



Cisco and Barilla Partnership: Embracing IoT to Give Consumers Insights Into The Journey of Their Food

November 17, 2015

Summary

On September 16, the Cisco Retail team issued a news release detailing how the Barilla Group, (makers of Barilla brand pastas and sauces), is embracing the Internet of Everything (IoE) to provide consumers with the ability to trace the entire chain for production for the ingredients in their food. To drive their innovation strategy and improve efficiencies, Barilla worked with Cisco to implement a new technology platform called Safety for Food (S4F). The Safety for Food platform enables consumers to scan a QR code on the back of limited edition pasta and sauce packages to easily access a website that tells the story of the specific production batch, through a detailed analysis of all major phases of the supply chain.

Cisco and Barilla had interviews with many tier-1 vertical press including *Business Solutions for Retailers*, *Baseline Magazine*, *Retail Week*, *Consumer Goods Technology* and several others. Please find an initial coverage recap below. We anticipate several more stories in the weeks ahead.

Notable Quotes:

- *" Barilla worked with Cisco, a San Jose, California, U.S.-based global IT company; Penelope S.p.A., an Italian management consulting company; and NTT DATA, an IT services provider, to implement the Safety for Food platform. Penelope S.p.A. developed ValueGo, the software that powers Safety for Food. Cisco has collaborated with non-governmental organizations, technology partners and experts in food supply chains to create the Safety for Food platform, which provides access to data from across the entire agricultural food chain." -(World Grain)*
- *" Cisco announced its Internet of Everything (IoE) deal with pastas and sauces maker Barilla Group to deploy Safety for Food (S4F) technology platform. The platform — powered by the software ValueGo and developed by Penelope — enables Barilla consumers to scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to access a website that tells the story of the specific production batch and analysis of all major phases of the supply chain." -(InfoTech Lead)*
- *" Barilla worked with Cisco, a San Jose-based global I.T. company; Penelope S.p.A., an Italian management consulting company; and NTT DATA, an I.T. services provider, to implement the Safety for Food platform. Penelope S.p.A. developed ValueGo, the software that powers Safety for Food. Cisco has collaborated with non-governmental organizations,*

technology partners and experts in food supply chains to create the Safety for Food platform, which provides access to data from across the entire agricultural food chain." - Jeff Gelski (Baking Business)

- *" Italian food company Barilla Group has worked with Cisco, Penelope SpA and NTT Data to implement a new technology platform called Safety for Food that aims to give consumers the ability to trace the entire chain of production for the ingredients in their food. The platform is powered by Cisco's ValueGo software and enables consumers to scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to access a website that tells the story of the specific production batch, through a detailed analysis of all major phases of the supply chain." -(Telecompaper)*
- *" Barilla Group, the makers of Barilla brand pastas and sauces, is working with Cisco to implement IoE technologies that let consumers trace the entire chain of production for ingredients in their food. ValueGo, developed by Penelope S.p.A, is the core system of the Safety for Food project. Using their smartphones, consumers scan a QR code on the back of select packages of pasta and sauces to follow the dough, for example, starting from the wheat field to learn where and how it was sown, cultivated and harvested." - Scott Thompson (Retail Systems)*
- *" The so-called "Safety for Food" platform combines hardware and network configurations from Cisco Systems, business intelligence software from management consulting firm Penelope S.p.A., and supporting services from NTT DATA Italia to create a real-time feedback loop through the entire food production process—from the fields where food is grown all the way to consumers' plates." - Tony Kontzer (Baseline)*
- *" 'We've seen the importance of knowledge about food. Provenance is becoming a major differentiator of the food industry,' said Shaun Kirby, CTO, Cisco Consulting Services. 'Now consumers get a wealth of knowledge that lights up that box of pasta and differentiates it.' Using their smartphones, consumers scan the QR code on the back of the pasta boxes and sauces and that allows them to literally begin at where and how the grains and tomatoes were grown, over to following the dough to where it was made into farfalle, for example. The integrated tracking system from Cisco will give consumers greater transparency and traceability of their food." - Ken Briodagh (IoT Evolution)*
- *" Cisco has collaborated with non-governmental organisations, technology partners and experts in food supply chains to create the S4F initiative, which provides access to data from across the entire agricultural food chain. Food companies such as Barilla are taking the lead to use the data and analytics to break through information silos across their supply chains and provide consumers with greater transparency into the sources of their food. "The internet of things changes the way we farm, produce, distribute and consume food, making it more transparent and therefore safer," said Agostino Santoni, CEO of Cisco Italia." - Steve Rogerson (IoT M2M Council)*
- *" The QR code lets consumers do a paddock-to-plate-style trace of the particular pasta-pack they're thinking of buying, or as the release puts it: "scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to easily access a website that tells the story of the specific production batch, through a detailed analysis of all major phases of the supply chain." In other words, what Cisco, NTT Data, and Italian professional services firm Penelope have put together is a supply-chain food safety*

database. That's a good thing – it suggests that paddock-to-plate tracking is finally getting legs." - Richard Chirgwin (*The Register*)

- " QR codes are now officially part of the Internet of Things hype-cycle. That news comes courtesy of Cisco, which has inked a deal with Barilla, under which the codes will be printed on pasta packs to try and add some kind of Thingish excitement to one of the world's starchy staples." -(TechSite)
- " Cisco has collaborated with non-governmental organizations, technology partners and experts in food supply chains to create the Safety for Food initiative, which provides access to data from across the entire agricultural food chain. Innovative food companies like Barilla are taking the lead to use the data and analytics to break through information silos across their supply chains and provide consumers with greater transparency into the sources of their food." - Jamie Grill-Goodman (*Consumer Goods Technology*)
- " Michele Festuccia, systems engineer manager for Cisco Italia, says Barilla desired the ability to access data and decisions crossing multiple organizations and functions. "The solution is to have a real-time, updated picture of the full supply chain in order for Barilla to maintain awareness over the entire process, system complexity, and to predict the effects of every decision on each individual stage of the industrial process," he explains." - Bernadette Wilson (*Business Solutions*)
- " The data beast drives supply chain optimization. The Barilla Group recently launched an experiment that matches raw material genealogy with product serialization. Working with the Italian division of Cisco, Barilla is printing QR codes on farfilla pasta and tomato and basil sauce containers sold in Italy. By scanning the code with a smart phone, shoppers are linked to a website where details on where the raw materials were harvested, where the grain was milled, which plant processed it and when the finished good was distributed." - Kevin T. Higgins (*Food Processing*)
- " You may have heard of the "Internet of Things" but it's important to understand that more than just "things" are connected to the Internet today and are being transformed by this Connected Food movement. A more accurate description is to think of it as the Internet of Everything (IoE). That's because IoE includes the networked connectivity of people, processes, data and things. In today's business environment, it's not enough to simply have access to more data -- context and data intelligence are key. For this reason, IoE also involves applying real-time, advanced analytics to those connected people, processes, data and things in order to gain intelligent insights that can be used to improve operations."- Shaun Kirby, Cisco (*Food Manufacturing*)
- " Cisco has been working with a variety of farm-based applications from tracking ocean oysters to growing wheat grains. This connected food movement encourages a holistic view that encompasses data, process and people, which is the Internet of Everything (IoE). And, it requires three key layers: The sensors; connectivity from the sensors to the cloud; and analytics."- Stephanie Neil (*Automation World*)

