



**BOSCH**

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**“Making a Sustainable Life an Attainable Life  
in a Connected World”**

Dr. Werner Struth,

Member of the Bosch Board of Management,  
at the 2014 International CES press conference,  
Las Vegas, Nevada, USA

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Check against delivery.

Robert Bosch GmbH  
Postfach 10 60 50  
D-70049 Stuttgart

Corporate Communications,  
Brand Management,  
and Sustainability  
E-Mail  
Chandra.Lewis@us.bosch.com  
Phone: +1248 876 6731

Senior Vice President:  
Uta-Micaela Dürig  
[www.bosch-press.com](http://www.bosch-press.com)

Welcome to the Bosch Press Conference. This is our second year at CES and we are very excited to be back.

CES is THE place to be. It is where people come to talk about the latest in innovation – and, from my point of view, this show is directly aligned with Bosch’s strategy and our business imperative of Invented for life.

In business, oftentimes, we are told that you have to choose. Hedge your bet. Accept tradeoffs. And, in the long run, hope that you picked wisely.

Robert Bosch founded this company more than 125 years ago in a small machine shop in Germany. It was staffed by industrious apprentices. He passionately believed that the products his company produced should not only be of the highest quality, they should also help make the human condition better. Robert Bosch believed that which benefits business and that which benefits society are, in fact, two sides of the same coin.

Today we say that all of our products are “Invented for life.” Our products are designed to respect the environment in which we live and to make the quality of life for those who use them better, safer, cleaner and more economical.

Our company was founded on the premise that our decisions should be sound and sustainable for business and for society overall.

So, today, rather than give you an exhaustive list of all the many products and services that we provide, which are literally in the

hundreds, I will provide you with some examples of how Bosch – in this increasingly connected world – strives to make a sustainable life an attainable life in three areas that impact each and every one of us: home, mobility and community.

I hope that you will be intrigued by our story and, as a result, take the time to visit us at Booth number 20812 in South Hall 1, so that you can talk to our people, see some of our products, and learn more about – not only what our company offers – but what it stands for.

We do live in a connected world. Vehicles, smartphones, containers, machines – as early as 2015, more than six billion things will be connected to the internet. Amazing!

Some people may be overwhelmed by this, but at Bosch, we feel that this is our time. The research that we have done, the investments that we have made, and the people who are part of our team are ready for this challenge. We are very excited by the opportunities that this increasingly connected world provides.

All over the world our focus is on systems for environmental protection, energy efficiency and safety. Nearly half our R and D spending goes into eco-friendly products – and safety accounts for roughly 20 percent.

The Internet of Things and Services makes it possible to network our know-how in a way that was unimaginable only a few years ago. It will give rise to new solutions that offer a better quality of life. However, this opportunity also involves a

challenge: Networked technology in this connected world must not become more complex, but rather, simpler.

This is why we are deliberately integrating the user experience into our development process, employing a strong team of designers and psychologists. Creating beneficial solutions for a connected life – this is a new strategic aim for Bosch. I'd like to present to you now a number of different examples.

As a world-leading innovator of sensor technology and manufacturer of sensors, Bosch is tremendously focused – and keenly experienced – in this area.

For more than 40 years, Bosch has designed and manufactured a wide range of automotive specific semiconductors and sensors. We have comprehensive electronics competence and systems know-how in semiconductors, sensors, power electronics, and IP modules. And, we are a recognized pioneer in micromechanical sensor or MEMS technology, beginning some 20 years ago.

Bosch produces more than one billion micromechanical sensors annually. These sensors are small, cost-effective and power-saving. We are the largest supplier to the automotive industry and the second largest to the electronics industry.

From tiny silicon microphones that capture voice input more realistically, to MEMS that interpret physical motion, the Earth's magnetic fields, and environmental conditions into the digital world, you will find MEMS from our divisions – Bosch Sensortec

and Akustica – in many smartphones, tablets, laptops, and other consumer electronics.

