Arkema turned 10 in 2016. Ten years that transformed us into a world-class, efficient, creative, agile producer of specialty chemicals and advanced materials, with a balanced regional footprint. Ten years that proved we have both the right strategy and solid foundations for moving forward with confidence and ambition.

Tackling the future with confidence means sharing a bold ambition to design and invent materials and innovative solutions that are ever more useful in addressing society’s major energy and environmental challenges. This goal spurs us to innovate continuously and make our customers the core focus of our growth. We innovate through applied R&D that helps improve our customers’ competitiveness in increasingly demanding markets. We innovate by investing in disruptive projects that anticipate their needs. And we also innovate in terms of our internal processes, such as our digital transformation, to better serve them.

It also means continuing to grow by identifying and seizing opportunities in all our markets and in the most dynamic regions. Lastly, it means becoming even more engaged in corporate social responsibility (CSR) and sustainability. We take steps to improve our environmental footprint and the safety of our employees and neighbors, innovate to meet major social challenges, foster our employees’ collective and individual development, and cultivate interactions with our stakeholders.

The 10 years spent transforming ourselves demonstrate the soundness of our major industrial projects, the value of our innovation efforts, and the collective energy of our workforce of 19,700 talented individuals. All these advantages give Arkema tremendous growth potential. There’s no doubt in our minds that this 10-year-old has a bright future ahead.
2016 was a year of record financial results for Arkema. It was also an eventful year. We celebrated our 10-year anniversary at our sites worldwide. We made promising investments in production capacity, especially in technical polymers and to acquire Den Braven, which makes our subsidiary Bostik a global leader in high-performance sealants. And it was a year that brought partnerships and awards for our innovations, success for our Pebax® polymer at the UEFA Euro 2016, and top finishes for our trimaran and monohull racing boats thanks to the materials used in their construction. We’re proud to share all our successes and highlights with you.

Our excellent performance in 2016 confirms the wisdom of our last decade, which remade the company into one focused on specialty chemicals, innovative materials, growth regions and corporate social responsibility.
and Coating Solutions — contributed to these results. Our people can be proud of their performance.

What drove Arkema’s performance?
T. L. H. > Beyond financials, 2016 was an inflection point: several major projects realized their full potential. We began reaping the rewards of adding Bostik — which achieved its 2017 growth targets a full year ahead of schedule.

In Malaysia, our Kerteh plant, which started up in 2015, came to full operating capacity, confirming the growth potential of thiochemicals in Asia. And, buoyed by innovation, our technical polymers were hugely successful.

Arkema in Asia, close to emerging marketplaces, and in North America, an area of stable growth.

How are you approaching the next few years?
T. L. H. > With confidence and ambition. For 2017, we’re maintaining the bold EBITDA target of €1.3 billion set in 2014. If we achieve that, our EBITDA will have risen by more than 65% in three years, a growth rate among the best in the industry. We now have very solid foundations, including several product lines with strong prospects. They include Bostik’s adhesives, strengthened by the acquisition of Den Braven in 2016, technical polymers, molecular sieves, downstream acrylics commitments — safety, the environment, innovation, personal and collective development and open lines of communication with our stakeholders — are backed by quantified targets for 2025. To establish that our CSR and sustainability processes are on track, we surveyed our stakeholders in 2016 through a “materiality assessment.” It confirmed that our priorities match the expectations of the internal and external stakeholders we surveyed. We halved our total recordable injury rate between 2012 and 2016. Innovations that promote sustainability — especially in lightweight materials, water filtration and new energies — are core to our growth strategy. Our human resources staff has taken steps

OVER 10 YEARS, ARKEMA HAS CREATED EXCEPTIONAL VALUE FOR SHAREHOLDERS.
Sharing 2016, an eventful year
In May 2006, a few months after its creation, Arkema was publicly listed. Ten years later you would hardly recognize us. Arkema is now an innovative, agile, regionally balanced global company that produces specialty chemicals and advanced materials. All our employees celebrated 10 years of a complete metamorphosis. From May 17 to 28, countless events marked this milestone anniversary at every site. Among the 50 countries participating were Denmark, Spain, France, Italy, Dubai, Malaysia, the Netherlands, the Philippines, Poland, Singapore, Thailand, Turkey, the United States and China.

**THE EXECUTIVE TEAM ALSO HOSTED MAJOR CUSTOMERS AT THREE EVENING CELEBRATIONS IN PARIS, PHILADELPHIA AND SHANGHAI.**
PEBAX®, BEST GOAL SCORER OF THE UEFA EURO 2016!

Three hundred of the 552 UEFA Euro 2016 players, including Antoine Griezmann, Olivier Giroud, Gianluigi Buffon and Cesc Fabregas, wore shoes with Pebax® elastomer outsoles and shanks, which provide support. As of the final on July 10, players wearing shoes containing Pebax® had scored 62% of the goals and made 60% of the passes that led to goals, according to the detailed calculations of specialists.

ARKEMA STEPS UP COLLABORATION WITH PUMA

In June, Puma unveiled its new evoSPEED and evoPOWER shoes for the UEFA Euro 2016 and Copa America 2016 soccer championships. Both feature high-end outsoles containing Arkema's Pebax® thermoplastic elastomer, which is appreciated by sports equipment manufacturers for its unique combination of light weight, flexibility, energy return and exceptional reliability.

Pebax® best goal scorer of the UEFA Euro 2016!

For the launch in October of the new Wave Rider 20 running shoe, which has a Pebax® outsole, Arkema teamed up with Mizuno in a new video to promote Pebax®'s outstanding properties.

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PEBAX® POWERED® TEAMS UP WITH MIZUNO RUNNING

For the launch in October of the new Wave Rider 20 running shoe, which has a Pebax® outsole, Arkema teamed up with Mizuno in a new video to promote Pebax®'s outstanding properties.

Stretching the limits of performance with Pebax Powered®

Watch the Pebax Powered® Running with Mizuno video
A YEAR OF GROWTH
FOR BOSTIK ADHESIVES

BOSTIK EXPANDS MANUFACTURING CAPABILITIES IN SOUTHEAST ASIA AND SWEDEN TO KEEP UP WITH GROWTH IN THE CONSTRUCTION MARKET

In April, Bostik, our specialty adhesives business line, opened a new plant in the Philippines, in Misamis Oriental Province. This increase in cementitious powder production capacity is based on its cutting-edge polymer modified binder (PMB) technology. The new Bostik facility can now supply construction customers in the high-growth Mindanao and Visayas regions with tile adhesives, wall finishing products and other construction systems.

The company also invested in Malaysia and Sweden to supply the same innovative products. In May, Bostik expanded production capacity at its Seremban plant in Malaysia to meet growing demand from the construction market in the Central, Northern and Sabah regions. A month later it opened a new manufacturing plant in Helsingborg, Sweden to meet rising demand in the construction market in northern Europe and the Baltic states.

BOSTIK EXPANDS IN HIGH-PERFORMANCE SEALANTS WITH THE ACQUISITION OF DEN BRAVEN

In December, Bostik finalized a deal to acquire Den Braven, a leader in sealants for insulation and construction in Europe (€350 million in revenue). It’s a great opportunity for Bostik to help consolidate the still-fragmented adhesives and sealants market. Through this acquisition, we are actively pursuing growth in our High-Performance Materials business segment, which is expected to account for 50% of Arkema’s revenue in 2020.
A YEAR AFLOAT

WITH THE ARKEMA LALOU MULTI TEAM

THE TRANSAT BAKERLY: ARKEMA TRIMARAN FINISHES SECOND IN NEW YORK
On Monday, May 16, Lalou Roucayrol crossed the finish line in New York in second place in the Multi50 class. Sailing without a daggerboard for six days, the skipper defied the odds to finish the legendary solo transatlantic race.

FIRST RECYCLABLE MONOHULL DESIGNED USING ARKEMA MATERIALS
In late 2015, we began work on a high-tech prototype monohull that incorporated our materials and innovations from the rough sketches onward. Six months later, in June, the yacht performed its first tacks in Port Médoc, France. Developed and built in partnership with Lalou Multi, a small business based in southwestern France, the Mini 6.50 has an innovative hull and deck made of the recyclable thermoplastic resin Elium®, a world first.

ARKEMA MULTI50 TRIMARAN WINS TRANSAT QUEBEC SAINT-MALO RACE
At 4 a.m. on July 20, Arkema’s Multi50 and its crew, led by Lalou Roucayrol, crossed the finish line of the 9th Transat Quebec-Saint-Malo, winning its first transatlantic race.