Headlines

As of October 12, 2015 @ 2 p.m. ET

World Grain: [Consumers may scan Barilla items to trace supply chain](#)

-- by World Grain Staff, September 17, 2015

InfoTech Lead: [Cisco inks IoE deal with Barilla Group](#)

-- by InfoTech Lead Staff, September 17, 2015

Baking Business: [Consumers may scan Barilla items to trace supply chain](#)

-- by Jeff Gelski, Associate Editor, September 17, 2015

Telecompaper: [Cisco helps Barilla launch Safety for Food platform](#)

-- by Telecompaper Staff, September 17, 2015

Retail Systems: [Barilla embraces Internet of Everything](#)

-- by Scott Thompson, Editor, September 18, 2015

Baseline: [The IoT Brings Value to Multiple Industries](#)

-- by Tony Kontzer, Contributor, September 24, 2015

IoT Evolution: [Cisco Connected Pasta Brings CPG into the IoT](#)

-- by Ken Briodagh, Editorial Director, September 28, 2015

IoT M2M Council: [Italian pasta maker Barilla uses IoT to provide supply chain visibility](#)

-- by Steve Rogerson, Executive Editor, September 29, 2015

The Register: [Pasta is now a THING, says Cisco](#)

-- by Richard Chirgwin, Senior Editor, September 29, 2015

TechSite: [Pasta is now a THING, says Cisco](#)

-- by The Register, September 29, 2015

Consumer Goods Technology: [Barilla Shows Consumers See the Journey of Their Food](#)

-- by Jamie Grill-Goodman, Managing Editor, October 5, 2015

Business Solutions: [Internet Of Everything Solution Gives Barilla — And Consumers — Holistic View Of Production Chain](#)

-- by Bernadette Wilson, Associate Editor, October 7, 2015

Food Processing: [When it Comes to Plant Automation, Smart Machines Mean Smarter Production](#)

-- by Kevin T. Higgins, Managing Editor, October 8, 2015

Food Manufacturing: [How the Internet of Everything is Transforming the Food Supply Chain](#)

-- by Shaun Kirby, CTO Cisco Consulting Services, October 8, 2015

Automation World: [Barilla Embraces the Connected Food Movement](#)

-- by Stephanie Neil, Senior Editor, November 10, 2015

Articles:

WORLD-GRAIN.com

Consumers may scan Barilla items to trace supply chain

By: World Grain Staff, September 17, 2015

SAN JOSE, CALIFORNIA, U.S. — Consumers are able to trace the chain of production for ingredients in certain Barilla Group products through a technology platform called Safety for Food (S4F).

Consumers may scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to access a web site, which then analyzes the phases of a specific production batch's supply chain.

For example, consumers may learn where the durum in a product was grown, how the durum was cultivated and harvested, and how the finished product was packaged and labeled. The integrated tracking system helps to combat counterfeiting in the supply chain, according to the Barilla Group.

“Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain but to also give consumers a greater connection to their food,” said Giorgio Beltrami, quality, food safety and regulatory global director of Barilla, a global pasta, pasta sauce and baked food company based in Italy.

Barilla worked with Cisco, a San Jose, California, U.S.-based global IT company; Penelope S.p.A., an Italian management consulting company; and NTT DATA, an IT services provider, to implement the Safety for Food platform. Penelope S.p.A. developed ValueGo, the software that powers Safety for Food. Cisco has collaborated with non-governmental organizations, technology partners and experts in food supply chains to create the Safety for Food platform, which provides access to data from across the entire agricultural food chain.

http://www.world-grain.com/articles/news_home/World_Grain_News/2015/09/Consumers_may_scan_Barilla_ite.aspx?ID=%7B20B1BCDD-411C-4E92-AB46-15E21BFB3E76%7D&cck=1

INFOTECH LEAD

Cisco inks loE deal with Barilla Group

By: InfoTech Lead Staff, September 17, 2015

Cisco announced its Internet of Everything (loE) deal with pastas and sauces maker Barilla Group to deploy Safety for Food (S4F) technology platform.

The platform — powered by the software ValueGo and developed by Penelope — enables Barilla consumers to scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to access a website that tells the story of the specific production batch and analysis of all major phases of the supply chain.

Consumers can find the limited edition Barilla pasta and sauce packages at the Coop Supermarket of

the Future, part of the Future Food District at EXPO 2015 in Milan.

“The Safety for Food initiative aims to provide a database of food products and greater traceability of agricultural food production, according to international standards on food safety, quality and origin of raw materials,” said Agostino Santoni, CEO of Cisco Italia.

<http://www.infotechlead.com/iot/cisco-inks-ioe-deal-with-barilla-group-34349>

bakingBUSINESS.com

Consumers may scan Barilla items to trace supply chain

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http://www.bakingbusiness.com/articles/news_home/Business/215/09/Consumers_may_scan_Barilla_ite.aspx?ID=%7B3EFAFA62-737C-4F36-85BF-0678CFA45606%7D

telecompaper ::

Cisco helps Barilla launch Safety for Food platform

By: Telcompaper Staff, September 17, 2015

Italian food company Barilla Group has worked with Cisco, Penelope SpA and NTT Data to implement a new technology platform called Safety for Food that aims to give consumers the ability to trace the entire chain of production for the ingredients in their food. The platform is powered by Cisco’s ValueGo software and enables consumers to scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to access a website that tells the story of the specific production batch, through a detailed analysis of all major phases of the supply chain. Consumers can

find the limited edition Barilla pasta and sauce packages at the Coop Supermarket of the Future, part of the Future Food District at the Milan Expo 2015 world fair.

In a joint statement, Cisco and Barilla said the integrated tracking system helps to combat counterfeiting in the food supply chain and gives consumers greater transparency and traceability of their food.

