

Agilent Technologies

High Tech Case Study



Agilent Technologies

Challenge

Agilent needed to empower its employees to quickly determine the environmental regulatory compliance of its products, track emerging regulations globally, and respond to regulatory inquiries quickly.

Solution

Agilent chose the Dassault Systèmes **3DEXPERIENCE** Platform with the materials compliance capabilities of the ENOVIA application.

Benefits

Agilent can determine the regulatory compliance of its products, plan redesigns to meet new standards, respond to regulatory inquiries, collaborate with suppliers, share intellectual property enterprise-wide and protect \$1 billion in annual revenues.

Agilent masters materials compliance with **3DEXPERIENCE Platform**

When the European Union announced its RoHS Directive, a regulation that limits the presence of certain hazardous materials in manufactured products, Frank Elsesser of Agilent Technologies recognized that meeting its requirements would affect nearly every operation of the US-based electronic test and measurement systems manufacturer.

One of the RoHS-regulated chemical substances, lead, has been a staple in electronic circuit board solder for more than 70 years. To comply with the directive, Agilent needed to find a substitute for lead and work with its suppliers to ensure they, too, made the change, in itself a formidable challenge.

Removing lead solder from its products was just the tip of Agilent's RoHS iceberg, however. Like all electronics manufacturers in the High Tech industry, the company also faced a significant redesign and testing challenge. Would the replacement be as reliable as lead solder? Would it change the way electronic components heated and cooled? Would the products made with it last as long? Given that its customers depend on their Agilent products for 20 years or more, finding the answers to these questions was critical.

Reengineering for materials compliance

"Taking the lead out of solder is a fundamental shift in technology," says Elsesser, Agilent's director of Environmental Compliance, Product Regulation and Safety. "So it's very important to our customers that we do that in a very methodical way that's well tested. And that means we want to get a jump on that well before we face the regulatory deadlines."

Elsesser also recognized that lead was just one of many regulated substances Agilent would need to track; regulations would proliferate as other countries replicated the EU's initiative, and each country would set different standards. Agilent's designers and engineers would need to quickly determine which supplier components to include in their designs and whether the sum of those choices would meet the regulatory limits in any given country. Agilent would also need to track emerging regulations and manage its shipments to ensure that only compliant products were sent to regulated countries.

Failure was not an option. The cost of a mistake could be astronomical. RoHS, for example, gives regulators the discretion to ban all products from any company that violates the regulations. In the EU alone, that put more than \$1 billion of Agilent's annual revenues at risk.

Protecting at-risk revenues

"We knew if we didn't produce RoHS-compliant products in a certain number of years we might lose market access, which is a significant amount of revenue for our company," Elsesser explains. "The EU represents probably 30 percent of our revenue right now, but as environmental regulations become stricter around the globe I can see that growing to 90 percent or even 100 percent. And when you speak in those terms to CIOs and CFOs, they really get it."

Helping top management appreciate the size and importance of the challenge was critical, because the product R&D and data management challenges presented by RoHS were far beyond the capabilities of Agilent's existing manual processes. Even with significantly more regulatory compliance staff, the risk of error was just too high. Agilent needed to find a radical new way of working.

"When you start talking with your R&D engineers and your senior executives about changing the entire design process as well as the components that go into your products, it becomes very easy for them to get behind finding a solution," Elsesser says.



We estimate through investments we've made in ENOVIA that we're protecting well over \$1 billion in revenue in the EU alone.

Frank Elsesser, Director of Environmental Compliance, Product Regulation and Safety for Agilent Technologies



SUSTAINABLE INNOVATION* AT AGILENT TECHNOLOGIES

Keeping track of rapidly evolving environmental regulations worldwide is a massive challenge. Meeting them is an even bigger one, especially when it requires the fundamental redesign of virtually every product a company makes. But Agilent Technologies is taking it all in stride. With the help of the 3DEXPERIENCE Platform with the collaborative innovation capabilities of the ENOVIA application, Agilent has:

- Protected more than \$1 billion in annual revenues by ensuring compliance with the European Union's RoHS regulations.
- Enabled instant visibility into the chemical makeup of every component and finished product, empowering its designers and engineers to quickly create "green" bills of material.
- Cut response times to compliance inquiries from weeks to hours.
- Streamlined collection of regulatory compliance data from its 7,000 suppliers.
- Reduced regulatory paperwork costs by automating its collection and reporting processes.
- Eliminated expensive and inefficient manual reporting systems and processes.

* Sustainable Innovation is a creative approach to developing products and services that benefit the health and safety of people, the environment, and the economy while fostering a self-perpetuating climate of innovation.