Watch an exceptional racing boat take shape
Experience the trimaran’s arrival in St. Malo, France
A YEAR OF INVESTMENT IN ASIA AND THE UNITED STATES

ARKEMA OPENS AN INNOVATION CENTER IN SOUTH KOREA
In June, to support our growth in Asia, Arkema opened an innovation center in South Korea on the campus of the prestigious Hanyang University in Seoul. The new laboratory embodies a years-long partnership between Arkema and the university. It will focus on research into high-performance polymers and renewable energies, two fields in which Hanyang University excels.

ARKEMA INCREASES ITS SPECIALTY POLYAMIDE CAPACITY IN CHINA AND THE UNITED STATES
To support our customers’ growth around the world in the sports, consumer electronics and automotive markets, we continue to expand our bio-based specialty polyamide production capacity. In September, we announced expansions at the Zhangjiagang site in Jiangsu province in China and the Birdsboro, Pennsylvania facility in the United States.

ARKEMA EXPANDS IN POWDER COATING RESINS IN INDIA
In October, we announced plans to build India’s first facility to manufacture polyester powder resins. The project, built within Arkema’s resin production complex in Navi Mumbai, Maharashtra state, represents an investment of $15 million and consists of a world-class manufacturing unit and a dedicated laboratory to provide technical support.

ARKEMA INCREASES ITS KYNAR® FLUOROPOLYMER CAPACITY IN CHINA
In October, Arkema announced a 25% increase in Kynar® PVDF manufacturing capacity at the Changshu complex near Shanghai. The investment will enable us to keep up with high Kynar® demand for batteries and water treatment.
A YEAR OF AWARDS

PARTNERSHIPS AND INNOVATIONS

ARKEMA COLLABORATES WITH HP INC. AS IT GETS INTO THE PRODUCTION OF 3D PRINTERS

In May, Arkema announced a partnership with HP Inc. through the HP Open Platform. Arkema will design materials for HP’s new Multi Jet Fusion™ 3D printers and spur our own customers’ innovation — in the sports, automotive, aerospace and healthcare industries — by giving them the option to use HP’s manufacturing process and our own range of 3D printable materials.

ARKEMA IS THE LEAD PARTNER IN THE REVERPLAST INITIATIVE, UNDERSCORING OUR COMMITMENT TO “GREEN” GROWTH

In April, Arkema signed the Reverplast agreement, a project to use recycled materials to produce new thermoplastics for the automotive, boatbuilding and wind turbine markets. The other signatories were Ségolène Royal, French Minister of the Environment, Energy & Marine Affairs, Emmanuel Macron, at the time French Minister of the Economy, Industry & Digital Affairs, and four other partners. The initiative is part of a new program — Green Growth Commitments — launched by the French government to support businesses’ efforts to create a circular economy.

KYNAR® GRADE FOR WATER ULTRAFILTRATION: FIRST PRODUCTION LINE AND AN AWARD!

This innovative PVDF material developed by Arkema can be used to make a new generation of more efficient, energy-saving hollow fibers used in ultrafiltration modules for water treatment. In February, we announced we were building, at our partner Polymem’s plant, the world’s first production line to make the hollow-fiber Kynar® membranes. In June, the Kynar® membranes won the Pierre Potier Prize, a French award given to chemical innovations that promote sustainable development.

WITH JARYSOL®, ARKEMA EXPANDS ITS RANGE OF SOLUTIONS FOR SOLAR ENERGY

In September, Arkema inaugurated the MicroSol-R solar micro-power plant with the French National Center for Scientific Research’s PROMES laboratory at its Font-Romeu-Odeillo-Via facility in southwestern France. It uses our Jarysol® heat transfer fluid, developed by researchers at our Jarrie site in southeastern France.

ARKEMA THERMOPLASTIC RESINS FOR COMPOSITES EARN A “TECHNOLOGY SHOWCASE” LABEL FOR ARKEMA

In June, at a ceremony attended by Emmanuel Macron, then the French Minister of the Economy, Industry & Digital Affairs, the chairman of the French NGO Alliance Industrie du Futur awarded the “technology showcase” label to Arkema’s new thermoplastic resins for composites.

KYNAR®’S ADVANTAGES FOR WATER FILTRATION

Find out about Kynar®’s advantages for water filtration.

ELEX® THERMOPLASTIC RESINS FOR COMPOSITES EARN A “TECHNOLOGY SHOWCASE” LABEL FOR ARKEMA

In June, at a ceremony attended by Emmanuel Macron, then the French Minister of the Economy, Industry & Digital Affairs, the chairman of the French NGO Alliance Industrie du Futur awarded the “technology showcase” label to Arkema’s new thermoplastic resins for composites.
Revenue
€7.5 billion
of which
2.9% allocated to R&D

19,700 employees

Present in 50 countries

133 production sites

3 regional R&D and innovation hubs in Europe, Asia, and North America

3 BUSINESS SEGMENTS AND 9 BUSINESS LINES

COATING SOLUTIONS
- Acrylics
- Coating resins and additives

INDUSTRIAL SPECIALTIES
- PMMA (Altuglas International)
- Thiochemicals
- Fluorochemicals
- Hydrogen Peroxide

HIGH-PERFORMANCE MATERIALS
- Specialty adhesives (Bostik)
- Technical polymers
- Performance additives

24% of revenue
30% of revenue
46% of revenue

A GLOBAL MANUFACTURER

NORTH AMERICA
34% of revenue

EUROPE
36% of revenue

ASIA AND REST OF THE WORLD
30% of revenue

WORLD NO. 1 TO WORLD NO. 3 IN OUR MAIN BUSINESSES

No. 1
- Specialty Polyamides
- PVDF
- Thiochemicals

No. 2
- Organic Peroxides
- PMMA

No. 3
- Adhesives
- Fluorogases
- Hydrogen Peroxides
- Acrylic Monomers
- Coating Resins

AND IN 2017...
Chemistry is infinite in its variety. We develop a wide range of state-of-the-art materials and solutions vital to many key markets. We pioneer disruptive innovations that anticipate our customers’ changing markets and requirements. Innovating is a part of our essence that goes beyond product R&D. Innovation is a hallmark of our industrial processes, support functions and customer relationships: our digital transformation is a prime example. Explore the wide range and strengths of “Designed by Arkema” innovations in the following pages.
Arkema thermoplastics can be substituted for metal or glass to make parts that weigh less, for lighter vehicles and aircraft with improved fuel efficiency and lower carbon emissions. And these thermoplastics have a big advantage over thermoset plastics — they are 100% recyclable!
IN ALL OUR MARKETS

DESIGNING ECO-SUSTAINABILITY

Preventing heat loss and minimizing energy usage in buildings, improving acoustic insulation, or using more sustainable or recyclable materials are all ways that Arkema solutions help make our homes and cities greener.

1. “GREENER” ROADS AN ALTERNATIVE TO AIR CONDITIONING

While roads and building walks in sunny countries need light and allow people to cut back on air conditioning. White paint that is protected by a top coat containing Kynar Aquatec® keeps the point white for nearly 20 years, without maintenance, and lowers the need for air conditioning by 15%.

2. TRANSPARENT NOISE BARRIERS

Altuglas® PMMA can be used in sound insulating properties, or heat pumps, are gaining popularity in the residential market. Easy to use and producing three to four times less CO2 than a fossil fuel-based furnace, they keep temperatures optimal year-round, providing heat in the winter and cool in the summer. Forane® 410A is recognized as one of the most efficient refrigerants for heat pumps.

3. SMART WINDOWS

Dipolar® molecular veins are tiny beads that absorb around a third of their weight in water. Window manufacturers use them to improve the insulation in double-pane windows. Patented made in France, the veins protect the windows features for decades. Another product, Certainteed®, is a huge plus in cold climates. The low-emissivity flat glass coating makes windows smarter by letting sunlight in and keeping heat from escaping. The end result heating savings of 30%.

4. “GREENER” ROADS AN ALTERNATIVE TO AIR CONDITIONING

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5. OAS FOR REVERSIBLE AIR CONDITIONING

The construction and housing sector uses 41% of the world’s energy and generates 33% of greenhouse gas emissions. It offers significant energy-savings potential.

6. A COATING TO KEEP WALLS DRY

Arkema has developed Tri-Linking™ polymer technology, it is much more than an adhesive. The monopropylene terpolymer, when dry keeps the water from splitting, acts as a barrier against water and moisture, and damps sound by 20% — leaving you with a comfortable living environment and happy ears.

7. BEAUTIFUL, QUIET FLOORING

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8. ENERGY-EFFICIENT ILLUMINATED SIGNS

For backlit signs, Arkema has developed Altuglas® PMMA sheets with outstanding light transmission. Lighting intensity can be reduced by 20% and the sheets can be painted with energy efficient LED lamps. Not a bad way to shrink your power bill.