<http://www.telecompaper.com/news/cisco-helps-barilla-launch-safety-for-food-platform--1103063>

Retail Systems

Barilla embraces Internet of Everything

By: Scott Thompson, Editor, September 18, 2015

Barilla Group, the makers of Barilla brand pastas and sauces, is working with Cisco to implement IoT technologies that let consumers trace the entire chain of production for ingredients in their food. ValueGo, developed by Penelope S.p.A, is the core system of the Safety for Food project. Using their smartphones, consumers scan a QR code on the back of select packages of pasta and sauces to follow the dough, for example, starting from the wheat field to learn where and how it was sown, cultivated and harvested.

“Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain, but to also give consumers a greater connection to their food,” says Giorgio Beltrami, quality, food safety and regulatory global director at Barilla. “By following the story of the specific batch of Barilla pasta or sauce they are enjoying, consumers can better correlate the food with the culture of the area in which it was born. As a family-owned company making quality Italian food for almost 140 years, it fills us with great pride to share that culture with our customers.”

http://www.retail-systems.com/rs/Barilla_Group_IoE.php

Baseline

The IoT Brings Value to Multiple Industries

By: Tony Kontzer, Contributor, September 24, 2015

Whether it's monitoring aircraft engines, improving supply chains or keeping consumers informed about their food, the Internet of things is proving its worth.

Three years ago, General Electric CEO Jeffrey Immelt began touting the potential of the fledgling Internet of things (IoT) to enable GE to track the performance of aircraft engines as they were actually flying planes. Since then, GE has been doing just that: tapping the data flowing from its engines to monitor them for the most minor of indicators, with the hope of repairing malfunctions before they become serious.

Other ambitious deployments have followed in other industries. Coca-Cola tapped the IoT to streamline its order processing and improve its supply chain and logistics. Canada's BT Hydro has made the IoT an integral part of its new smart meter program, monitoring and updating its meters remotely. And Tesla keeps tabs on its customers' vehicles from afar, uploading updates and, if

necessary, scheduling valets to pick up vehicles that need repairs.

The fast-growing impact of IoT technologies, which enable companies to constantly collect data from connected devices and analyze it to improve the business, is why IT consultancy Jupiter Research is predicting that the global IoT opportunity (not the actual market) will reach \$300 billion by 2020.

But of all the opportunities in the world's industries, perhaps none is as large, or as important, as the one facing food producers. As consumer demand for healthy, non-processed foods continues to grow—and we hear reports about one food-borne illness outbreak after another—Italy's Barilla Group, one of the world's best-known makers of pasta and sauces, is piloting an IoT technology platform in an effort to give consumers visibility into the production of the food they're eating.

The so-called "Safety for Food" platform combines hardware and network configurations from Cisco Systems, business intelligence software from management consulting firm Penelope S.p.A., and supporting services from NTT DATA Italia to create a real-time feedback loop through the entire food production process—from the fields where food is grown all the way to consumers' plates.

"The goal is to increase [consumer] awareness of our daily engagement in quality and safety," explains Andrea Belli, Barilla's technical project leader for quality and food safety. "This is very important. It confirms where your food is coming from, and that it's safe for consumption."

Barilla is using the technology to capture data about two products from a particular production lot: farfalle pasta and basilica sauce. Both are currently available at selected co-ops in Northern Italy and are part of an exhibit on the future of food at Expo 2015 in Milan. These "limited edition" products are tracked at every stage—from assembly of ingredients to where and how they were grown and, finally, to how they arrived on store shelves.

That data then feeds a Website that consumers can access by scanning a QR code on the product packaging. This information enables them to feel confident in the quality and safety of the products they're buying. Once the pilot effort has been thoroughly assessed, the plan is to expand it to other products and geographies.

With 650 products being exported to more than 125 countries, there's certainly plenty of opportunity for the Food for Safety initiative to grow.

Start With a Pilot IoT Project

Barilla's decision to focus on a manageable pilot project is a model other companies should mimic as they begin exploring IoT technologies, IDC analyst Christine Dover wrote in an email. Companies that jump in more aggressively may find they've bitten off more than they can chew.

"IoT is not a magic bullet, and it can be finicky," she pointed out. "Companies should generally start with pilot projects to learn what can be done for their business."

One of the reasons such pilot efforts are critical, according to Dover, is because effective IoT deployments require a certain level of data-crunching capabilities that many companies don't currently have in place. "You could go off down a rabbit hole if you don't have good methodology for analyzing the data," she warned.

Barilla's Belli reports that his team is being selective with the data it's identifying for delivery through the Food for Safety initiative. Throughout the early stages of the effort, the company is monitoring

feedback from all the stakeholders, with special attention paid to the kinds of data that consumers want. If the feedback tells the company that consumers are asking for different types of data, Belli and his team will make the necessary tweaks.

"We are thinking about the needs of the consumer, which are changing," he says. "It is very challenging, to be sure."

Belli knows the real challenges will come once the Food for Safety initiative is expanded. At that point, he and his team will have to account for the various cultures of the countries in which Barilla sells its products. That can mean different communication preferences, varied expectations and unique information demands.

"We have to design a process that takes into account this complexity," he says. "At this moment, in our strategy, this complexity is our challenge."

Such challenges are to be expected as organizations branch into this new technology category, Nitin Bhas, head of research at Juniper Research, wrote in an email. "Expertise in utilizing the technology presents a concern for some companies, where traditionally their core competencies have been centered around products that are neither connected nor make use of analytics systems," he explained.

Whether it's the challenge of localizing data, getting the right analytical tools in place, or building up IoT app-development capabilities, companies should anticipate some growing pains as they get familiar with the IoT's inherent complexity.

At Barilla, the hope is that the IoT waters will be smoother once the company has successfully concluded the Food for Safety pilot.

<http://www.baselinemag.com/networking/the-iot-brings-value-to-multiple-industries.html>



Cisco Connected Pasta Brings CPG into the IoT

By: Ken Briodagh, Editorial Director, September 28, 2015

The idea of tracking the food supply chain is very much in the wheelhouse of the IoT, which is why the Food Safety Modernization Act (FSMA) is likely to have a huge impact on the industry. Taking this upcoming trend right on, Barilla pasta and Cisco are working together to implement IoT technology to help the brand track its pastas, box-by-box and customer-by-customer.