In fact, today we are announcing the Bosch Sensortec BME280 Sensor. This is the world's first integrated environmental unit that combines sensors for pressure, humidity and temperature in a single package. This unique sensor supports many emerging smartphone applications. As you can see, it is just 2.5 millimeters on each side – so in the case of the BME280, great things do come in very small packages.

It has been developed to support a broad range of high-performance applications, such as indoor navigation, home automation control, personalized weather stations, innovative sport and fitness applications, and telemedicine.

To learn more about this technology, please note that on Wednesday afternoon Dr. Stefan Finkbeiner, CEO of Bosch Sensortec, will discuss, “Hardware-Software Co-Design: The Secret to Sensor Fusion,” at the North Hall Room N261.

We believe that our sensor portfolio, including our new BME280, will foster breakthroughs for the Internet of Things and Services. These future-enabled sensors can be incorporated unobtrusively in buildings – in a window for example – where they can automatically monitor humidity, control the heating and connect to the security alarm. If you let your mind imagine it, I'm sure that you share our vision for a whole series of possible applications.

This expanded capability will provide additional benefit for people, but only if the relevant information about these things is automatically collected and transmitted. The main focus is sensor-based connection – and it is precisely here that Bosch is now taking a decisive step forward. Our presumption is that this will be the breakthrough for the Internet of Things and Services – further enabling connected life.

After the successful establishment of Bosch Sensortec in 2005, and the acquisition of Akustica in 2009 to develop a broad consumer MEMS portfolio, we have now established a new company, called Bosch Connected Devices and Solutions. This startup offers customized sensor and actuator edge devices, as well as complete connectivity solutions for applications in the Internet of Things and Services.

After the introduction of MEMS-based sensors into automotive applications in the 1980s and 1990s – and their widespread application in mobile phones and tablets in the first decade of the 21st Century – we believe that the Internet of Things and Services will be the third wave of sensor applications. It will far exceed the other two waves in terms of the number of deployed devices.

At the Bosch booth we invite you to experience a fascinating demonstration of the Internet of Things and Services. It showcases Bosch's unique combination of strength in the design and development of high-performance MEMS sensors along with our know-how in developing complex, integrated systems. It is a live network of smart sensors that extract and

report environmental and motion information from their immediate surroundings.

The demo provides real-time readings on motion, temperature, humidity and sound level via sensors and wireless sensor networks.

Also at the Bosch booth, you can find the latest in home telehealth innovation. Bosch is actively involved in personalized telehealth solutions with our Health Buddy line of products. We are exhibiting both, the Health Buddy Web, a web-based wellness and health monitoring portal and Health Buddy Mobile, a dedicated wellness phone that allows users to monitor key health data while on the go. These solutions provide the user flexibility and freedom in their daily lives, while continuing to monitor key health data.

Next, I want to share an interesting example of Bosch products at work. The Bosch Thermotechnology division is showing its tankless water heater, geothermal heat pump and a high-efficiency condensing boiler – all of which are designed to improve energy efficiency.

Bosch Thermotechnology products provide heating, cooling and hot water for the ROSE Cottage – a 3,100 square-foot net-zero-energy home located in Concord, New Hampshire. ROSE stands for:

- **R**enewable energy production
- **O**ccupant-driven spatial design
- **S**ustainable building practices
- **E**nergy-efficient construction

The cottage was designed by the Turner Group, a full-service architectural and engineering design firm that has a national reputation for creating sustainable and healthy homes.

Heating and cooling are provided by two Bosch ground-source heat pumps. One heat pump is a water-to-water model and the other is a water-to-air model. The water-to-water unit is devoted to heating the radiant floor system on two floor levels, a towel warmer/radiator in the master bath, and a 198-gallon Bosch/Buderus Solar Space Heating Combi Tank.

The solar thermal panels are the primary source for heating the water in the solar tank. The geothermal unit provides supplemental heating to the tank, which is used for both heating the home and generating hot water. The water-to-air heat pump serves a ducted distribution system that has adjustable dampers to allow the owner to create both warm and cool spaces.