9. SOVLENT-FREE, ODORLESS PAINT

Synaqua® resin can be used to formulate waterborne, solvent-free paints that have the same high gloss and resistance as conventional solvent-based ones. Made 97% from bio-based materials, the resin can be used to produce paints with very low rates of volatile organic compounds, or VOCs. Its main applications are in interior decorating, providing high performance and odourless properties. Not to mention, helping them go on easier without splattering.

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Products play a big part in enhancing our daily lives. Sometimes invisible but always vital, Arkema’s packaging and even the pages of this report. You'll find them at home, in sports equipment, personal care products, cosmetics, eyewear, smartphones, and convenience.

COMFORT

IMPROVING EVERYDAY

OUR MARKETS

You’ll find them at home, in sports equipment, personal care products, cosmetics, eyewear, smartphones, packaging and even the pages of this report. Sometimes invisible but always vital, Arkema’s products play a big part in enhancing our daily lives.

1. **Quality White Paper**
   - Amid the hydrogen peroxide and Alpure® sodium chlorate are vital for bleaching pulp. Arkema’s affiliate Cortic has unique knowledge and expertise to improve paper coating. In Rheocoat® and Rheocarb™, additives control the viscosity of the liquid coating applied to the paper’s surface.

2. **Lightweight Designer Eyewear and Smartphones**
   - Rilsan® Clear is one of the few polymers to combine chemical and impact resistance with lightweight, lightness, toughness, transparency and deep, high gloss colors. Eyewear makers prize these qualities for creating imaginative designer styles. Rilsan® is a “green” plastic, made from castor beans. Also a “green” plastic, Oleris® is 100% biobased (saccharides) made with an ultrafine powder, Oleris® is another bio-based innovation, of the few polymers to combine chemical and impact resistance with lightweight, lightness, toughness, transparency and deep, high gloss colors. Eyewear makers prize these qualities for creating imaginative designer styles. Rilsan® is a “green” plastic, made from castor beans. Also a “green” plastic, Oleris® is 100% biobased (saccharides) made with.

3. **All-Natural Beauty**
   - There's a strong demand in the cosmetics market for natural products. Oleris® is 100% bio-based (saccharides) made with an ultrafine powder used as a thickeninng agent in makeup (lipstick, mascara, powder), skincare creams and sunscreens. Oleris® is another bio-based innovation, of the few polymers to combine chemical and impact resistance with lightweight, lightness, toughness, transparency and deep, high gloss colors. Eyewear makers prize these qualities for creating imaginative designer styles. Rilsan® is a “green” plastic, made from castor beans. Also a “green” plastic, Oleris® is 100% biobased (saccharides) made with.

4. **Reseal® Adhesive for Food Packaging Seals**
   - Bostik’s Reseal® adhesive for food packaging seals in freshness, yet lets you open and reclose without crushing or freezing is required. Examples include home appliances and building: air conditioning, industrial refrigeration, supermarket cases and refrigerated trucks. Bostik’s Reseal® adhesive for food packaging seals in freshness, yet lets you open and reclose without crushing or freezing is required. Examples include home appliances and building: air conditioning, industrial refrigeration, supermarket cases and refrigerated trucks.

5. **Keeping Baby Dry**
   - For the diaper industry, the latest generation is a superabsorbent polymer (SAP) made with Arkema acrylic acid. One product for diapers that gets the job done is the latest generation. Bostik adhesive for disposable diaper fasteners and elastic side strips. It offers maximum adhesion, elastic stretch and perfect adhesion, to move with baby and prevent leaks. It only takes two or three grams of the adhesive to assemble a diaper’s 20 components.

6. **Fluids That Keep It Cool**
   - Food-grade refrigerants are one of the few polymers to combine chemical and impact resistance with lightweight, lightness, toughness, transparency and deep, high gloss colors. Eyewear makers prize these qualities for creating imaginative designer styles. Rilsan® is a “green” plastic, made from castor beans. Also a “green” plastic, Oleris® is 100% biobased (saccharides) made with.

7. **Keeping Food Fresher**
   - Keep to Alvitas® adhesives for food packaging seal in freshness, yet lets you open and reclose without crushing or freezing is required. Examples include home appliances and building: air conditioning, industrial refrigeration, supermarket cases and refrigerated trucks. Bostik’s Reseal® adhesive for food packaging seals in freshness, yet lets you open and reclose without crushing or freezing is required. Examples include home appliances and building: air conditioning, industrial refrigeration, supermarket cases and refrigerated trucks.

8. **Incorporating Functional Adhesives to Manufacture Packaging**
   - Bottle manufacturers use Kercoat® protective coating to delay the appearance of scratches and white soft marks on glass, and Prevent scratches. Bottle manufacturers use Kercoat® protective coating to delay the appearance of scratches and white soft marks on glass, and

9. **More Durable Returnable Bottles**
   - Certiclear® and Eryvac® two glass surface treatment solutions applied when jolts are manufactured, ensure more robust performance and prevent scratches. Bottle manufacturers use Kercoat® protective coating to delay the appearance of scratches and white soft marks on glass, and

10. **Safe, “Smellable” Gas**
    - We detect gas leaks at home or on the street immediately by their distinctive smell. Yet gas has no natural odor. “Smellable” gas, a sulfide-containing odorant, is added by gas companies to make it safe to transport gas. The smell disappears when the gas is burned.
Worldwide, green energies posted record growth in 2015: investments totaled ($130 billion), according to the Renewables 2016 Global Status Report. Arkema materials used in solar panels, wind turbine blades and electric batteries support society’s transition to new energies by making them cheaper to produce and more efficient. Arkema is also developing solutions to conserve water and make it available to as many people as possible.
As everything today goes digital, we view our own digital transformation as an opportunity to step up our manufacturing and marketing performance. Christophe André, Executive Vice President, Technical Polymers & Performance Additives, is leading Arkema’s digital transformation project. He fills us in on how things are evolving.

How would you describe Arkema’s digital transformation?
C.A. > New digital practices and tools are radically changing the way we work, collaborate, do business and interact with our customers and suppliers. Chemical manufacturing, like all industry, doesn’t exist in a bubble. We see digital technology as a tremendous source of innovation, decisive to our growth. The transformation will update practices across all our businesses and functions, leverage our know-how and create more value added.

What concrete benefits do you expect from the switch?
C.A. > Several projects at the plant or business activity level have paved the way and shown digital’s potential. For example, we have used 3D simulations to accelerate the startup of new production units, shortening engineering time and training operators more efficiently. In some of our business activities we’ve begun targeted e-marketing campaigns, collecting more detailed data in the process. We boosted share of mind and visibility among both customers and users, for example, with the Pebax® campaign aimed at athletes looking for high-performance shoes. Ultimately all this improves our performance and benefits our customers.

How will you cascade the digital transformation across Arkema?
C.A. > In 2016, Arkema’s digital transformation became an established project — an ambitious, global project managed at the Executive Committee level. It has three major cornerstones. The first is business-centric. It aims to improve the customer experience and their awareness of the Arkema brand, to provide our business partners with more services, and showcase our knowledge and expertise. The second centers on operations and improvements in production, logistics or support functions. The last covers organization, management and culture — the idea is to tap our collective intelligence, become more collaborative, share information and work together, by promoting and adopting new digital practices.

Simplifying each of the customer experience
Digital technology is used to improve performance, including B2B, whether using digital media to attract prospects, analyzing data or transforming the customer experience through customer relationship management (CRM). Every step in the customer experience can be simplified through today’s new digital practices. That includes quickly locating a material or product for a specific application on a website, having the website recognize customers and point them toward customized information, then placing an order and shipping it out, and delivering online in a single transaction. “Customer are one of the centerpieces of our digital transformation,” emphasizes Isabelle Tenéki Andoni, head of Customer Experience & Digital Marketing at Arkema.

The first tangible signs of the transformation will be visible in 2017. They include new tools, products and services on social media; strengthening a simpler, more user-friendly market-based approach on the web; predictive maintenance. And a third is a comprehensive digital transformation of the customer experience canonically called the customer journey, which includes showcasing products on social media; and adopting new digital practices. Examples include website searches (by application, brand, to provide our business partners with more services, and showcase our knowledge and expertise. The second centers on operations and improvements in production, logistics or support functions. The last covers organization, management and culture — the idea is to tap our collective intelligence, become more collaborative, share information and work together, by promoting and adopting new digital practices.