Each box of Barilla brand farfalle pastas and jar of a tester variety of sauce is to be printed with an unique QR code so that the brand can find out what its consumers are buying, where they're buying it, and most importantly, why. The why gets answered when the customers scan the code with the Barilla app. It will give them health and nutrition information, and will track what items they are checking out.

"We've seen the importance of knowledge about food. Provenance is becoming a major differentiator of the food industry," said Shaun Kirby, CTO, Cisco Consulting Services. "Now consumers get a

wealth of knowledge that lights up that box of pasta and differentiates it.”

Using their smartphones, consumers scan the QR code on the back of the pasta boxes and sauces and that allows them to literally begin at where and how the grains and tomatoes were grown, over to following the dough to where it was made into farfalle, for example. The integrated tracking system from Cisco will give consumers greater transparency and traceability of their food.

Barilla will get real-time data and analytics to better monitor food quality, prevent costly recalls due to spoilage, streamline food production, and even provide consumers complete transparency and traceability of their food, while customers get the foodie insights that they crave.

The system runs on a platform called Safety for Food, which is powered by ValueGo software. ValueGo, developed by Penelope S.p.A, is the core system of the Safety for Food project, with specific agri-food vertical features for compliance checking, tracking and tracing of all food information along the entire supply chain and for building a ‘digital passport’ for food products.

“Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain, but to also give consumers a greater connection to their food,” said Giorgio Beltrami, Global Director, Quality, Food Safety and Regulatory, Barilla. “By following the story of the specific batch of Barilla pasta or sauce they are enjoying, consumers can better correlate the food with the culture of the area in which it was born. As a family-owned company making quality Italian food for almost 140 years, it fills us with great pride to share that culture with our customers.”

“They [Barilla] are looking to go beyond this initial use case,” Kirby said. “It lays the foundation to do so much more. Once the connectivity infrastructure is in place you can deploy many different strategies.”

<http://www.iotevolutionworld.com/m2m/articles/410561-cisco-connected-pasta-brings-cpg-into-iot.htm>



Italian pasta maker Barilla uses IoT to provide supply chain visibility

By: Steve Rogerson, Executive Editor, September 29, 2015

Italian pasta and sauce maker Barilla Group is demonstrating at Milan Expo how it is using the IoT to provide supply chain visibility for its products. By scanning the QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages, customers can find the story of the specific production batch, through a detailed analysis of all major phases of the supply chain.

Barilla worked with Cisco, Italian firm Penelope and NTT Data to implement a technology platform called Safety for Food (S4F). Powered by Penelope’s ValueGo software, the limited edition packages are at the Coop Supermarket of the Future, part of the Future Food District at Expo 2015 in Milan.

ValueGo has specific agri-food vertical features for compliance checking, tracking and tracing of all food information along the entire supply chain and for building a digital passport for food products.

“We’re extremely pleased that our ValueGo technology is helping power the Safety for Food platform,”

said Francesco Marandino, managing director of Penelope. "By simplifying the process of accessing real-time supply chain information, ValueGo allows consumers, by reading a smart label, to know the full history of the products they purchase. With the help of ValueGo, Barilla, which has always made food safety and sustainability an important part of their operations, will be able to create a true digital identity card to identify and track the specific production lots of two widely-used consumer products."

By scanning the QR code on the back of the Barilla packages, consumers can follow the path of the pasta they will eat from the ground to the grocer. For example, consumers can follow the package from the durum wheat field to learn where and how it was cultivated and harvested to the packaging and labelling of the finished product. The integrated tracking system helps combat counterfeiting in the food supply chain and gives consumers greater transparency and traceability of their food.

"Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain, but to also give consumers a greater connection to their food," said Giorgio Beltrami, director of Barilla. "By following the story of the specific batch of Barilla pasta or sauce they are enjoying, consumers can better correlate the food with the culture of the area in which it was born. As a family-owned company making quality Italian food for almost 140 years, it fills us with great pride to share that culture with our customers."

Cisco has collaborated with non-governmental organisations, technology partners and experts in food supply chains to create the S4F initiative, which provides access to data from across the entire agricultural food chain. Food companies such as Barilla are taking the lead to use the data and analytics to break through information silos across their supply chains and provide consumers with greater transparency into the sources of their food.

"The internet of things changes the way we farm, produce, distribute and consume food, making it more transparent and therefore safer," said Agostino Santoni, CEO of Cisco Italia. "The Safety for Food initiative aims to provide a global database of food products and greater traceability of agricultural food production, according to international standards on food safety, quality and origin of raw materials. We are thrilled to be part of such an important initiative that is improving consumers' lives by using IoT technologies to help solve real world issues as important as food transparency and safety."

The S4F platform implemented by Barilla is said to be a clear example of how the IoT has moved from vision to reality. By connecting people, places, processes, data and things, innovative companies are using digital technologies to manage complex industrial processes and improve consumers' lives.

"Consumers today expect more transparent communications and social responsibility from the companies they do business with," said Walter Ruffinoni, CEO of NTT Data in Italy. "Through the Safety for Food initiative, Barilla makes their products speak, telling the journey of the food supply chain. The fact that an Italian company like Barilla has embraced this project fills us with pride and demonstrates the importance of using digital technologies in new and innovative ways to not only improve transparency but also give consumers greater access to the information they desire when making purchasing decisions."

Founded in Parma, Italy, in 1877 as a shop that produced bread and pasta, Barilla is today one of the main Italian food groups: world leader in the pasta market, continental European leader in pasta sauces, Italian leader in bakery products and Scandinavian leader in crispy breads. Barilla owns 30 production sites – 14 in Italy and 16 in the rest of the world – and exports to more than 100 countries.

Penelope is an Italian management consulting company specialising in marketing, strategic planning, business development, performance and change management, ICT technologies, and services.

<http://www.iotm2mcouncil.org/barbasil>



Pasta is now a THING, says Cisco

By: Richard Chirgwin, Senior Editor, September 29, 2015

QR codes are now officially part of the Internet of Things hype-cycle.

That news comes courtesy of Cisco, which has inked a deal with Barilla, under which the codes will be printed on pasta packs to try and add some kind of Thingish excitement to one of the world's starchy staples.

No, really. Here's The Borg's press statement, glorying in the title From the Ground to the Grocer, Barilla Makes Use of Cisco's Internet of Everything to Give Consumers Insight into the Journey of Their Food.

The QR code lets consumers do a paddock-to-plate-style trace of the particular pasta-pack they're thinking of buying, or as the release puts it: "scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to easily access a website that tells the story of the specific production batch, through a detailed analysis of all major phases of the supply chain."

In other words, what Cisco, NTT Data, and Italian professional services firm Penelope have put together is a supply-chain food safety database.

