

World's Largest Industrial Fair

Hannover Fair is 60 Years Old and Still Evolving

by Alan S. Brown

For most of its six decades, the Hannover Fair in Hannover, Germany, showcased new technology and gave engineers a chance to see, touch, and manipulate new products. Yet just as caterpillars metamorphasize into butterflies, the fair continues to reinvent itself even after 60 years of existence.

The first Hannover Export Fair opened its doors on August 16, 1947, two years into the British occupation of Germany following World War II. It was held in a former metalworking facility whose five buildings were among the only large structures left standing after the Allied bombing runs. Workers disassembled the plants' machinery to make room for the event.

Ultimately, the fair's 1,300 exhibitors attracted 736,000 visitors, most from Hannover and the surrounding region. It greeted them with sardine sandwiches, a small luxury in a nation that would continue to ration food for two more years. Although exhibitors were not supposed to sell locals any of their consumer goods—textiles, clothing, pots and

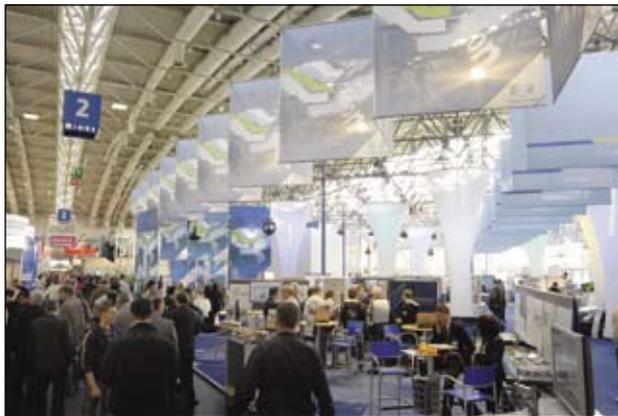


Figure 2. For a few days every April, the sprawling Hannover Fair becomes a small city. This past year, it attracted 240,000 visitors, equal to the population of Baton Rouge or Jersey City.

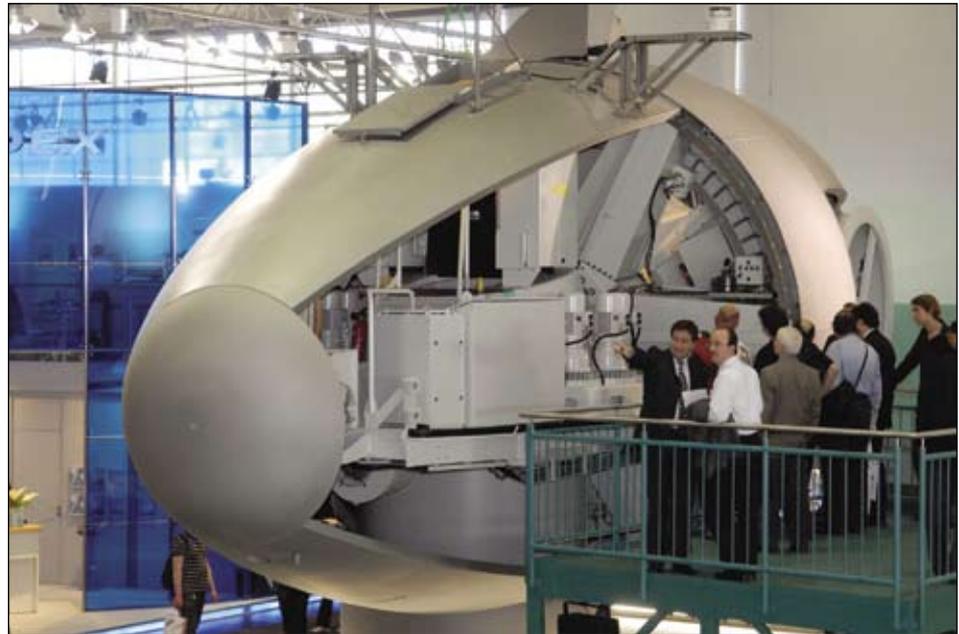


Figure 1. Hannover Fair consists of many individual fairs, each substantial in its own right. The energy exposition, for example, includes everything from fuel cells and wind turbines (above) to conventional gas generators.

pans, furniture—many worked out side deals or exchanges in kind.

Visitors came from 53 nations, and each of them required a security clearance from British intelligence. Children were let out of class, and their 23 schools were converted into dorm rooms for 3,500 guests. At night in town, exhibitors partied on potato gin.

Business people signed nearly 2,000 export agreements worth \$31.5 million. Not every firm could fulfill its orders. Some did not rebuild their factories in time; others had trouble exchanging controlled currency.