What are the key factors in the success of a project like this?
C.A. > You can’t just order people to embrace digital technology. Adoption hinges on a mix of culture and skills. That’s why our HR teams put together digital awareness programs specific to each business and occupation. We’re also going to tap into the skills of millennials — defined as 17 to 35-year-olds, born in the digital era — and lean on “advocates” to encourage people to learn today’s new digital work methods. All this will also make us more attractive to the new talents we need in big data for example. Our digital transformation is a challenge that we must meet to improve our production, sales and marketing performance.

Digital technology is used to improve performance, including B2B, whether using digital media to attract prospects, analyzing data or transforming the customer experience through customer relationship management (CRM). Every step in the customer experience can be simplified through today’s new digital practices. That includes quickly locating a material or product for a specific application on a website, having the website recognize customers and point them toward customized information, then placing an order and shipping it out, and delivering online in a single transaction. “Customer are one of the centerpieces of our digital transformation,” emphasizes Isabelle Tenéki Andoni, head of Customer Experience & Digital Marketing at Arkema.

The first tangible signs of the transformation will be visible in 2017. They include new tools, products and services on social media; strengthening a simpler, more user-friendly market-based approach on the web; predictive maintenance. And a third is a comprehensive digital transformation of the customer experience canonically called the customer journey, which includes showcasing products on social media; and adopting new digital practices. Examples include website searches (by application, brand, to provide our business partners with more services, and showcase our knowledge and expertise. The second centers on operations and improvements in production, logistics or support functions. The last covers organization, management and culture — the idea is to tap our collective intelligence, become more collaborative, share information and work together, by promoting and adopting new digital practices.

What are the key factors in the success of a project like this?
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ARKEMA EXTREME MATERIALS BY THE NUMBERS

- 3 product families: Kynar®, Pebax® and Rilsan®.
- 200+ grades.
- 9 markets: Automotive and Transportation; Chemical; Energy (Oil & Gas); Renewable Energy; and Water and Environment.
- Sports and Healthcare; Electronics and Electrical; Energy Adhesives; Construction (Coatings); Consumer Goods, Industry and General Industry; Powder Coatings and Industrial Coatings; and Specialties.

IN OUR APPROACH TO CUSTOMERS

In order to bring our technical polymers to a wider audience, we took a fresh look at the way we market them. We began by putting ourselves in our customers’ shoes. “They’re looking for innovative, ultra-high-performance solutions that can meet the technical challenges of the future, such as lighter, more fuel-efficient vehicles, tougher solar panels and faster additive manufacturing,” explains Kevin Hanrahan, Chief Marketing Officer of Arkema’s Technical Polymers.

THAT’S HOW ARKEMA’S “EXTREME MATERIALS” WERE BORN IN LATE 2016.

The new banner encompasses three major product families: Kynar® fluoropolymers, Pebax® thermoplastic elastomers and Rilsan® polyamide resins and alloys. The deceptively simple tagline — “An Extreme World Needs Extreme Materials” — is illustrated by a video that highlights their ability to tackle the challenges of a world in which technical requirements are being pushed to the limit. At the same time, we are underscoring each brand’s identity with a color: red for Kynar®, orange for Pebax® and green for Rilsan®.

Our extreme materials have taken up residence on the Internet. But the www.extremematerials-arkema.com website is much more than a showcase: it guides web users browsing it. “We sketched out scenarios for three visitor profiles: market shoppers, who are seeking a solution for a specific market, product shoppers, who want to explore a particular product line, and data shoppers, who are looking for specific properties,” says Kevin Hanrahan. Visitors can pick from three entry points: Markets and Applications, Product Families, and Materials Database, which features over 200 available materials.

From there, visitors navigate intuitively through the content — markets, products, applications, technical data — for a seamless experience modeled after B2C sites. They’re eventually invited, using “Let’s Run Together” sports visuals, to contact Arkema’s sales and marketing team. The website is where we meet our existing or future customers. It reflects our aim of making ourselves more attractive to our target markets, instead of just pushing out information. “Our customers and prospects are formulators. Their markets change very fast and they need new recommendations on products all the time. We receive countless requests for information,” says Caroline Bastien, Chief Executive Officer of Sartomer Europe.

IN 2016 SARTOMER DECIDED TO GO DIGITAL and offer its customers a very high-value-added service that would also attract new customers. “Lots of requests can be handled without direct contact. We redesigned our website with Internet users in mind. The goal is to make it easier for them to get information and process their request on line immediately,” explains Julie Haevermans, Marketing Communications Manager at Sartomer.

In October, the original shop-window website built around products was replaced by a user-friendly, intuitive search tool. Visitors choose a family of resins and refine their selection based on several criteria, including type of product (monomers, oligomers), target application, properties and attributes. They can also download technical and safety literature and order product samples. “We’ve created an online technical assistance option,” sums up Caroline Bastien.

Users create an account and log in to gain access to functions. “Their account helps us better understand their needs and ultimately customize their experience,” adds Julie Haevermans. It provides an opportunity to mine new contacts and leverage the company’s online presence as a powerful sales prospecting tool.

Sartomer is aiming to become the sector’s leading online platform, the one Internet users turn to first for information. That would give it a huge competitive advantage. —

ARKEMA EXTREME MATERIALS BY THE NUMBERS

- Chemical Industry and General Industry; Powder Coatings and Adhesives; Transportation (Coating); Energy (Oil & Gas); Renewable Energy, Electronics and Electrical; Energy Adhesives; Construction (Coatings); Consumer Goods, Industry and General Industry; Powder Coatings and Industrial Coatings; and Specialties.
- 3 grades.

FLYING COLORS

As with any digital marketing initiative, traffic statistics and analytics help to measure its quality. The numbers are good for Sartomer: in four months, nearly 400 accounts were created at its website and almost 50 orders for samples were made by Internet users. “Our customers and prospects are always asking for the latest,” says Caroline Bastien. In January 2017, when the site is set to add new content and features.

Before Sartomer’s new website went live, customers had a print catalogue on a sample card — to help them identify which grades had the properties they were looking for. Then they requested a sample or technical literature from a technician or salesperson. This entire process can now be completed online.
A TOP 100 GLOBAL INNOVATOR

In 2016 and for the sixth straight year, Arkema was included in the Top 100 Global Innovators ranking — compiled by Clarivate Analytics, formerly Thomson Reuters.

What does the strategic partnership between Brewer Science and Arkema aims to achieve?

D. J.: We’re combining our strengths to commercialize the materials needed for the next generation of semiconductors. What steps have you already completed?

D. J.: Working as a team, Brewer Science and Arkema scientists and engineers have demonstrated pilot-scale production of high-quality directed self-assembly (DSA) materials. It’s an important step in bringing DSA from R&D up to commercial semiconductor production.

What is the partnership’s greatest strength?

D. J.: The way we complement one another. Arkema brings its expertise in block copolymer manufacturing and Brewer Science brings knowledge in formulating resins to produce materials for the semiconductor industry. This enables us to deliver high-value-added products that meet the emerging needs of semiconductor manufacturers.

Six innovation platforms

- Bio-based Products
- New Energies
- Water Management
- Electronics Solutions
- Lightweight Materials and Design
- Home Efficiency and Insulation

These six platforms address societal issues described among the 17 Sustainable Development Goals (SDGs) established January 1, 2016 by the United Nations 2030 Agenda for Sustainable Development. Governments, the private sector and civil society all have a role to play for the goals to be reached.

In 2016 and for the sixth straight year, Arkema was included in the Top 100 Global Innovators ranking — compiled by Clarivate Analytics, formerly Thomson Reuters.

196 priority patents filed in 2016 of which 60% involve sustainability issues

7,678 patents held by Arkema

2.9% of company revenue allocated to R&D

1,500 researchers

13 R&D centers in three major regional R&D hubs: Europe, North America and Asia

1 incubator to develop disruptive innovations

MORE THAN 50 PARTNERSHIPS

We pursue open, connected innovation, using the best scientific expertise and the latest tools, through partnerships with 50 top schools, universities, and public research organizations around the world.

NANOLITHOGRAPHY

Etches the Electronics Industry’s Future

A newcomer in the semiconductor market, we’re making a splash with block copolymers that could push the boundaries of electronics miniaturization. Arkema has teamed up with major European and U.S. partners to develop this groundbreaking technology.

For nearly 50 years the electronics industry has made good on the pace of growth predicted by Moore’s Law — namely, doubling the number of transistors on chips — and thus microprocessor performance every 18 to 24 months. "Doubling processing power is still vital to keep the miniaturization and speed required by increasingly smart products, such as smartphones, computers, tablets and connected devices," explains Ian Cayreboz, Science Director at Arkema.