That's a good thing – it suggests that paddock-to-plate tracking is finally getting legs.

And it hints at what kinds of things the Borg wants to assimilate in the future, if at some point the world finally decides it doesn't need the next new enormous router.

But QR codes? Let's party like it's 1999.

http://www.theregister.co.uk/2015/09/29/cisco_says_pasta_now_iot/



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<http://www.techsite.io/2015/09/29/pasta-is-now-a-thing-says-cisco/>



Barilla Shows Consumers See the Journey of Their Food

By: Jamie Grill-Goodman, Managing Editor, October 5, 2015

As consumers clamor for more transparency in their food, [Barilla Group](#), the makers of Barilla brand pastas and sauces, is embracing the Internet of Everything to provide consumers the ability to see the entire chain of production for the ingredients in limited-edition pasta and sauce, from where it was grown to how it arrived on the store shelf.

Founded in Parma, Italy, in 1877, Barilla is one of the main Italian food groups today and owns 30 production sites and exports to more than 100 countries.

For this project, Barilla worked with Cisco, Penelope S.p.A. and NTT DATA to implement a new technology platform called Safety for Food (S4F). Powered by the software ValueGo, the platform enables consumers to scan a QR code on the back of limited edition Farfalle Pasta and Tomato and Basil Sauce packages to easily access a website that tells the story of the specific production batch, through a detailed analysis of all major phases of the supply chain.

"This kind of project is a balance between the scientific approach and the marketing approach," explained Andrea Belli, Technical Project Leader, Barilla Quality and Food Safety.

ValueGo, developed by Penelope S.p.A, is the core system of the Safety for Food project, with specific agri-food vertical features for compliance checking, tracking and tracing of all food information along the entire supply chain and for building a 'digital passport' for food products. The Safety for Food initiative aims to provide a global database of food products and greater traceability of

agricultural food production, according to international standards on food safety, quality and origin of raw materials.

By scanning the QR code on the back of the Barilla packages, consumers can follow the path of the pasta they will eat from the ground to the grocer. For example, consumers can follow the package from the durum wheat field to learn where and how it was cultivated and harvested to the packaging and labeling of the finished product. The integrated tracking system helps to combat counterfeiting in the food supply chain and gives consumers greater transparency and traceability of their food. According to Belli, the information is already available, but with this project they selected a few products for the consumer to see the story of.

"We selected five percent of the global data, not more," said Belli.

Shoppers can find the limited edition Barilla pasta and sauce packages at the Coop Supermarket of the Future, part of the Future Food District at [EXPO 2015](#) in Milan.

"Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain, but to also give consumers a greater connection to their food," said Giorgio Beltrami, Quality, Food Safety and Regulatory Global Director of Barilla. "By following the story of the specific batch of Barilla pasta or sauce they are enjoying, consumers can better correlate the food with the culture of the area in which it was born. As a family-owned company making quality Italian food for almost 140 years, it fills us with great pride to share that culture with our customers."

We are not speaking about the product, we are speaking about what you are eating at the moment, that specific consumer unit you have in your hand, explained Belli.

Cisco has collaborated with non-governmental organizations, technology partners and experts in food supply chains to create the Safety for Food initiative, which provides access to data from across the entire agricultural food chain. Innovative food companies like Barilla are taking the lead to use the data and analytics to break through information silos across their supply chains and provide consumers with greater transparency into the sources of their food.

By simplifying the process of accessing real-time supply chain information, ValueGo allows consumers, by reading a smart label, to know the full history of the products they purchase. With the help of ValueGo, Barilla is able to create a true 'digital identity card' to identify and track the specific production lots of two widely-used consumer products.

The Safety for Food platform implemented by Barilla is a clear example of how the Internet of Everything has moved from vision to reality. By connecting people, places, processes, data and things, innovative companies are using new digital technologies to manage complex industrial processes and improve consumers' lives.

<http://consumergoods.edgl.com/news/Barilla-Shows-Consumers-See-the-Journey-of-Their-Food-102597>

BusinessSolutions
Growth Strategies For The IT Channel

Internet Of Everything Solution Gives Barilla — And Consumers — Holistic View Of Production Chain

By: Bernadette Wilson, Associate Editor, October 7, 2015

Problem

Barilla Group, the makers of Barilla brand pastas and sauces, wanted to provide consumers with the ability to trace the chain of production — from where food for ingredients is grown to the product on the store shelf.

Michele Festuccia, systems engineer manager for Cisco Italia, says Barilla desired the ability to access data and decisions crossing multiple organizations and functions. “The solution is to have a real-time, updated picture of the full supply chain in order for Barilla to maintain awareness over the entire process, system complexity, and to predict the effects of every decision on each individual stage of the industrial process,” he explains.

Solution

Barilla worked with Cisco, Penelope S.p.A., and NTT DATA to implement the new platform Safety for Food (S4F). Festuccia says Cisco is working with Barilla in two main technologies pillars. The first is intelligent industrial networking, necessary to collect, aggregate, and forward data from field to expert systems. The second is data virtualization, necessary to intermediate the connection of the ValueGo business intelligence platform, provided by partner Penelope S.p.A., to the different data warehouses already in place. Cisco explains this platform is integral to compliance checking, tracking, and tracing all information along the supply chain and building a “digital passport” for food products.

Festuccia says the goal was to build an open loop controller platform with embedded business intelligence features for aggregating, organizing, and correlating all the data stored in the existing Barilla IT systems, such as its enterprise resource planning (ERP) and supervisory control and data acquisition (SCADA) systems, or collected from new sensor networks. The platform can be personalized with different dashboards targeted to support decision making processes for internal and external stakeholders. “The relationship between raw products, transformation process, logistics, and data is always up to date and managed, as is a unique and holistic picture of the entire value chain. The extraction of information from this common knowledge base is done per views on the presentation layer,” Festuccia comments.

He says that with EXPO2015 running from May to October, Barilla selected limited edition products — Farfalle Pasta and Tomato and Basil Sauce — to offer at the event with QR codes on their packaging. Consumers who scanned the codes could access websites where they could find the story of that specific product’s production.

Festuccia says the definition of the storytelling presented the main challenge in the solutions’ deployment. “The storytelling had to be designed in order to represent the chain from farm to fork while getting the attention and the curiosity of the consumers,” he commented. “And at the same time give us some indicators about the capability of the platform to aggregate and analyze the data from all steps throughout the supply chain for transforming information for all the stakeholders including marketing and consumers.”