Honoring customer commitments

Agilent Technologies leads the world in test and measurement systems for electronics and bio-analytic instruments. Its products serve a wide range of industries, from consumer electronics to pharmaceuticals; half of the world's 1.3 billion cell phones, for example, are tested with Agilent equipment.

Developing new technologies that set the pace for quality and reliability, but also for environmental sustainability, is a key focus for Agilent and a key value for its customers. Agilent's commitment is so strong, in fact, that it is moving ahead even as enforcement of some environmental regulations is being delayed.

The challenges are daunting, but Agilent is turning them into opportunities. "We wanted to be at the forefront of developing products that were and are sustainable," Elsesser says. "One of the things we found early on was that building a foundation on a solid environmental data management system would get us there and help us evolve with the rapidly changing regulations over time."

3DEXPERIENCE Platform for materials compliance with ENOVIA

For help in meeting its regulatory compliance challenges, Agilent turned to its long-time partner, Dassault Systèmes (3DS), the 3DEXPERIENCE Company and world leader in 3D Design, Digital

Focus on Agilent

Products: In its 100-year history Agilent has become the world's premier measurement company, with solutions for chemical analysis, life sciences, diagnostics and genomics, and electronic measurement.

Revenue: \$6.6 billion (2011 fiscal year)

Employees: 20,000

Headquarters: Santa Clara, California, USA

For more information

www.agilent.com



Agilent handheld digital multimeters deliver accurate measurements for electronics troubleshooting and machinery maintenance. Agilent is redesigning all of its products to meet stringent new materials compliance standards, often years ahead of planned enforcement deadlines.

We're discovering other pieces of functionality and benefits that we didn't realize we could take advantage of when we first did the implementation.

Frank Elsesser, Director of Environmental Compliance, Product Regulation and Safety for Agilent Technologies

Mock-Up (3D-DMU) and Product Lifecycle Management (3D-PLM). Like Agilent, 3DS is focused on creating positive experiences for its customers. To simplify the process of applying its extensive solution set to customer challenges, for example, 3DS has organized its offerings into industry-specific experiences designed to work the way leading industries work, directly out of the box.

3DS built Agilent's solution on the **3DEXPERIENCE Platform** with the materials compliance capabilities of its ENOVIA application. **3DEXPERIENCE** gives Agilent a single collaborative platform for managing engineering and design data so that users from around the world – both inside Agilent and at its supplier organizations worldwide – can collaborate effectively in real time.

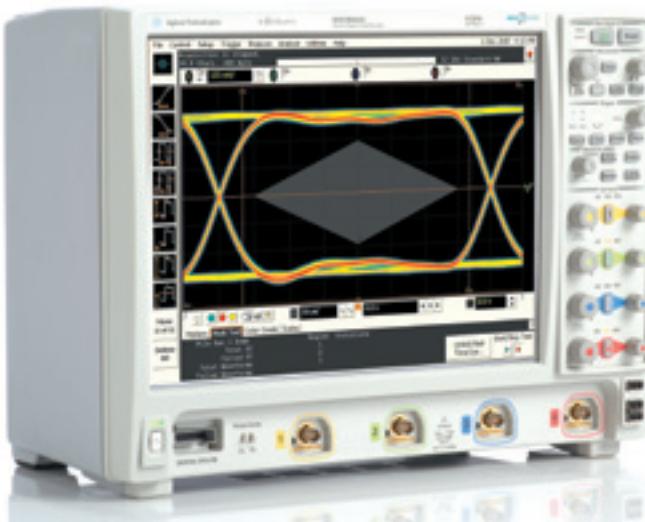
ENOVIA incorporates best-in-class High Tech industry-standard business processes for everything from contract and requirements management to configuration, workflow and bill of materials management, helping Agilent get up and running faster and more efficiently with fewer challenges.

Making regulatory compliance a competitive advantage

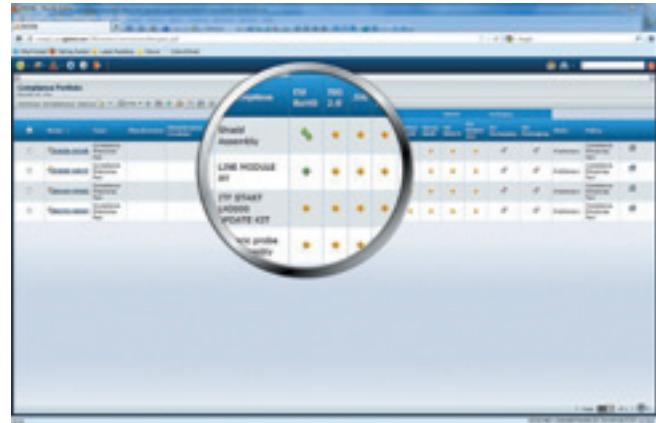
With ENOVIA on the **3DEXPERIENCE Platform**, Agilent users can now view and access compliance data early in the design phase, enabling design for compliance. The platform also creates a portal for suppliers to submit their materials declarations, giving Agilent earlier visibility into the makeup of components used in its products.

