as humans do. It will work 24 hours a day and not complain. It costs only \$22,000. I expect that what is a trickle of manufacturing returning to the United States from China will later in this decade become a flood. I also expect to place my order for Rosie sometime in 2020 and have it delivered by an Amazon drone.

The space race is on again.

In 2013, India launched a spacecraft that is headed to Mars and China landed a six-wheel rover on the moon. China also announced that it is planning to land a man on the moon by 2025. Add to this the success that private companies SpaceX, Virgin Galactic and Moon Express have had and you realize that we are at the cusp of a new era in space travel.

NASA once again has competition from governments abroad so there will be a new sense of urgency. Now it has the advantage of being able to collaborate with entrepreneurs and take advantage of the technology advances that they have created.

I am eagerly waiting for reservations to open up for the Starship Enterprise.

Now let me give you the bad news: we still have a few more years of disappointment before we marvel at all these advances. The base of an exponential curve is flat. When it turns upwards, dramatic developments happen, but for the longest time nothing seems to change. This is where we are with robotics, sensors, artificial intelligence, synthetic biology, 3D printing and medicine — all of which are exponential technologies.

We were disappointed, too, when cellphones first came out. They were big, expensive and clumsy. For many years, these were just for the rich — a symbol of wealth and power. Today, there are close to one billion cellphones in use in both India and China. Almost everyone has one.

In 1977, the president of Digital Equipment Corp., Ken Olsen, famously said “there is no reason for any individual to have a computer in his home.” The first personal computers were just for geeks and nerds. Then they were for the rich. About two decades ago, we began to question their usefulness and productivity. Now they are transforming industries, and increasingly cost less.

More recently, we became disappointed with solar energy and electric cars. The good news is that this disappointment will soon turn into amazement as well. I know because I live in a solar home and drive a Tesla electric car that I say is a spaceship that travels on land.

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Olsen was right. The "computer" will be with you, not your home. Actually not a computer at all, but an interface to a Cloud, where computing will take place.

Yet another reason to look to the Heavens for the Answer.

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