Benefits

In addition to real-time supply chain monitoring and industrial automation, Festuccia says the solution allows Barilla to better communicate with customers and to provide them with a specific customer

view (food digital ID) that will represent lot traceability information.

IT solutions providers can consider the SF4 solution as an example of what the Internet of Everything (IoE) can do for your clients today. Shaun Kirby, CTO of Cisco Consulting Services, says, “We’re already seeing benefits from the IoE for organizations across industries, with successes in retail ranging from shortening the checkout line to improving on-shelf availability and conversion or even providing a whole new, rich, high touch in-store experience with improved merchandising and service.”

“Economic research shows that there is \$19 trillion in value at stake from the Internet of Everything (IoE) over the next 10 years, and while 59 percent of that will be newly created wealth, 41 percent will change hands from late adopters to early adopters,” explains Kirby. “Now is the time for solution providers to help their customers become the early adopters who will capture an outsized portion of the IoE value at stake.”

<http://www.bsminfo.com/doc/internet-of-everything-solution-gives-barilla-and-consumers-holistic-view-of-production-chain-0001>

FOOD PROCESSING

The Information Source for Food and Beverage Manufacturers

When it Comes to Plant Automation, Smart Machines Mean Smarter Production

By: Kevin T. Higgins, Managing Editor, October 8, 2015

Munich’s annual Oktoberfest is rightly regarded as a bacchanal with 6.3 million of your closest drinking buddies, but there’s also a county fair component, with dozens of antique tractors and carnival rides like Eva’s Trip to Paradise.

An early 20th Century tilt-a-whirl without the whirl, Eva’s Trip is powered by its original 11-hp Siemens motor, in service since 1939. The Germans call it a roller coaster, but compared to the thrill rides elsewhere on the fairgrounds, it’s a tame relic.

A similar analogy applies to the machines that make food. Mixers, ovens and even robots have the same functionality today as they did decades ago, but automation advances create a night-and-day comparison in terms of performance. And the best, as they say, is yet to come.

The programmable logic controller is the automation equivalent of Eva’s Trip. No automation vendor will say it out loud — they collectively sell millions every year — but the PLC is obsolete technology. Sure, it provides the logic needed to safely and efficiently run a machine, and its industrial hardness is unquestioned, but PC-based controls are essential in the era of Big Data.

The Achilles heel of automation is loss of flexibility, an easy trade-off when production schedules are static. The trend in food and beverage is in the opposite direction, points out Eckard Eberle, CEO of process automation at Siemens Process Automation in Nuremberg, Germany. The flexibility challenge is further complicated at companies with multiple facilities, none of which is ever identical. That works against operational efficiency.

Extracting data from sensors and field devices as well as controls is well and good, but unless it can be converted to useful information, the effort is wasted. Collecting data isn’t hard: Siemens’ Craig Nelson, senior product manager-motion control, cites the example of a manufacturer who currently

consolidates 30,000 data points a minute from its facility. "People who are on the leading edge of the digital factory view data as their competitive advantage in asset utilization, waste reduction and peak-demand shaving to reach the optimal point to produce," says Nelson.

Product genealogy

The data beast drives supply chain optimization. The Barilla Group recently launched an experiment that matches raw material genealogy with product serialization. Working with the Italian division of Cisco, Barilla is printing QR codes on farfilla pasta and tomato and basil sauce containers sold in Italy.

By scanning the code with a smart phone, shoppers are linked to a website where details on where the raw materials were harvested, where the grain was milled, which plant processed it and when the finished good was distributed. The "digital passport" embedded in the code ostensibly advances food safety and answers the "where did this food come from?" question posed by consumers -- although the more significant advantage may be the supply-chain visibility it should provide Barilla.

"The Internet of Everything changes the way we farm, produce, distribute and consume food, making it more transparent and therefore safer," Agostino Santoni, CEO of Cisco Italia, maintained in a prepared statement. But the pilot project is really a baby step in the more ambitious goal to track the more than 1,000 raw materials Barilla sources, all the way from the farm field to the supermarket. Data manipulation on a massive scale will be required, and farfilla and sauce are the shakedown test.

Big Data and its sister, the Internet of Things, also play a central role in another Cisco project involving Sugar Creek Packing Co. , Washington Court House, Ohio. The company recently commissioned a brownfield project in Cambridge City, Ind., a facility acquired from a bankrupt food processor. Harvesting large amounts of data and feeding it back as actionable information was considered essential for establishing a high-performance work team structure at the new plant, explains Ed Rodden, chief information officer.

"High-performance work teams are quite different from what you see in traditional meat processing facilities, where top-down management is typical," says Rodden, The semi-autonomous teams work with little supervision, with production, maintenance and HR issues handled by team members. If they are to hit their production targets, they need meaningful feedback. Video monitors with KPI numbers are insufficient.

A sous vide cooking system is the centerpiece in Cambridge City. "That's a disruptive cooking technology and a highly automated system, with hundreds of sensors to control the process," Rodden says. To access the data, team members use a Cisco mobile app called Jabber, "essentially an IP phone," he adds. Conventional cell phone coverage in an industrial facility is spotty at best, and installing a booster system would have added \$300-500 million to project cost. Jabber radios essentially function like a desk phone and integrate easily with plant software.

The wireless network also will track worker locations within one meter via RFID tags embedded on protective headgear. "It sounds like Big Brother," allows Rodden, "but it's primarily about safety. And knowing where people are working is a problem in meat plants, where they move around a lot." A bigger issue will be filtering data flows that could be overwhelming. "Software improvements address some but not all of the issues," he adds.

Data glut absolutely is an issue, concurs David Sharpe, director-consumer packaged goods for Rockwell Automation Inc., Milwaukee, but there's light at the end of the data tunnel. "Data needs to be conceptualized, and different tools to aggregate data and help understand what is happening in the

process are becoming available,” he says. “But you need to know what the problems are before you try to resolve them. The more connected the enterprise is, the more options you have to drive efficiency.”

Compact foodbots

Other than notable exceptions like Pepperidge Farm, robotic applications were few and far between in food manufacturing until the late 1990s, when articulated-arm robots began cropping up in palletizing. Applications have spread upstream, but fencing around the work cell continues to limit use. The advent of collaborative robots that can work side by side with line workers is easing those space restrictions and expanding opportunities for automation, assuming the machines are robust enough for the industrial environment.

End-of-arm tooling, the presentation of materials to the robot and other factors enter into the equation, but risk assessments at both the OEM's shop and the end-user's specific installation enable these free-range bots. Four parameters — force, power, speed and momentum — are considered in those assessments, and if the assessment determines that the robot poses no threat to human health or adjacent equipment, the application is considered in compliance with U.S., Canadian and global safety standards.