Homeowner and architect Harold Turner said that ROSE Cottage shows that consumers are enthusiastic about new green homes that can be built to both minimize annual operating costs and look great at the same time. He points out that most people don't know that these energy-saving technologies are already available and can be applied to create a net-zero home at an affordable price. We could not agree more!

Connectedness, as we all know, extends beyond a person's home and touches almost every aspect of their life. With that in



mind, let's now turn our attention to how Bosch is enabling a sustainable, connected life as it relates to personal mobility. The automotive sector is Bosch's largest and most established sector with nearly \$40 billion dollars in sales in 2012. This sector provides a terrific test environment for innovation. Just think about how much each of us expects from our vehicles, things like:

- Accelerating for high-speed maneuvers
- Stopping at a moment's notice
- Driving in the hottest and the coldest temperatures

I can't think of a tougher environment – requiring precise tolerances in which technology is put to the test – than automotive.

Before I get into some of the specific technologies, let's talk about a trend that I would guess is on most of your minds – and that is, automated driving.

Let me assure you that, yes, fully automated driving will happen. In fact, we are preparing the environment for it each and every day and much work is already under way. Bosch is pursuing the vision of accident-free and injury-free driving – and each innovation brings us a little closer to achieving this vision.

The degree of automation will slowly increase at first, initially on freeways. Starting in 2014, drivers will be able to choose a traffic jam assistant developed largely by Bosch.

At low speeds, this function steers fully automatically, although the driver retains overall responsibility. Over time, assisted freeway driving will become successively more automated at even high speeds, finally reaching the point when the highway pilot will automatically take care of all of the driving, from entrance to exit ramp. Fully automated driving will come about in many small steps to assist the driver more and more, year by year.

Today, Bosch can demonstrate automated driving in prototypes. Some of you may have ridden in them. But we have to safely integrate these future functions – with their sensors, control units, and actuators – into the car as a whole. And precisely this is a Bosch strength.

We are working on this with two teams – one for functions development in Palo Alto, California, and the other for systems integration in Abstatt, Germany.

Our prototype vehicles are currently undergoing further development, and therefore, we made the conscious decision not to bring them to the show this year. Automated driving is represented at the booth, however, and we do have some experts on hand who can discuss it with you.

Bosch is proud to sponsor the Driverless Car Experience here at CES. We hope that you factor into your plan a visit to this TechZone. It features a variety of technologies that support the future of automated driving, including automatic park assist, emergency braking, and much more. The Driverless Car

Experience takes place in the Gold Plaza, next to the North Hall of the Las Vegas Convention Center.

In addition, a panel discussion called the Road to Driverless Mobility, will include my board of management colleague Dr. Dirk Hoheisel. This panel will be held tomorrow at 3 p.m. in the Las Vegas Convention Center, North Hall, Room N262.

And what better way to talk about mobility than to take a trip together – a virtual trip. You drive – Let's go!

You get into your car, start the engine, and tell the navigation system to take you to 5 South Main Street, Las Vegas, Nevada. The map and directions appear.

Next you say, "Please call David Smith at the office" – and you're connected.

Natural voice input means you no longer have to memorize a specific string of commands to operate the system. With this type of voice control, Bosch developers have been successful in making life considerably easier for drivers. The sentence "Please call David Smith at the office" tells the head unit what it has to do: look for telephone numbers for David Smith, select the office number, forward the number to the cell phone, activate the hands-free function and dial the number – all in just seconds. The system even understands when you speak German or a dialect, for example, instead of American English.

Not only is natural voice input convenient, it also minimizes distraction, helping to keep the driver safe.

The Car Multimedia experts at Bosch are also taking steps to simplify the integration of smartphones in cars by implementing solutions like “mySPIN.” This technology allows users to operate their favorite Apple or Android smartphone apps the way they’re used to and without any compromises in safe driving. The apps are optimized for in-vehicle use and operated via the vehicle’s display.