Yet the fair survived its first few years and thrived as Germany rebuilt after the war. In 1950, it hosted its first exhibitors from abroad. Throughout the 1960s and 1970s, it added one exhibition hall after another, surpassing other venues to become the premier trade event in Germany and then Europe. In 1986, it spun off its computer and business machine show CeBIT, now the world's largest single exhibition. Other spinoffs include major shows for logistics, carpets, metalworking, and woodworking and sister fairs overseas.

Even without those shows, the sheer scale of Hannover Fair takes time to comprehend. This process starts even before entering its gates. Its parking lot holds 50,000 cars.

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Most visitors arrive by a rail that terminates at the fair. The ride is free if you wear your admission ticket.

Hannover's hotel rooms cannot house everyone. This past April, 240,000 people streamed into the fair. That's more people than the population of Baton Rouge, LA, and roughly as many as Jersey City, NJ, Lincoln, NE, or Henderson, NV. For one week in April, they swelled Hannover's population by nearly 50 percent. The city strained to accommodate them. Although Hannover no longer empties its schools, many visitors board with local families. Many of these relationships are now on their second or third generation of renters and guests. Many people commuted from towns and cities 30 to 60 miles away. Others flew in for a day and out at night.

This is a lot of commotion for a single fair, but then, Hannover Fair is not really a single fair. Instead it combines 12 interrelated trade shows whose lineup changes from year to year. In 2007, for example, it hosted an enormous power-transmission and control show that sprawled across eight large exhibition halls and half of a ninth. It also held separate automation shows (for process, factory, and industrial building automation).

The fair's other shows ranged from industrial IT, sub-contracting, energy, and pipeline technology to facility management, compressed air/vacuum equipment, surface technology, and microtechnology. Many universities and corporations showcased their most advanced innovations in a separate research and technology hall.

This requires lots of space. Setting a brisk pace, it takes about 20 to 25 minutes to walk from the entrance to the extreme edge of the fair. It takes far longer to pass through all 26 separate halls housing 6,400 exhibitors on 2.4 million square feet of space. (This does not count a beer hall that easily accommodates 1,000 raucous guests and two dueling oom-pah bands.)

Compared with America's largest trade show, the festival-like Consumer Electronics Show in Las Vegas, Hannover is 33 percent larger and draws 3,700 more exhibitors and 100,000 more visitors.

Yet size alone is not what sets Hannover apart. It differs from the Consumer Electronics Show in a fundamental way. While the latter focuses on a single industry, Hannover Fair includes a broad slice of industrial disciplines unparalleled anywhere else.

"The entire industrial value chain is in Hannover, from R&D and engineering to outsourced services and production," says the fair's managing director, Wolfgang Pech. "These horizontal technologies and new products are the reason that decision-makers come to Hannover."

Pech points to robots as an example: "People who buy industrial robots don't want to just buy a robot, they want an entire solution. They want someone to deliver the robots, provide the sensors and controls, measure the results, and