Affordability and ease of programming are highlighted by collaborative robot suppliers like Universal Robots USA Inc., Ann Arbor, Mich. Denmark-based Universal has shipped 4,000 “cobots” in the past 10 years.

Sensors and safety devices are built into the robot's controls, according to Brent Bartson, senior technical support manager, and systems integrators can plug in light curtains, safety PLCs, laser scanners and other components to create “a virtual wall around the robot.” Payloads are limited — Universal's biggest machine can only handle 22 lbs. — and although the controls are proprietary, Universal employs open architecture to facilitate data transmission to EtherNet/IP or other communications protocols.

“It's virgin ground, and if I was a food manufacturer, I would like to know the training credentials of the integrator and what he knows about the safety standards,” Bartson cautions. Risk assessment by independent parties such as Pilz Automation Safety is essential before deploying a cobot.

Universal's European heritage reflects a new approach to machine safety that began on the Continent and is slowly migrating to the Americas. Instead of safety PLCs and e-stops, European machines are incorporating drives with built-in logic and motion controls, slashing response times with “aggressive deceleration” to prevent collisions and safe torque to lessen a possible impact, according to Monte Swinford, an engineer with Bosch Rexroth Corp., Charlotte, N.C.

Depending on operating code and machine speed, conventional safety controls can take up to 100 milliseconds to stop a machine, allowing several inches or even feet of motion. When logic and motion are built into the drive, only 2 milliseconds would elapse.

As important as safety, this type of controls automation can promote big productivity gains, Swinford points out. If power is cut off, capacitors must recharge before operations can resume. By switching to safe mode, advanced drives avoid that downtime.

Even a general purpose VFD can contribute regenerative energy to today's manufacturing facilities, adds Siemens' Nelson. Instead of dumping kinetic energy to a resister and dissipating it, today's

control technology can recover braking energy from motors and return it to other power users or store it in batteries for later use.

Energy efficiency, supply chain traceability and safer operating environments are important, agrees Joe Martin, regional sales manager with Beckhoff Automation in Savage, Minn. However, greater flexibility and easy changeover are the mantra of modern manufacturing, and “flexibility is one of the trademarks of an open, PC-based control system,” Martin emphasizes.

“By moving to a PC-based system, manufacturers boost their ability to gather and repurpose vast amounts of plant information and production data,” he notes. “Traditional PLCs, while proven as wonderful products to replace relays, are no match for the processing power of modern PC-based controls.” PCs also facilitate the use of cloud databases to send and access encrypted plant data, facilitating corrective actions, predictive maintenance and faster changeovers.

Automation won’t replace all manual processes, at least in the lifetimes of Earth’s current residents, and levels of automation needed are as varied as the sizes of food companies. Regardless of whether they are intent on building the plant of the future or are content with the equivalent of Eva’s Trip to Paradise, food manufacturers need to be aware of where improvements are occurring and which best fit with their operations.

<http://www.foodprocessing.com/articles/2015/plant-automation/?show=all>

FOOD Manufacturing

How the Internet of Everything is Transforming the Food Supply Chain

By: Shaun Kirby, CTO Cisco Consulting Services, October 8, 2015

From the ground to the grocer and every step in between, the agri-food supply chain is becoming more digitized and connected. The Internet of Everything is transforming the way farmers, food manufacturers, consumer packaged goods (CPG) brands, and distributors produce, process and sell food. It’s even changing the way consumers make their purchasing decisions and buy their food.

You may have heard of the “Internet of Things” but it’s important to understand that more than just “things” are connected to the Internet today and are being transformed by this Connected Food movement. A more accurate description is to think of it as the Internet of Everything (IoE). That’s because IoE includes the networked connectivity of people, processes, data and things. In today’s business environment, it’s not enough to simply have access to more data – context and data intelligence are key. For this reason, IoE also involves applying real-time, advanced analytics to those connected people, processes, data and things in order to gain intelligent insights that can be used to improve operations.

In recent years, the Internet of Everything has truly moved from vision to reality and has transformed our food supply chain in ways that most people don’t even realize. Leading food brands, manufacturers, retailers and technology companies are working together and implementing IoE enabled technologies and processes as well as real-time data analytics to grow more food, better monitor food quality, prevent costly recalls due to spoilage, streamline food production, and even provide consumers complete transparency and traceability of every ingredient in their food.

For example, Barilla brand pastas recently worked with its suppliers to implement IoT technologies that allow consumers to trace the entire chain of production for the ingredients in their pastas and sauces. Using their smartphone, consumers can scan a QR code on the back of select packages of pasta and sauces to follow that specific batch through a detailed analysis of all major phases of the supply chain. They can follow the dough, for example, starting from the durum wheat field to learn where and how it was sown, cultivated and harvested; then follow that specific batch of pasta through all the stages of production from the processing of the raw materials to the packaging and labeling of the finished product.

Barilla introduced the integrated tracking system as part of a broader Safety for Food initiative to help combat counterfeiting in the food supply chain and give consumers greater transparency and traceability of their food. The company worked together with technology providers, non-governmental organizations and experts in food supply chains to break through information silos across their supply chain, integrate data from multiple sources and apply analytics for compliance checking, tracking and tracing of all ingredients, essentially building a 'digital passport' for food products and ingredients that provides greater traceability throughout the supply chain. By simplifying the process of accessing real-time supply chain information, the Safety for Food initiative aims to create digital passports for a wide variety of food products and enable consumers, by reading a smart label, to know the full history of the products they purchase.

It's not just CPG brands leveraging the Internet of Everything. IoT enabled technologies and processes are at work in every step of the agri-food supply chain. For example, oyster farmers in Australia have connected their oysters to the Internet, monitoring everything from the oysters' heart rates to weather and water patterns and how they affect the oysters' growth. Using data analytics, the farmers gain insights to help them grow more and larger oysters. In the U.S., large-scale farmers are using drones to gather real-time data and aerial views of thousands of acres of land, sending data on crop growth, water usage, weather conditions and more to the farmer in real-time. The data intelligence enables the farmers to make better decisions that help them produce more food, cheaper while at the same time better preserving the land and water resources.