You continue on your route. As you pull up to a traffic light, the engine shuts off, but your air conditioning, navigation and radio continue to operate. The Start/Stop system on your car is a highly cost-effective solution to reduce fuel consumption and CO<sub>2</sub> emissions. The light turns green, and as you let off the brake or press the accelerator, the engine starts up instantly, with smooth and unobtrusive operation. In heavy city traffic, a Start/Stop system can provide up to 15 percent in fuel savings.

While you are driving, you use your anti-lock braking system, forward collision warning and lane-keeping support. These driver assistance systems make driving safer, more eco-friendly, and more relaxing.

Bosch has all the sensor technologies needed for driver assistance – ultrasound, radar and video. In fact, radar sensors form the basis of numerous powerful driver assistance systems. In mid-2013, Bosch manufactured its one millionth radar sensor. With driver assistance experiencing a real boom in the coming years, we forecast that Bosch will deliver its ten millionth radar sensor in 2016.

Resuming your journey, you notice the “Service Engine Soon” light has come on. Pulling into a parking lot, you plug your U-Scan into the On Board Diagnostics port under the steering column.

Bosch’s Actron U-Scan code reader and app provide vehicle diagnostics directly to your Apple or Android mobile device. This helps you diagnose and resolve automotive issues, saving you time and money. The U-Scan also features in-app upgrades for greater functionality – including antilock braking system codes, live engine data, and airbag data. Moreover, the available CodeConnect™ database contains more than four million document repairs, verified by certified technicians.

CodeConnect tells you the first suggested fix is tightening the gas cap, and with a few clicks, you pull back onto the street.

In addition to obtaining vehicle diagnostics with your smartphone via U-Scan, Bosch is leading the development of a telediagnosics platform. While U-Scan allows the driver to understand the code; telediagnosics help car-dealer service centers reach out to you, wherever you are located.

Bosch telediagnosics enables technicians to remotely collect vehicle trouble codes, inform drivers of vehicle condition and better plan vehicle service. Vehicle owners receive expert troubleshooting, faster service, and the ability to schedule service at their convenience and anticipate its cost.

You arrive at your destination and look for a space in the parking structure. Parking is easy, using Bosch Automatic Park Assist.

A suitable parking space is identified using Bosch ultrasonic sensors. Even tight spaces will work.

You exit the vehicle and command the rest of the maneuver with a special app on your smart phone. The system steers, accelerates, and brakes the vehicle into the space. When the vehicle is parked, the system shuts off the engine, sets the parking brake, shifts the transmission lever to “park,” and locks the vehicle.

Returning home, you glance over at your spouse’s electric vehicle in the garage. You are proud that the electric vehicle is good for the environment, and you’re excited about having recently installed a Power Max charging station. Bosch’s newest electric vehicle charging station, with a price of \$449, is nearly half the cost of most Level 2 charging stations, and twice as fast as Level 1 chargers. The Power Max provides consumers several options for cord length and amperage, for a custom fit.

While on the road, your spouse, who is a fleet manager, enjoys using the eMobility Starter Package, developed by Bosch Software Innovations.

With this package, drivers of fleet cars have the ability to know where the various charging stations are located and can reserve charging stations where and when they are needed.

In addition to providing safe intermediate charging along one's route, it expands the vehicle's range of operation and helps drivers conquer range anxiety. This package provides easy-to-read maps with up-to-date status of charging stations as well as an overview of the charging operation and billing details.

As we end our virtual journey, I'd like to tell you about our newest addition to the mobility product lineup – the powerful and dynamic pedal assist electric bike – or eBike – drive system.

The Bosch eBike drive system Performance Line brings energy and momentum to your bicycle pedals on any terrain.

Regardless of whether you are a cycling enthusiast going on a 50-mile trek or a leisure rider, this is a product that appeals to all levels of cyclists. If you're not sure that you can climb steep hills with your children on an afternoon bike ride, the eBike makes the hills as easy and fun as the rider desires.