But conventional photolithographic techniques are now running into a physical limit: the wavelength of the beam used to pattern printed circuits. "This floor — around 40 nanometers — can still be lowered, but only through complex processes that increase production costs. For the first time ever, the price of electronic components is no longer falling," notes Ian Cayreboz.

This is why Arkema’s block copolymers are sparking so much interest. They can self-assemble their molecules on a nanometric scale, creating geometric patterns — nanolines and nanocontacts — that can be precisely adjusted. This directed self-assembly lithographic process, also known as DSA nanolithography, can create patterns to make electronic nanocomponents that are extremely thin (3 to 10 nanometers). Just the ticket to push the photolithography envelope and keep Moore’s Law in effect! We already produce block copolymers on a pilot scale at our Lacq facility, as part of the European Union’s PLACyD project, where partners include the French research institute CEA-Leti, Intel and STMicroelectronics, among others. The Lacq line can turn out block copolymers with the consistent quality the electronics industry requires.

Byed by these results, Arkema has signed an R&D and marketing partnership agreement with the U.S. company Brewer Science, a global leader in materials for the microprocessor industry (see opposite). The pairing creates a serious contender to reach the next technology milestone set by the Semiconductor Industry Association — circuit etching smaller than 10 nanometers by 2019. Arkema and Brewer are banding together to tackle this immense challenge.

In its International Technology Roadmap for Semiconductors 2.0 (ITRS 2.0), it regularly sets new technological milestones (or nodes) for them to achieve.

1. The Semiconductor Industry Association includes all of the industry’s manufacturers. In its International Technology Roadmap for Semiconductors 2.0 (ITRS 2.0), it regularly sets new technological milestones (or nodes) for them to achieve.
Elium®, a thermoplastic resin developed byArkema, reinforced with carbon or glass fibers, makes tough, lightweight composite parts. Elium® composites make vehicles lighter and improve the performance of wind turbine blades. And, unlike thermoset composites, they are fully recyclable, — better for the environment.

**THE WIND AT ELIUM®’S BACK**

The number of wind turbines installed worldwide grew 17% in 2015. 1 We are on the cutting edge of innovation in this booming market, working with our partners to develop a new generation of wind turbine blades made from Elium® thermoplastic resin. High-performance, composite parts manufactured using Elium® resin reinforced with glass fiber offer serious advantages. First, Elium® resin can be processed using the same methods employed for thermoset resin, thus requiring no additional capital outlay. Second, Elium® composites have ten times greater fatigue resistance than epoxy thermoset composites. Lastly, unlike thermoset composites, Elium® thermoplastic resin is recyclable (see opposite). Arkema’s Elium® is a breath of fresh air for wind power.

1. Source: Global Wind Energy Council (GWEC)

**A SPECIALIZED PARTNERING WITH ACOMA COMPOSITES LAB**

Arkema is working alongside the Institute for Advanced Composites Manufacturing Innovation (IACMI), a major U.S. program for advanced manufacturing technologies. In 2016, we set up a pilot-scale unit to demonstrate the feasibility of mass-producing automotive parts made of Elium® resin. In January 2017, we and our partners produced a nine-meter blade prototype made of Elium® resin to demonstrate its industrial feasibility, mechanical properties and environmental benefits.

**REDUCING AUTOMOBILE POLLUTION**

To comply with increasingly strict carbon emission standards, carmakers are striving to trim vehicle weight. We’re a key partner in this weight-loss program. Up to 30% lighter than aluminum and 50% lighter than steel, Elium® resin composites offer the advantages over thermoset composites: superior impact resistance compared to thermoset composite parts and recyclability that enables carmakers to comply with the new European Union regulations on recycling end-of-life vehicles. The first cars featuring Arkema composites are expected to roll off assembly lines in 2020.

In partnership with the AIP Institute of Technology Research in Metz and several French carmakers and automotive OEMs, Arkema joined Fast RTM Technology Platform in 2015. “In June 2016, we set up a pilot scale unit to demonstrate the feasibility of mass-producing automotive parts made of Elium® composite,” at the speeds required by automakers, at part every two minutes,” says Michel Glotin, Director, Materials Science &Arkema. A winner for process technology at the most recent JEC Innovation Awards, Fast RTM is expected to run through December 2017. And pave the way for lighter, lower-carbon-emission vehicles featuring “Made by Arkema” thermoplastic composites.

**SHEDDING MORE WEIGHT: THE INNOVATIVE RILSAN® MATRIX**

With the support of the Canoë R&D center in southwestern France, Arkema has developed Rilsan® Matrix tape. Introduced in March 2017 at the JEC World 2017 international composites event in Paris, Rilsan® Matrix is a high-temperature-resistant polyamide ribbon reinforced with continuous carbon fiber and packaged in tapes and rolls. Automotive OEMs will make composite parts by using robots to position the thermoplastic tape in preforms, then hot-stamp these in a press. The stamped part will withstand high temperatures and enable carmakers to combine metal and composite parts in a single vehicle body.

**ELIUM® FOR RECYCLABLE COMPOSITES**

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**CREATING the Wind Turbines of the Future**

Arkema has teamed up with Plastic Omn and other innovative small businesses on the Effiwind project in France. The goal is advanced wind turbine blades made from Elium® resin. In late 2016, Effiwind achieved a milestone when it crafted an initial 2.5-meter blade. “We proved the project’s industrial viability,” comments Michel Glotin, Director, Materiel Science at Arkema. “Elium® resin is currently the only thermoplastic compatible with conventional blade-making equipment and processes.” Soon to be tested at the Pougras wind farm in Brittany, France, the first Elium® blades could reach the market by 2019.

**FOR TOMORROW**

**ELIUM® FOR RECYCLABLE COMPOSITES**

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1. Source: Global Wind Energy Council (GWEC)
The Future OF MANUFACTURING 3D Printing

3D printing — or additive manufacturing — is a revolutionary new production method. Arkema plays a leading role in this booming market, providing materials for a wide array of manufacturing applications ranging from aeronautics to medical devices to athletic gear.

According to a SmarTech Markets industry report published in 2015, 3D printing posted global revenue of $15.6 billion that year. Some $900 million of that was attributed to polymers and resins, which are growing 25% annually. Arkema brings to this particularly vibrant and innovative market a range of materials covering every type of printing technology. Examples include Rilsan® and Orgasol® polyamide powders and Kepstan® PEKK powders for selective laser sintering. Sartomer N3xDimension™, a new range of photopolymers 3D printing materials that yield ultra-high definition prototypes and parts with superior mechanical properties, is another that employs a laser to sinter polyamide powders. The printers can be used to mass-produce small parts or another that employs a laser to sinter polyamide powders.

We partner with to provide products tailored to their current needs and products that anticipate future technologies and applications. In 2016, we signed a new materials partnership with HP Inc., which has just entered the 3D printer market, and another with Prodways, a French specialist in 3D printing solutions (see opposite).

Arkema is reaping the rewards of a very active R&D policy, one that closely tracks emerging market demand and is open to partnerships with the major users of 3D printing.

“We supply our materials to over 4,000 types of customers,” says Ilias Iliopoulos, Scientific Director at Arkema. “We partner with customers to provide products tailored to their current needs and products that anticipate future technologies and applications.”

“We are strengthening our positions in the booming 3D printing market by offering a wide, varied, innovative and high-performing range of materials,” Iliopoulos adds. (See opposite)
With revenue up from €5.6 billion in 2006 to €7.5 billion in 2016, Arkema has never stopped growing and investing in growth regions. We have spent 10 years working on a strategic rebalancing of our activities among Europe, Asia and North America. Now, thanks to our targeted acquisitions policy and major investments in production facilities, we’re more international than ever and tapping into the vitality of fast-growing regions. See our “growth” destinations in Asia and North America on the pages that follow.
A Winning Strategy
IN NORTH AMERICA

North America accounts for some 34% of Arkema’s revenue. We’ve grown steadily here over the last five years, reaping the returns of strategic choices, including a product portfolio focused on high-growth markets, a targeted production ramp-up, and R&D tied directly with our customers.

The size of its economy and its regular growth — 2 to 2.5% a year since 2010 — make North America a key region for Arkema’s development. We now earn 34% of our revenue here, up from 25% in 2005. All our business lines are active in North America, with solid positions in many markets, including transportation, packaging, electronics and construction.

“We’ve been able to take advantage of new opportunities by strengthening our product and service offering and leveraging Arkema’s global production technologies and assets,” sums up Rich Rowe, CEO of Arkema Inc. In 2016, Arkema posted growth of 3.5% in North America.