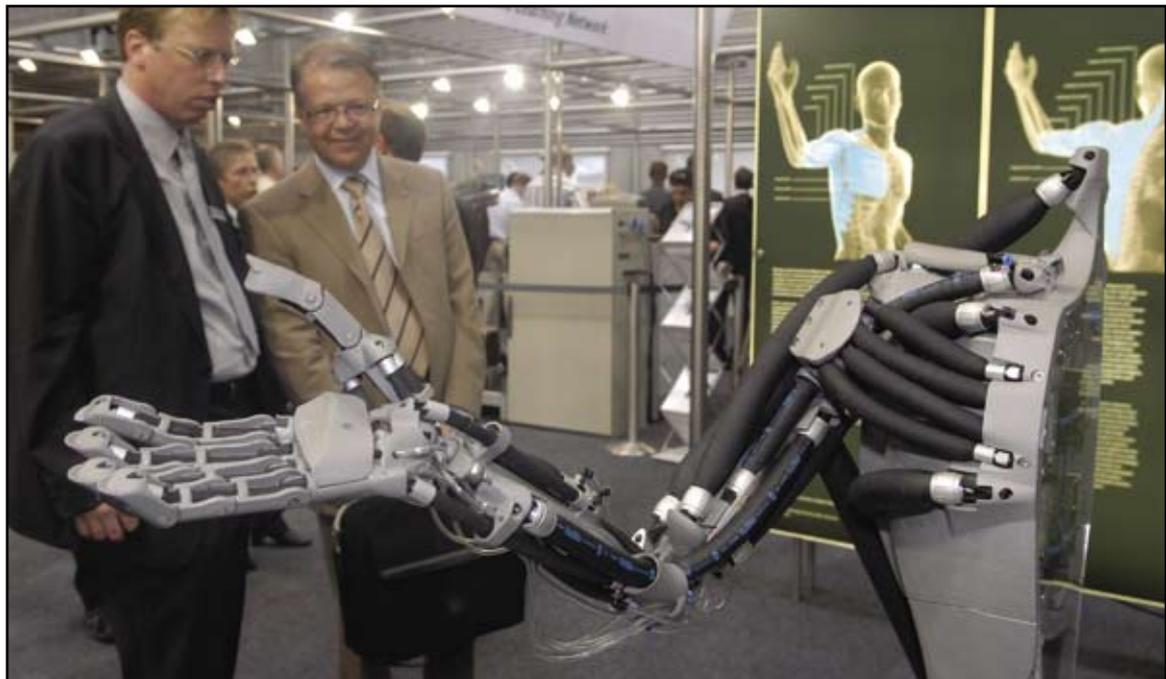


Figure 3. Festo AG's exhibit is often one of the fair's most popular. This year's showcase featured pneumatically powered fish, manta ray-shaped flying dirigibles, automated musicians, and this bionic arm.

do the maintenance. All those companies are exhibiting here."

Hannover Fair also uses the international stage like no other trade show. More than half of the exhibitors and 30 percent of the visitors come from foreign countries, with large contingents from China, India, Turkey, and Eastern European nations. Every year, the fair highlights a partner nation. This past year, it chose Turkey, and Turkish Prime Minister Recep Tayyip Erdoğan and German Chancellor Angela Merkel officially opened the fair. Former opening-day speakers have included Indian Prime Minister Manmohan Singh and Russian President Vladimir Putin.

Imagine the President of the United States opening a trade fair. Nor is this the case of a politician spouting well-worn generalities, picking up a campaign contribution, and moving on. In 2006, Singh brought an entourage of 20 top ministers, 800 governmental officials, and 343 exhibitors. The Indian delegation left with \$1.8 billion in signed contracts and letters of intent.

Figure 4. Hannover Fair opened with speeches by Germany's chancellor and prime minister. Silvana Koch-Mehrin, chair of the European Parliament's Free Democratic Party, opened the women-power symposium.



In many ways, Singh was the ideal guest.

Although India desperately wants to sell more products to the West, he spoke about the billions of Euros that India planned to invest in infrastructure. He told the exhibitors that he had come to buy the best equipment and products.

Turkey's reception had more of an edge. Erdoğan brought 300 delegates and 326 exhibitors. He extolled his nation's seven percent economic growth rate and modern technological manufacturing capabilities. He also made Turkey's case for inclusion in the European Union. He noted that more than two million Turks live in Germany, making close ties between the two countries a natural.

Markel favors a special relationship with Turkey, but she and other European leaders hesitate to give Turks, who have issues with home-bred Islamic extremism, the right to move freely throughout the EU. She tartly noted that the bonds between Turkey and Germany might be stronger if Turkish immigrants learned to speak German instead of isolating themselves in closeted communities.

Despite political differences, Merkel and Erdoğan toured the fair together, stopping at exhibits by Siemens, Bosch Rexroth, Würz Energy, and Schaeffler Group. During the next week, smaller police-led motorcades of black Mercedes ferried other dignitaries around the fair.

Many are there to lend luster to exhibitors from the regions and lend clout to major business agreements. Others do what everyone else at the fair does—ogle new technology. For many, the first stop is the winner of the prestigious Euro 100,000 Hermes award.

This year, the award went to the ProteXXion Laser Surface Authentication system developed jointly by UK startup Ingenia Technology Ltd. and Germany's Bayer Technology Services GmbH. It enables users to authenticate documents and high-value products without using watermarks, holograms, or barcodes.

Instead, the system scans a section of the product with a laser, measuring how the irregularities in the paper or plastic scatter light. No two surfaces create the same signature. Factories can scan products as they leave and transmit the signatures to customers as a data file or encoded in a barcode. The system scans at speeds of up to 1m per minute, and stores signatures in only 125 to 750 bytes of data.

Some of the runners-up were equally intriguing. The Swiss Center for Electronics and Microtechnology Inc. displayed a miniature robotic production line. Designed for the manufacture of increasingly small mechanical and electronic components, it consists of high-speed robot cells capable of placing, drilling, screwing, and soldering submillimeter parts. The entire line fits on a dining-room table.

Other 2007 finalists included a camera-based system to monitor a three-dimensional area for safety and security; an autonomous mobile security robot; and an electronic injection system for diesel engines using biomass-based fuel. Past finalists have ranged from passive radio frequency identification (RFID) tags that work even in noisy industrial environments to bionic arms, on-the-fly pipeline laser welders, low-maintenance freight train suspensions, and wireless factory control systems.