Implementing ENOVIA, Elsesser says, is "a strategic investment for the long term. Just keeping track of the new and emerging environmental regulations around the globe is an extreme challenge, and ENOVIA keeps track of that for us." With a few keystrokes, Agilent employees can determine what must be redesigned to meet each new regulation or regulatory change.

With little to no consistency in materials compliance regulations from country to country, Agilent is designing its products to the highest standard from each regulation so every product meets or exceeds all standards worldwide, a strategy that is setting it apart from its competitors. "In some cases we're seeing new contracts being based on our ability to demonstrate whether our products meet certain environmental regulations around the globe," Elsesser notes. "Our customers are not only requesting information about RoHS compliance; in some cases they're demanding it, because our products are integrated into their solutions."



Agilent's Infiniium 9000 series delivers the broad functionality of an oscilloscope, logical analyzer and protocol analyzer. Because Agilent's customers often depend on the company's equipment for 20 years or more, redesigns for environmental compliance must be done early to allow time for rigorous testing.



With the Dassault Systèmes **3DEXPERIENCE Platform** and the ENOVIA application, Agilent engineers know which components are in compliance (green) and which require additional work (yellow). A click on the individual components delivers detailed information about outstanding issues.



Field technicians use the Agilent Fieldfox line of handheld analyzers for installation, maintenance and troubleshooting of RF and microwave communication systems. Although Agilent adopted the **3DEXPERIENCE** Platform and ENOVIA application to ensure the materials compliance of its products, the system also helps achieve economies of scale, design process efficiencies and improved time to market.

Justifying the investment internally

To justify Agilent's investment, Elsesser and his colleagues leveraged the issues of risk avoidance, revenue protection, and the challenge of product redesign. Although they needed a solution to efficiently manage environmental data and reporting, Elsesser says the company's corporate managers were particularly impressed by their assessment of how the **3DEXPERIENCE** Platform could help Agilent manage the re-designs and supplier changes needed to bring the company's entire product line into compliance while mitigating the risk of regulatory interruptions to product delivery.

"Some folks think environmental compliance is just reporting," Elsesser explains. "But in many cases, regulations like RoHS are forcing manufacturers to change core components – the core DNA of their products."



We consistently find that coming back to Dassault Systèmes, to that host of expertise, has been very beneficial to us and has paid really big dividends.

Frank Elsesser, Director of Environmental Compliance, Product Regulation and Safety for Agilent Technologies

Leveraging closer supplier alliances

Making its products compliant around the world is a challenge not just for Agilent, but for its supply base as well. The **3DEXPERIENCE** Platform, with the collaborative innovation capabilities of the ENOVIA application, has given Agilent a much better way to communicate with its more than 7,000 suppliers. Centralizing environmental data on component parts has enabled significant efficiency gains, Elsesser says, and resulted in stronger partnerships with Agilent's suppliers.