In addition to smart operating drive units, the Bosch eBike drive system consists of a user-friendly cycle computer, long-life rechargeable battery and a compact eBike charger.

So far, we have discussed how Bosch helps make a sustainable connected lifestyle attainable in the areas of home and mobility. Now, let's take the remaining few minutes and look at what Bosch is doing to support sustainability in the community.

Last year at CES, as some of you may recall, the United States was dealing with the aftermath of Superstorm Sandy, which devastated several states along the Eastern Seaboard. At that time I shared with you the story of Bosch associates who came

together to donate money to the American Red Cross, volunteered their time and talents to travel to the East Coast to help clear debris and begin the challenging rebuilding process. In addition, the Bosch Community Fund, Bosch Power Tools and Bosch Thermotechnology Systems donated funds, power tools and tankless water heaters to assist in this massive effort. That rebuilding process continues today.

And, the nation – and many of our Bosch associates – have once again rallied. As we all know, regrettably, several states in the Midwest were hit by tornadoes just a couple of months ago. While the natural disaster impacted a different geographic location, again, I am proud to share with you that the Bosch team joined forces in much the same way and with the same sense of urgency as we experienced a year ago.

To help with this effort, the Bosch Community Fund contributed \$50,000 and the Bosch Power Tools division has again donated tools valued at more than \$10,000, all of which goes to Habitat for Humanity and is earmarked specifically for rebuilding efforts in the Peoria, Illinois, area.

Being a contributing member to the communities in which we live and work is critically important to Bosch. As our founder Robert Bosch firmly believed, “Never forget your humanity, and respect human dignity in your dealings with others.”

The Bosch Community Fund, a U.S.-based foundation established in September 2011, awards up to \$3 million annually in grants to various 501(c)(3) organizations and educational institutions.



The Bosch Community Fund focuses primarily on the enrichment of Science, Technology, Engineering and Math – known as STEM – education and the advancement of environmental sustainability initiatives.

In addition to responding to natural disasters, the Bosch Community Fund, in its less than two years of operation, has touched thousands of lives in its many outreach efforts.

In fact, since June of 2012, the Bosch Community Fund has made more than \$4 million in grants to groups in eleven communities and three states.

And to show our collective support for those in need in the Peoria Illinois, area, we are donating an additional \$20,000 to Habitat for Humanity. While this may not seem to be a huge sum of money, what it represents is the number of people in this room – about 150 – times the number of years that Bosch has been in business – 127 years. While we are separated by many miles from those in the Midwest, this contribution serves as a reminder to all of us just how connected we are – and the power of communities large and small.

Ladies and gentlemen, our products are designed to respect the environment in which we live and to make the quality of life for those who use them better, safer, cleaner and more economical. So life does require us to make hard choices sometimes. At Bosch, when asked if we choose to innovate high-quality, sustainable products or make the world a better place in which to live, we choose both. After all, these choices are two sides of the same coin.

Before we move into the Q&A, I once again invite you to visit our booth, number 20812, located in South Hall 1. The Bosch booth number and location are printed on the front cover of the reporter's notebook placed at your seat.

Thank you.

**Contact person for press inquiries:**

Chandra Lewis, phone: +1 (248) 876-6731

*The Bosch Group is a leading global supplier of technology and services. In fiscal 2012, its roughly 306,000 associates generated sales of 52.5 billion euros. Since the beginning of 2013, its operations have been divided into four business sectors: Automotive Technology, Industrial Technology, Consumer Goods, and Energy and Building Technology. The Bosch Group comprises Robert Bosch GmbH and its roughly 360 subsidiaries and regional companies in some 50 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spent some 4.8 billion euros for research and development in 2012, and applied for nearly 4,800 patents worldwide. The Bosch Group's products and services are designed to fascinate, and to improve the quality of life by providing solutions which are both innovative and beneficial. In this way, the company offers technology worldwide that is "Invented for life."*

*The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.*

*Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.bosch-press.com](http://www.bosch-press.com) and <http://twitter.com/BoschPresse>*