The Most Dramatic Change in the Last Few Years has been integrating our acrylics segment in the United States. The acquisition of Dow assets in 2010 gave Arkema upstream acrylic monomer plants, in Bayport and Clear Lake, Texas. We invested $200 million to upgrade them in several steps. These units feed our downstream activities in rheology additives, coating resins (see next page) and photocure resins, themselves the backbone of the company’s growth in the United States.

Arkema’s researchers work closely with U.S. manufacturers to replace steel with tougher, lightweight technical polymers. Another focus is innovative energy storage, especially batteries for electric vehicles and electronic devices. Here our R&D teams have exploited the properties of Kynar® PVDF fluoropolymer, a flagship Arkema material developed in the United States more than 50 years ago. This innovative work has created positive effects for Arkema worldwide. “When it comes to R&D, we work for Arkema, ignoring regional boundaries,” concludes Rich Rowe.

In 2011, Arkema acquired the Dow units in Texas. Announcement of a $110 million plan to upgrade, repurpose and increase the capacity of both sites between 2012 and 2014. These units feed our downstream activities in rheology additives, coating resins (see next page) and photocure resins, themselves the backbone of the company’s growth in the United States.

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AIMING FOR SALES EXCELLENCE

In 2012, Arkema introduced in North America a pilot program for sales and marketing excellence, taking it company-wide in 2016. The program’s goal is to step focused on customer expectations and promote better solutions by speaking with one voice. The program draws on tools that support this cross-functional approach, including customer relationship management (CRM) systems, sales rep meetings by market and training. Because every customer often buys several Arkema materials, each made by a different business line, the program included global key account managers, or KAMs, based as needed in North America, Europe or Asia, to coordinate the different activities and offer the best solutions.

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2007
Acquisition of Coatex, one of the first and famous fluoropolymer resin producers in the United States.

2007
Acquisition of Dow’s acrylic monomer and emulsion assets, including the Bayport and Clear Lake plants in Texas. Announcement of a $110 million plan to upgrade, repurpose and increase the capacity of both sites between 2012 and 2014.

2008
Acquisition of Odell Chemical produces and distributes natural gas odorants in North America.

2008
Acquisition of Dow’s acrylic monomer and emulsion assets, including the Bayport and Clear Lake plants in Texas. Announcement of a $110 million plan to upgrade, repurpose and increase the capacity of both sites between 2012 and 2014.

2010
Acquisition of Bostik, including five production units in the United States.

2011
Acquisition of Total’s coating resin (Pony Valley, Cook Composite Polymers) and photocure resin (Sartomer) activities, including five production units in the United States.

2014
Acquisition of Dow’s acrylic monomer and emulsion assets, including the Bayport and Clear Lake plants in Texas. Announcement of a $110 million plan to upgrade, repurpose and increase the capacity of both sites between 2012 and 2014.

2015
Acquisition of Solvay’s acrylics business for long-lasting coatings and finishes, Kynar® PVDF fluoropolymer resin celebrated its 50th birthday.

2016
Acquisition of Solvay’s acrylics business for long-lasting coatings and finishes, Kynar® PVDF fluoropolymer resin.

2017
$90 million invested in Arkema’s acrylics plant in Clear Lake, Texas.

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Arkema business lines have a marketing and manufacturing presence in North America. Our successive acquisitions, notably in organic peroxides, Bostik, Arkema’s specialty adhesives business line has seven production units in the United States and generates 40% of its sales in North America. It supplies the largest paint manufacturers, offering them a comprehensive range of binders, emulsions and adhesives. “They find everything they need and don’t have to go to a single supplier,” says Dr. Richard Jenkins, Global Group President for Coating Resins.

Arkema’s new R&D center in King of Prussia, Pennsylvania, which opened its ninth production site in the United States, paired with a training center, in Dallas, Texas.

Arkema employs 3,100 people and one plant that produces hydrogen peroxide.

In North America, we employ 480 people at four production sites, two for Bostik, one for Aliagras® PMMA and one for organic peroxides.

3,700 employees including 3,100 in the United States.

$900 million in capital expenditure in 10 years.

ARKEMA’S BIGGEST PRODUCTION SITE IN NORTH AMERICA — located in Calvert City, Kentucky, it produces Furanate fluorogases, used in air conditioning, and KyTec® POFV fluropolymers, which go into a wide range of industrial and electronic applications.

At the Clear Lake, Texas site, which opened in early 2017 that we would invest $10 million to further upgrade our acrylics monomers unit. In 2015, Bostik opened a ninth production site in the United States, paired with a training center, in Dallas, Texas.

BOSTIK FORMULATES EVER MORE INTELLIGENT ADHESIVES
Bostik, Arkema’s specialty adhesives business line, has 12 production sites, three technical centers (R&D and support) and 1,000 employees in North America. It is active in three main markets: construction (mortar and grouts, adhesives, sealants), personal care products (disposable diapers and feminine hygiene products) and industry (packaging, labeling and assembly).

Service makes the difference
After a series of acquisitions — Dow, Croy Valley, Cook Polymers — our coating resins business has seven production units in the United States and generates 40% of its sales in North America. It supplies the largest paint manufacturers, offering them a comprehensive range of binders, emulsions and adhesives. “They find everything they need and don’t have to go to a single supplier,” says Dr. Richard Jenkins, Global Group President for Coating Resins.

Arkema has a North American R&D center in King of Prussia, Pennsylvania. About 125 people work there to develop new materials and new applications for our products. “We have to offer solutions to our customers’ technical challenges — and anticipate their needs even before they’ve articulated them,” explains Ryan Drake, Vice President, R&D at Arkema, Inc. Working in close consultation with our sales and marketing teams, our research associates strive to foster quality technical relationships with our customers. We gather the same equipment as our customers to mirror their operating conditions and guide our product development.

In 2016, Bostik continued to expand its line of do-it-yourself adhesives, offering customers to mirror their operating conditions and guide our product development.

Bostik is headquartered in King of Prussia, Pennsylvania. Some employees work at this North American R&D center. The Bostik business line has several production facilities nearby.

ARKEMA, INC. BEAUMONT, TEXAS is home to the regional plant that produces Kitan® and Kistjama® polymers and Polyure® elastomer. These high-performance materials are used to make high-performance flexible foams and hoses for the automotive industry, gas and oil pipes, air ducts, and athletic shoe soles.

BEAUMONT, TEXAS produces sulfuric acid for organic peroxides.

Birdsboro, PENNSYLVANIA is home to the regional plant that produces Kitan® and Kistjama® polymers and Polyure® elastomer. These high-performance materials are used to make high-performance flexible foams and hoses for the automotive industry, gas and oil pipes, air ducts, and athletic shoe soles.

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As soon as Arkema was created in 2006, we set our sights on Asia, with two goals in mind: to tap into the continent’s economic vitality and to rebalance our global footprint. Ten years later, we’re on track to achieve both goals. Our revenue in the region has increased an average of 10% a year and Asia now accounts for a quarter of our total earnings. “All Arkema business lines are contributing to this result,” says a pleased Xavier Durand-Delacre, Senior Vice President, Arkema Asia-Pacific and President, Arkema Greater China.

China has served as both a business engine and a regional pivot point in our rise in Asia. The country’s development offered — and still offers — growth potential for many of our specialties, including coating resins and construction industry adhesives, polyamides for lighter automotive materials, fluoropolymers for batteries and photovoltaic applications, and high-quality hydrogen peroxide cleaning agents for electronics. We adapt our innovative solutions to local market requirements at our Changshu R&D center (the CRDC, which works for all Arkema business lines) and our Shanghai technical laboratory (for Bostik). “China accounts for just over one-third of Arkema’s sales in Asia, or 10% of our revenue,” emphasizes Xavier Durand-Delacre.

To serve our customers we have developed production capacity in China on a par with our regional ambitions. In 10 years we’ve invested more than €500 million in our Changshu site, now our biggest industrial complex worldwide with eight production units (see opposite). We have also doubled the capacity of our Shanghai hydrogen peroxide plant.

At the same time, selective acquisitions have strengthened key sectors. Examples include Casda Biomaterials (sebacic acid) and Hipro Polymers (technical polymers), acquired in 2012 and rechristened Arkema Suzhou Polymers, and the Sunke joint venture (acrylics) with Jurong Chemicals in 2014. What’s more, Sartomer and Bostik, acquired in 2011 and 2015 respectively, also have dedicated production sites in the country. “Arkema has eight production complexes in China and manufactures 500,000 tons of product each year,” sums up Xavier Durand-Delacre.