A distinguished jury selects the Hermes winner, but fairgoers speak with their feet. One company that always draws a crowd is pneumatic controls manufacturer Festo AG & Co. KG. In 2006, they came to see the Airacuda, a pneumatically powered fish that swam, dove, and turned like the

real thing in its 16,000-gallon aquarium.

The fish was back in 2007, powered by pneumatic muscle that contracts as its diameter swells to generate power. Festo also unveiled a pneumatically controlled string quartet and drum that played at the opening ceremonies. There was a Mylar dirigible modeled on a manta ray that moved by flapping its wings. It bobbed above the crowd until it crossed a ventilation system downdraft, crashing into the people below.



Figure 5. Hannover Fair attracts more than 6,400 exhibitors from around the world.

Everywhere, there was something new. In the energy building, fuel-cell powered forklifts and backup power systems vied with mammoth steam-powered generators for attention. In the technology building, superconducting motors shared the floor with diaphanous winged helicopters weighing only a few grams. One building housed a complete robotic assembly line. Another offered aisle after aisle of motors, linear drives, gears, linkages, and controllers.

New technology often takes center stage. Yet many companies, like Hollywood stars at the trendiest watering holes, come to see and be seen. They are also expected to entertain.

Nearly all large exhibitors (and many small ones) have snack bars in their booths. Some serve canapés and small sandwiches—others, complete hot meals. Most pour sparkling water, wine, and beer. Samuel Adams brewery actually air freighted bottles of lager to Massachusetts delegates who were demonstrating alternative-energy products so that the beer would be fresh for a discriminating German audience.

Large booths stretch across two or even three aisles. Many are centered on small buildings with stairs leading upstairs to private dining rooms overlooking the fair.

Downstairs, exhibitors try to outdo one another with imaginative displays. In one booth, a 50-kg weight with a three-quarters-full glass of red wine on top sits atop two guides. Shock absorbers stop its fall without spilling a drop. In another booth, a loose hose keeps smacking a bloodied dummy. One booth offers a 20-foot artificial waterfall; another features a game based on frisbees. Some exhibitors send dancers into the aisles; others dress as giant bees in football helmets to distribute invitations.

Despite the hoopla, Hannover Fair is working overtime to find its place in a fast-changing world.

This is reflected in the fair's attendance, which fell after 9/11 and has revived only fitfully. In 2005, for example, the fair attracted 208,000 visitors, many of whom came to attend motion/drive/automation and compressed air/vacuum events held every other year. Without those exhibits, attendance dropped to 155,000 visitors in 2006. The rebound to 240,000 people in 2007 was aided by an influx of 23,500 students under a program to bring future engineers to the fair. Without them, attendance rose only four percent rather than the reported 10 percent.

Yet any increase is a triumph in an age when engineers can download specifications, user guides, case studies, and application information off the Internet. Hannover



Figure 6. The research and technology exhibits are always crowded. They offer a chance to see the new technologies from startups, schools, government laboratories, and established companies.

continues to attract crowds because it lets visitors browse such a diverse array of products and technologies. It encourages a type of exploration that is similar in many ways to surfing the web, with the added benefit of being able to touch products and ask questions.

“You can use the Internet to buy commodities,” admits Pech. “But if you’re

a manufacturer and need new bearings, you need to talk to someone face-to-face about adapting their bearings to your needs.”

Hannover Fair must also cope with the ongoing shift of manufacturing to Asia. Its strategy is to spawn trade shows where the action is, in the growing economies of China, India, and Turkey.

China has received the most attention. By August, it had signed up 1,400 exhibitors for its power, transmission, and control show, up from 339 in 2002. Its materials handling will grow to 430 booths from 136 five years ago. Hannover Fair's other shows in China cover topics as diverse as biotechnology, computers, automobiles, and energy. It has also begun industrial shows in India, Turkey, and even Russia.

In many cases, executives who attend or exhibit at these regional fairs ultimately wind up in Hannover. The number of Chinese attendees in Hannover has swelled over the past 10 years, as familiarity breeds even more familiarity. In fact, China is now the fair's second-largest foreign exhibiting country after Italy, followed by Turkey, India, Taiwan, France, and the United States.

It is a far cry from 60 years ago, when fair organizers offered visitors sardine sandwiches. Yet just as the original organizers improvised and struggled to put on the first fair in war-ravished Germany, today's management continues to morph and change to find a place for a 60-year-old tradition in a rapidly changing global economy.

Alan S. Brown has been an editor, contract editor, and freelance writer for more than 25 years and lives in Dayton, NJ (insight@comcast.net). A member of the National Association of Science Writers and co-chair of the Science Writers in New York, he graduated *magna cum laude* from New College at Hofstra University in 1974. He is an associate editor of *Mechanical Engineering*, contributes to a wide range of engineering and scientific publications, and teaches short courses to help engineers communicate more effectively.