



## Speech

## Tom Enders, EADS CEO

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## **Closing the innovation gap**

Speech by Tom Enders, CEO, EADS  
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**CHECK AGAINST DELIVERY**

### **[Introduction]** *(video shown on screen)*

Good evening ladies and gentlemen.

Let me introduce you to the Mars Rover – her name is Bridget – we're working on with the European Space Agency.

As you can see, she will never set the world speed record.

- But she can climb over rocks and drill down in search for life.
- She can send stereoscopic images back to earth.
- And she can make her own decisions about which route to take to explore this planet.

Now apart from being a rather cool piece of kit, my little friend here is a pretty good example of both CeBIT's Shareconomy theme and of the challenge I've come to share with you today.

Thanks to the IT industry, the Mars rover will help an international team of scientists explore a planet 400 million kilometres away. For example:

- Graphics technology from the movie industry checks her tracking.
- Especially hardened microchips keep working despite being scorched by the strong radiation on Mars.
- And even this handy little games console keeps life simple for the operators during development!

Well, elsewhere in aerospace I could talk about how your work helps us every day.

- This can be data transmission from space and between various aircraft – on the ground, in the air; manned and unmanned.
- Or cyber security and intelligent networks.
- And what about these things? They can save a single airline 16 million sheets of paper and 300,000 gallons of fuel every single year.

Or 3D screens letting engineers in different countries work together inside one cabin.

Augmented reality helping with product verification and maintenance checks.

Developing Smart luggage you can track from your phone.

Or even apps like Airbnb, Lyft or Opentable that are redefining travel and tourism every day.

It's all good stuff and it's easy to start daydreaming about all the other possibilities.

**[The innovation gap]** *(Tom Enders speaking live on stage)*

But Chancellor, Prime Minister, Excellencies, ladies and gentlemen,

I am afraid I need to bring us back to reality because it is not quite that simple.

Our little rover is an incredible piece of technology, doing incredible things. But at her heart are computer processors from the nineties.

And with computing power doubling every two years, that innovation gap – between your industry and mine – gets bigger every day.

- Think about it.
- By the time Bridget leaves for Mars in 2018, basic computing power will have tripled but hers will be 30 years old.

And she's not alone. Let's face it; this phone is more powerful than the computers on the aircraft you flew on to get here.

All of which brings me to the challenge I have mentioned in that little movie: How can we close that gap in the pace of innovation?

To explain the scale of that challenge; from initial R&D to final retirement, an aircraft lifecycle can last up to 90 years.

- It costs over roughly \$10 billion to kick off a new programme.
- Up to 3 million parts of the aircraft must deliver the same performance on the last day as on the first.
- And the lives of nearly three billion people a year depend on safety standards unlike in any other high turnover consumer product.

Don't get me wrong. IT progress has been great for us. Aerospace has never been safer, greener or more accessible.

So, we already owe a great deal to a lot of you.

- But we could be a great market for a lot more of you.
- Because you touch every single aspect of design, production, operations and customer expectation.

When I read about spray-on Wi-Fi or DNA data storage in, I can't help thinking we can close this gap if we can just bring the right people together.

Take something as basic as software. We use about 10,000 packages across EADS.

- Windows XP has 45 million lines of code. If one goes wrong you just curse and reboot your computer.
- Worst case scenario? You lose a file or two.
- If a line of code goes wrong when you're landing a plane, you can't reboot.
- Worst case scenario? You might lose 500 lives.
- So every line is painstakingly checked.

Or what about hardware?

EADS has over 100,000 PCs and 10,000 workstations.

We have up to 6,000 or more engineers working on a single aircraft.

- So all that kit has to be aligned, supported and secure.
- If we get it wrong - if a cable is a few millimetres out?
- Production stops and our future is on the block. At least the future of top management and angry airlines might call for hundreds of millions of penalties.
- That is what we learned the hard way.

And that's just in-house.

- You can scale that up to include millions of people across the industry and thousands of aircraft already in service.
- Whether we upgrade or delay, the investment and impact are enormous.

And again: There has to be a better way to do this.

As passengers, what if we could integrate connections and security to get you anywhere in Europe in just under four hours?

- Door to door, cheaper and connected all the way!
- That's the industry target. We call that Flightpath 2050. That expresses the ambition. But yet again, we need your help to achieve it.

Because while our kids play games with digital connections, our air traffic controllers still have to use good old VHF.

- Planned upgrades will cut cost, time and emissions.
- Dynamic data will optimise everything from catering to cabin layouts.

- But that's at least a decade away, so the goalposts will probably have moved again.
- Anyway, our customers don't want to wait a decade!

Cabins for instance are core airline competition, but changes or upgrades are just too long, take too much time and too complex.

To give you an idea, the A380 has over 500 kilometres of wires for over a thousand functions.

- The design is fixed two years before certification.
- It's a headache for design, manufacturing and maintenance.
- And it's a hell of a lot of weight when every kilo adds to costs and emissions.

Getting rid of cables – even just from the cabin – would be a massive break through.

Technologies like optical wireless hold the key – using LED lighting instead of radio frequencies.

- We've worked on this for ten years and our guys see great possibilities in this technology.
- But surely this is more your domain than ours.

There are thousands of examples like that:

- All worth fighting for
- But all just incremental changes.

So, at the heart of my challenge to you this evening, is the search what Google would call a 10X.

- We need to disrupt the innovation process, without disrupting the industry.
- We need to step up to the new pace of innovation, without stepping back on safety.
- And we need to do it for more than 20,000 aircraft already in service today as well as for the 30,000 coming in the next 20 years.

Today, when an aircraft is certified, we freeze the design and everything related to it – software, workstations, the whole lot.

- It's a €200 million investment for each new programme.
- And it's outdated before the plane is in service, so we invest even more to maintain it.
- Cutting edge aircraft or Mars rovers, tied to aging IT.
- This has to change. But once again, we can't do it alone.

Ladies and gentlemen, every single one of us is affected by the aerospace industry every single day.

- So are millions of people around the world who rely on us for everything from trade and education to communication, family visits or emergency rescue.
- That's why Bill Gates called air transport the original World Wide Web.
- And that's why we need a cross industry approach to tackle one of the big technology challenges of our generation.

Together, IT and aerospace can achieve great things. We already do, thanks to some great IT partners many of whom are here today at CeBIT.

But if we set our minds to it and create a fresh approach, we can perhaps achieve a step change to rival the Wright Brothers or others.

- That's what we need.
- Not just one 10X breakthrough.
- But ten of them.

So, in the spirit of the Shareconomy theme of CeBIT,

- Let me end with a call for the IT industry to join us in setting out a cross-industry action plan to solve this.
- Not just for aerospace, but for all the manufacturing industries facing this problem.

- Tomorrow we're launching a round table initiative to find a way forward.
- But tonight, let's use the next few hours together to get the ball rolling.

Thank you.