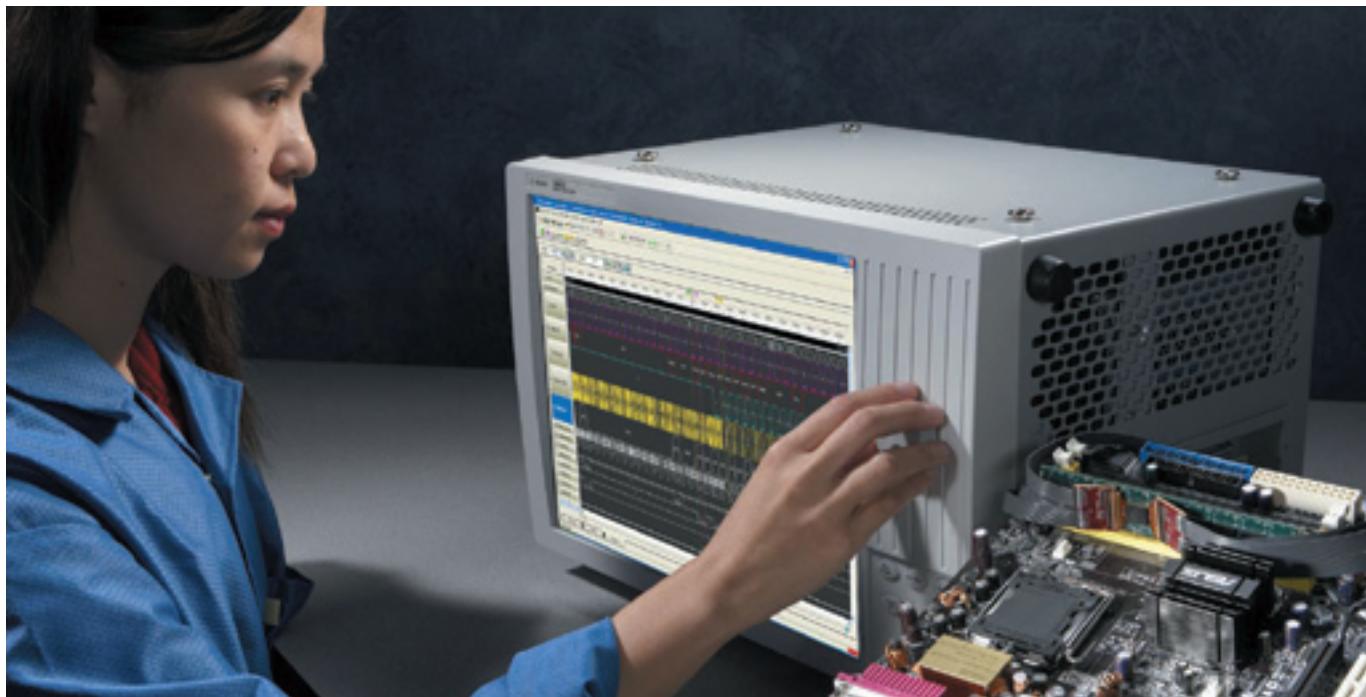
Having visibility into the materials used in supplier components helps Agilent's designers ensure the ongoing quality and reliability of its products. "ENOVIA allows our design engineers to take a holistic view to determine what it takes to build that compliant product, that 'green' BOM," Elsesser says.

Ted Lancaster, Agilent's director of Engineering Services, describes the **3DEXPERIENCE** Platform as the final arbiter of truth for environmental compliance because engineers can see in real-time whether the components they are putting into an assembly will be compliant and sustainable. Given the dynamic rate of change across the global set of materials compliance regulations, such insight is a critical capability.

The **3DEXPERIENCE** Platform also facilitates sharing intellectual property across different product groups, Elsesser says. Shared IP allows designers to move much faster through the cycles of the product lifecycle management model, improving time to market. By standardizing the use of component parts across the organization, Agilent is realizing substantial economies of scale, greater leverage with suppliers and better design process efficiencies.

Not a typical IT application

Elsesser advises other companies not to underestimate the strategic value of materials compliance with the **3DEXPERIENCE** Platform and



This technician is testing a computer motherboard with an Agilent logic analyzer, used for the toughest digital debugging tasks. Industries ranging from consumer electronics to pharmaceuticals depend on Agilent's measurement tools to ensure their own product excellence. Agilent is committed, therefore, to meeting tough new environmental regulations with no compromise in performance.

the ENOVIA application. "This isn't a typical IT application that's going to centralize data for you," he stresses. "It's a core to building the foundation for you to get value from the investments you're making in being environmentally compliant. You can use this as a strategic advantage. If you look at it that way up front, you're going to get the most out of the solution."

Better yet, the up-front investment comes once, while the benefits recur year after year. "Plus, we're discovering other pieces of functionality and benefits that we didn't realize we could take advantage of when we first did the implementation," he adds. "Our users are seeing that they can do faster reporting and work closer with R&D than they'd done in the past. It's really opening our eyes in a different way than a traditional data management system might."

The longer Agilent uses its 3DEXPERIENCE Platform with the ENOVIA application, the more ways the company finds to improve processes and integrate the solution with other software,

Lancaster says. "All of this continues to bring greater value from the solution and sparks more ideas for improvement. The journey is just beginning."

Solution and service: the complete experience

Elsesser says Agilent is glad to be making the journey with 3DS as a partner. "We've learned some very valuable lessons whereby we've either tried to implement some of these solutions on our own – and we have a very capable IT staff – or with third parties that we've worked with over the years. But we consistently find that coming back to Dassault Systèmes, to that host of expertise, has been very beneficial to us and has paid really big dividends."

Agilent's aggressive approach to environmental compliance is consistent with the company's long commitment to sustainability for all its products, such as this Agilent U1253B digital multimeter. "We found early on that building a foundation on a solid environmental data management system would get us there," says Frank Elsesser, Agilent's director of Environmental Compliance, Product Regulation and Safety.





Delivering Best-in-Class Products



Virtual Product



Information Intelligence



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Dashboard Intelligence



Digital Manufacturing



Social Innovation



Collaborative Innovation



3D Communication

Dassault Systèmes, the **3DEXPERIENCE** Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 150,000 customers of all sizes, in all industries, in more than 80 countries. For more information, visit www.3ds.com.

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