Our strong presence in China, along with facilities in neighboring countries — including the thiochemicals plant in Kerteh, Malaysia and the R&D center in Kyoto, Japan — gives us a solid, sustainable base for continued growth in Asia. “While China is seeing its growth rate level off, other countries such as Malaysia, Vietnam, the Philippines and Indonesia offer attractive opportunities. We have all the strengths we need to go after them,” says Xavier Durand-Delacre.
After a decade of investment and targeted acquisitions, all nine of our production sites in Asia. “The plants are doing an outstanding job meeting regional needs,” says Xavier Durand-Delacre, Senior Vice President of Arkema Asia-Pacific.

**AMBITIONS BEYOND CHINA**

We offer our entire portfolio of specialties in Asia via marketing operations that blip over the mainland China, we employ almost 200 people in Japan and South Korea, where we earn 17% of our regional revenue.

**IN JAPAN, THE KYOTO TECHNICAL CENTER**

Arkema-Daikin production by partners to the local automotive, electronics and sports gear markets. This new 1,400-square-meter laboratory in Yokohama. The company partners’ business line also has a production plant in Japan with Takamatsu, its technical sales office. It has created the Bekil-Fil Plastic joint venture in Osaka.

**IN MALAYSIA, Arkema has set up a fluorine-chemicals unit, a joint venture with Jurong Chemicals, in Lavender A Park, 1,000 kilometers further north in Hangzhou, manufactures sebacic acid.

**GUANGZHOU**

Arkema operates a production unit and a laboratory for Softalt, specializing in photocure resins and a unit to produce Bekil adhesives.

**SOUTH KOREA**

Arkema has two Arkema units: a PMMA resins unit and a joint venture with the glycine, organic and inorganic resins and monomers company. The company’s soft and hard polymers business line also has a joint venture with Vanin in South Korea. The company partners’ business line also has a production plant in Malaysia.

**ARKEMA OPERATES 13 PRODUCTION UNITS**

200-kilometer radius of Shanghai. Nineteen are located in or near our Chinese Campus: eight within our biggest industrial complex (see previous page) and a 200-kilometer radius of Shanghai. Nineteen are located in or near our Chinese Campus: eight within our biggest industrial complex (see previous page) and a 200-kilometer radius of Shanghai.
Corporate social responsibility (CSR) and sustainability are integral to our growth strategy. Steadily improving safety and environmental indicators, product development that always considers environmental impacts, new staff diversity targets and nearly 1,000 initiatives that reach out to our site communities — these actions make our CSR ambitions clear: engaging all employees to meet the sustainability challenge and making Arkema a responsible, acknowledged leader in corporate social responsibility.

Why did Arkema commit to having its CSR and sustainability performance and issues assessed by its stakeholders? H. F. > From the beginning we’ve endeavored to assess our performance using indicators for each of the five focuses of our CSR and sustainability policy: safety, environmental footprint, innovation, employee development and community engagement. Our results in the last few years, especially our progress in 2016 (see pages 40 to 42), show that our approach works. Yet we don’t set Arkema’s directions based solely on what we believe. As a responsible company, connected to the world around us and attuned to our times, we want to more closely involve our internal and external stakeholders in our CSR and sustainability process. That’s why we decided last year to initiate a materiality assessment, a survey of stakeholders through conversations about Arkema’s CSR challenges.

What did you learn from talking to stakeholders? H. F. > The results were very positive. In form, the materiality assessment method used interviews (see following page) that encouraged give and take with the individuals, organizations and partners engaged with Arkema’s growth. It’s a dialogue we want to continue. In substance, the results showed that the 25 topics we concentrate on — personal safety, developing sustainable solutions, our environmental footprint, etc. — match the expectations of the internal and external stakeholders we surveyed. The consensus ranking of topics based on importance lets us know we’re on the right track.

How will you follow up this first materiality assessment? H. F. > We confirmed that our approach is comprehensive and aligns with expectations. Now we need to prioritize our action plan and strengthen our initiatives. CSR and sustainability are a collective undertaking and commitment; the steering committee is working with the relevant departments to focus on equal opportunity and diversity, resource management, innovative solutions and process safety. We want to showcase current initiatives that deserve more attention. For instance, we compare favorably with our peers on diversity, but we really want to stand out. We’ve created a phased action plan to boost the proportion of women in our leadership from 18% today to 23% to 25% in 2025. The added new dimension involves our dialogue with stakeholders. Through regular materiality assessments, stakeholder communications will become a permanent fixture at Arkema and increase with time. This is a logical extension of the sustained local discussions we’ve had for many years through our community outreach initiative, Common Ground®.

In step with current trends, we are inviting external stakeholders, such as customers, suppliers, NGOs and journalists, to assess our corporate social responsibility (CSR) and sustainability commitments. Heike Faulhammer, Vice President, Sustainable Development at Arkema, provides more details.
IN SUSTAINABLE GROWTH

Materiality Assessment: A CSR and Sustainability Roadmap

External and internal stakeholders share their perceptions of the materiality assessment and Arkema’s CSR and sustainability strategy.

There are two reasons to conduct a materiality assessment. First, to discover stakeholder expectations and second, to provide a tool for steering strategy by identifying CSR and sustainability priorities. The results are analyzed using a grid that plots how important specific topics are to the company versus how important these topics are to stakeholders. Each intersection shows the mutual priority given to the issues. “The map shows us where to focus our efforts, while making sure that the overall policy is coherent,” says Sophie Huguier, Sustainable Development Manager at Arkema.

Now common in CSR and sustainability, the concept of materiality was borrowed from financial auditing practices. Now common in CSR and sustainability, the concept of materiality was borrowed from financial auditing practices. The materiality threshold indicates whether or not an action is significant. The materiality assessment also showed that initiatives engaged with certain stakeholders over the years are on the right track. That’s true for purchasing in particular. Since joining the Science Based Targets initiative, which offers companies a way to ensure their targets are compatible with keeping global warming within 2°C, the next big challenge is managing water sustainably, a ticking time bomb.

Sophie Huguier, President, Mission Valley de la Chimie project (Greater Lyon, France)

“Talking with local communities around our plants about vital issues such as safety, the environment and jobs is now part of our production sites’ culture. The ‘Common Ground’ community outreach and communications initiative that began almost 15 years ago is an integral part of Arkema’s CSR strategy and has really improved our social standing. This latest aspect of stakeholder dialogue implemented company-wide is another sign of our commitment to being a responsible chemical producer.”

Laurent Babikian, Director of Engagement at rating agency CDP

Arkema’s decision to seek stakeholder input on its CSR and sustainability goals is in some ways an extension of the local dialogue pursued for many years through its “Common Ground” community outreach and communications initiative. It’s also in sync with the partnership project initiated by Greater Lyon, called the Appel des 30, which aims to attract new, cleaner chemical, energy and environmental businesses to production sites. Arkema, a key player in France’s “Chemical Valley,” is a company open to the wider world, helping to advance the business, social and environmental interests of the site.

FACTS & FIGURES

- 30 different types of stakeholders surveyed
- 50% employees (site managers, HSE, employee representatives, etc.)
- 50% external stakeholders (suppliers, customers, rating agencies, journalists, etc.)
- 25 topics covered
- Respondents every 3 years

With this assessment, Arkema is showing it has a mature corporate social responsibility process. The post-COP21 signing of the Paris Agreement asserted global recognition of the crucial challenge of curbing greenhouse gas emissions, and has mobilized businesses. I urge Arkema to join the Science Based Targets initiative, which offers companies a way to ensure their targets are compatible with keeping global warming within 2°C. The next big challenge is managing water sustainably, a ticking time bomb.

William Garcia, Executive Director, HSSE, Energy & Climate Action, The European Chemical Industry Council (CEFIC)

I see Arkema as a company striving to meet the major challenges of the future by constantly innovating in high-performance materials. Its portfolio includes a number of solutions for manufacturing lighter-weight composite parts, more robust and recyclable wind turbine blades, more efficient lithium batteries and solar panels and, more effective water filtration systems. It has also long been committed to developing bio-based materials, which help sustainably curtail carbon emissions.

Sylvie Latieule, Journalist and Managing Editor of the French-language publication Info Chirurgie, Magazine

As citizens, employees feel more affected by environmental issues. Arkema is on the right track, making safety, innovation, employee development and community engagement the focus of our CSR and sustainability process. Internally, we also need to take steps to better explain our targets and all the progress we’ve made in these areas. All employees must keep CSR and sustainability in mind.

Xavier Durand-Desclaux, Senior Vice President, Asia-Pacific, Arkema

Invoking CEFIC in this kind of initiative is a first and demonstrates Arkema’s commitment to CSR and sustainability, an extension of its engagement in Responsible Care. Enriched by this kind of openness and mindfulness, the company is following in the footsteps of the best in environmental reporting. Already deeply involved in reducing employees’ exposure to chemicals, Arkema must continue its efforts to promote product stewardship, which remains a critical topic in the years ahead.