On the manufacturing side, companies like SugarCreek – the largest independent processor of bacon, meatballs, sausage patties and chicken for food service and retail – have implemented IoT technologies throughout their facilities to optimize production processes and add new factory capabilities. SugarCreek recently refurbished a 418,000 square foot manufacturing facility to turn it into the "Factory of the Future." The company sought to strengthen Quality Control by connecting an array of devices, sensors and systems throughout its production processes. Applying real-time analytics to all the data generated by these connected devices, Sugar Creek has been able to streamline production, improve inventory management and Quality Control, and increase security in operations.

Using sensors and predictive analytics throughout their facilities, manufacturers like SugarCreek can identify when maintenance will need to be performed on a machine before it breaks down, enabling them to reduce downtime. Sensors on tools and other assets help companies improve inventory management and tools tracking. Real-time video analytics can minimize loss and wastage in facilities, and even help optimize labor costs through time and motion studies of workers on the manufacturing line. Improved Wi-Fi connectivity and access to real-time data enable manufacturers to manage work-in-process and share information with their partners to streamline every step of the supply chain, from their suppliers to their customers.

Even after food leaves the production process IoT technologies continue to transform the food supply

chain. Transportation companies connect their trucks and train cars with sensors and predictive analytics to monitor the freshness of produce in transport, the temperature and humidity levels of the cars, track where the cargo is in its journey, and even predict when maintenance will be needed on trucks or train cars before they break down. Grocers seeking to minimize waste and avoid spoilage are beginning to monitor the freshness of produce on display in their stores using video analytics (to judge the appearance of produce), gas sensors (to detect gases emitted from aging produce), and even pocket size spectrometers like the SCiO to determine food freshness from chemical composition. Using these IoT enabled technologies large grocery chains are able to not only minimize spoilage and waste, but also avoid safety issues such as costly food recalls.

On the consumer side, shoppers in stores are using smartphone applications to scan QR codes like on the Barilla packages to obtain detailed product information, get personalized coupons or recommendations for food pairings, and other information that influences their purchasing decisions. They are using scan-and-go applications on their smartphones to scan barcodes as they place food products in their shopping carts and have the final bill automatically charged to their credit cards as they walk out the door so they no longer have to wait in a checkout line. Those consumers that don't want to travel to the grocery store are using IoT-enabled refrigerators and smart pantries to automatically order commonly used items when their supplies are running low.

The Internet of Everything has truly moved from vision to reality in the farming, food, manufacturing and retail industries to create a Connected Food movement that is transforming every step of the agri-food supply chain from how our food is grown to how it is purchased by consumers. Businesses benefit by streamlining operations, increasing production, reducing downtime and more. Consumer's lives are also improved through improved safety and traceability of their food, access to the information they desire when making purchasing decisions and greater convenience.

<http://www.foodmanufacturing.com/articles/2015/10/how-internet-everything-transforming-food-supply-chain>

AutomationWorld

Barilla Embraces the Connected Food Movement

By: Stephanie Neil, Senior Editor, November 10, 2015

The terms “field to fork” or “farm to table” are often used to describe the movement to track all stages of food production: from local food harvesting to storage, processing, packaging, and ultimately, consumption. Now, with the U.S. Food and Drug Administration's Food Safety Modernization Act (FSMA), there's an even greater emphasis on food quality and safety.

Leave it to a company established in 1877 to be on the forefront of this food safety movement, leveraging the latest technology trend—the Internet of Things (IoT).

[Barilla Group](#), the Italian company known for its Barilla brand pastas and sauces and which has 30 global production sites, recently created a prototype of a “digital passport” that takes the consumer on a journey from where the food was grown to how it was processed and ultimately arrived on the store shelf.

In partnership with [Cisco](#), Italian consulting company Penelope S.p.A, and NTT Data, a global IT services provider, Barilla implemented a technology platform called Safety for Food (S4F), powered

by ValueGo software.

The technology enables a consumer to use a smartphone to scan a QR code on the back of the limited edition farfalle pasta box or tomato and basil sauce jar, which brings them to a website that tells the story of the specific production batch. Details are provided about the origin of the durum wheat varieties and background on the harvest and milling, moving them through the supply chain to Barilla's plant in Parma, Italy, and ultimately the delivery to the point of sale. In this pilot project, the retail outlet was the Coop Supermarket at the [Future Food District Expo](#), which took place as part of [Expo 2015](#) from May to October 2015 in Milan, Italy.

Consumers accessing the website could drill down to find information about local farms and how the farmers use technology to obtain detailed data about weather, soil conditions, and the characteristics of crops to improve efficiency as well sustainability. By using a lifecycle assessment methodology, Barilla is able to calculate the environmental impact of the durum wheat cultivation for each batch, including ecological footprint (the amount of land occupied to regenerate resources used), carbon footprint (the total impact of the activity on climate change) and water footprint (the water resources consumed).

"Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain, but to also give consumers a greater connection to their food," said Giorgio Beltrami, Barilla's quality, food safety and regulatory global director. "By following the story of the specific batch of Barilla pasta or sauce, consumers can better correlate the food with the culture of the area in which it was born."

But beyond providing comfort to consumers, this digital footprint—which is enabled through sensors, wireless networks, the cloud and analytics—offers visibility and traceability required to ensure safety and quality across the agricultural food chain. It combats counterfeiting in the supply chain, and, when combined with processes and people, it significantly changes the dynamic of the farm to fork phenomenon.

Cisco has been working with a variety of farm-based applications from tracking ocean oysters to growing wheat grains. This connected food movement encourages a holistic view that encompasses data, process and people, which is the Internet of Everything (IoE). And, it requires three key layers: The sensors; connectivity from the sensors to the cloud; and analytics.

"We've worked on providing the platform that a farmer can plug into through distributed routing devices and protocol standardization to capture and process data without reinventing the wheel," said Shaun Kirby, CTO of Cisco Consulting Services.

But Cisco also looks at the holistic process, using IoE to radically transform the business. One emerging philosophy is called "frictionless business," Kirby said, which is taking technology down to the last mile—as in fog computing—to create more automation and efficiency.

"The Internet of Everything changes the way we farm, produce, distribute and consume food, making it more transparent and therefore safer," said Agostino Santoni, CEO of Cisco Italia. "The Safety for Food initiative aims to provide a global database of food products and greater traceability of agricultural food production, according to international standards on food safety, quality and origin of raw materials. We are thrilled to be part of such an important initiative that is improving consumers' lives by using IoE technologies to help solve real world issues as important as food transparency and safety."

And, Barilla, a family-owned company making quality Italian food for almost 140 years, is happy to serve as an example of how tradition and technology can unite to improve the overall eating experience.

<http://www.automationworld.com/batch-manufacturing/barilla-embraces-connected-food-movement>

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