Patrice Bréant, Arkema Director representing employee shareholders

In Asia, especially China, Arkema’s stakeholders have high CSR and sustainability expectations. The people and companies we deal with genuinely want and appreciate strong positions on the environment, health, safety and employee insurance and benefits, as well as openness to the wider world. Arkema’s CSR and sustainability process also helps suppliers, customers and partners and others connected with our business make lasting progress.

Laurent Babikian, Director of Engagement at rating agency CDP

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Arkema’s industrial safety process is deployed globally and focuses on the three interrelated topics of technical, organizational and human (Behavior Based Safety) factors. A shared safety culture across Arkema has sharply improved our safety performance in the last decade. Our three targets for 2025 reflect our commitment to continuously improve our safety performance.

**RANK WITH THE BEST-IN-CLASS IN THE CHEMICAL INDUSTRY FOR SAFETY**

Arkema aims to rank with the best in the chemical industry in CSR and sustainability. In 2012 we set five major commitments, backed by a formal management process and indicators to track the results across all our activities. We have had well-established safety and environmental objectives for several years. In 2016, we set two new targets for employee development, designed to increase diversity at the company. The date for meeting all targets is 2025.

**FIVE STRONG COMMITMENTS**

**WORKPLACE ACCIDENTS**
Reduce the total recordable injury rate (TRIR) per million hours worked to less than 1.2
*2015 TRIR: 1.5; Target: 1.2

**SITE AUDITS**
Conduct an Arkema Integrated Management System (AIMS) audit, an all-in-one audit to confirm progress on safety, the environment and quality, at all sites by 2025
*2015 AIMS audit: 78%; Target: 100%

**PEER OBSERVATION**
Implement the peer observation program to improve awareness and reduce accident rates at all sites by 2025
*2015 peer observation: 77%; Target: 101%

**CLIMATE**
Halve greenhouse gas emissions
*2015 greenhouse gas emissions: 0.60; Target: 0.30

**AIR**
Reduce volatile organic compound (VOC) emissions by 33%
*2015 VOC emissions: 0.80; Target: 0.57

**WATER**
Cut chemical oxygen demand (COD) by 20%
*2015 COD: 1.03; Target: 0.80

**ENERGY**
Cut net energy purchases by 15% a year
*2015 energy purchases: 0.92; Target: 0.85

Arkema focuses on three things: curbing our emissions, reducing resource consumption and stepping up our use of renewable resources. We also make sure that our products do not undermine either human health and safety or the environment.

We have set four environmental targets that are measured by Environmental Footprint. Performance Indicators. EFPI are not impacted by changes in scope, allowing us to better track Arkema’s performance.

**RECOGNITION BY SPECIALIZED RATING AGENCIES**

Our CSR approach is regularly assessed by external stakeholders, especially customers and ESG (environmental, social and governance) rating agencies such as CDP, EcoVadis, Vigeo, RobecoSAM, Oekom and Sustainalytics.

In addition, in 2015, reflecting our strong performance, Arkema was included in the FTSE4Good Global Index, which uses environmental, social and governance criteria to rank companies.

1. EcoVadis is a French agency that rates corporations based on sustainable purchasing and environmental and social performance.
2. Vigeo is a European company that assesses and rates the environmental, social and governance (ESG) practices and performance of corporations and organizations.

**IN SUSTAINABLE GROWTH**
Keep Getting Better, with Indicators and Objectives TO BACK US UP

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MAKE SUSTAINABLE DEVELOPMENT A CENTERPIECE OF OUR INNOVATION POLICY AND OUR PRODUCT LINES

Working with our customers, we create solutions that help meet the planet’s challenges, which include new energies, fighting climate change, access to clean drinking water, the use of bio-based feedstocks, and home efficiency and insulation.

FOSTERING THE PERSONAL AND COLLECTIVE DEVELOPMENT OF OUR PEOPLE

Everywhere in the world, Arkema’s employee relations policies revolve around two concerns: the personal development of our employees and social development through improved collective working conditions. In 2016, two new human resources indicators were introduced to track the number of women in senior management positions and the number of non-French nationals in positions of responsibility.

KEEPING OPEN THE LINES OF COMMUNICATION WITH ALL STAKEHOLDERS

Our Common Ground® initiative encourages dialogue with all our stakeholders. This fosters close relationships with our plant neighbors, local schools and colleges, and our suppliers, to build balanced, sustainable relationships based on trust.

MORE EFFICIENT PRODUCTION, USING LESS WATER AND ENERGY

Two programs — Arkenergy, introduced in 2014, and Optim’O, begun in 2016 — set us on a path toward excellence in energy use and water management.

Arkema has targeted a 15% reduction in net energy purchases between 2012 and 2025 through the Arkenergy program. Since the program’s launch in 2014, our energy bill has already decreased by 6% without a corresponding drop in activity, in line with the roadmap. Independent audits regularly track progress. In 2012, spending on energy accounted for around 8% of our variable costs.

ARKENERGY

Arkema’s best practices will be spreading the word about Arkema’s best practices will be a major strength for the Optim’O program. An example is our 17 coating resin plants, which use large amounts of pure water. “Paying attention to water usage and quality is part of our culture,” explains Tim Gaughan, Global Director, Health, Environment and Safety at Arkema Coating Resins.

“With Arkenergy we monitor water flows in real time through a network of flow meters and track down even the smallest leak. Every plant has a water quality analysis laboratory and we have two state-of-the-art effluent treatment units.”

SPREADING THE WORD ABOUT...
Circular Economy and Life Cycle Analysis

Arkema is committed to managing the company’s activities responsibly. Life cycle analysis lets us assess the full environmental impact of our products across the value chain, from raw materials to end of life. Arkema is also involved in organizing recycling processes for flagship materials such as PMMA.

The Integrated Life Cycle Analysis (LCA) method adopted by Arkema (ICG 14040-44 standard) aims to quantify a product’s environmental impacts along the value chain, from raw material extraction to end-of-life disposal. “We enumerate all the inputs and outputs involved in making a product and calculate its environmental footprint through indicators such as energy and water usage, greenhouse gas emissions, and its impact on biodiversity and the ozone layer,” says Hervé Thiebaud, Head of the Environmental Assessment & Process Analysis Department at Arkema.

Arkema makes three major commitments:
- To promote the recycling and recovery of waste and byproducts.
- To limit our resource use and cut our greenhouse gas emissions.
- To continue organizing a process to recycle PMMA.

The Goal of the Reverplast Initiative is to Create a PMMA or Acrylic Glass Recycling Process.

Spearheaded by Arkema in association with Paprec, a plastics recycling specialist, the Canoé R&D center in Bordeaux and INSA, a leader in end-of-life (EOL) vehicle recycling, Reverplast was the result of an agreement signed April 27, 2016 with Ségolène Royal, French Minister of the Environment, Energy & Marine Affairs, and Emmanuel Macron, the then French Minister of the Economy, Industry & Digital Affairs, as part of the government’s pledge to promote green growth.

Recovering PMMA

 Arkema and Paprec, a plastics recycling specialist, have agreed to recover PMMA, known as “reservoir,” at the end of its life cycle. The process will be completed in mid-2018. The first focus is vehicle taillights, explains Nicolas de Warren, Vice President, Corporate Relations at Arkema. “We’re studying how wrecking centers for end-of-life vehicles could organize recovery economically,” he says. Some customers, on a voluntary basis, have started collecting PMMA or acrylic glass waste. As this initiative progresses, PMMA waste will be recovered by the end of 2018 with available volumes of several thousand tons.

Altimid® PMMA is one of the easiest thermoplastic polyesters to depolymerize and recycle and is ideal for the Circular Economy. Recycled PMMA can be mechanically processed into pellets that can be molded into molded parts or pressed into sheets. Under specific heat and kinetic conditions, PMMA can also be split apart into its monomers, acrylonitrile and methyl methacrylate, which can be used again in the plastics processing industry to more effectively organize the downstream end of the process. As a result of the collaboration with Paprec, Arkema and the Canoé R&D center are working on small-batch testing and in-lab proof of concept for PMMA recycling and subsequent equipment specifications. The present will need to be economical enough to produce recycled PMMA that is cheaper than a virgin equivalent.

Securing Markets

Short term, the first applications for recycled PMMA will be in mixtures with other polymers and recyclable thermoplastic resins materials. We will work with our customers to test the product in the plastics processing industry to more effectively organize the downstream end of the process. As a result of this initiative, we’re planning to develop applications for recycled PMMA, from high-value added automotive components to bicycle and motorcycle instrument clusters, and end-of-life vehicle taillights,” says Nicolas de Warren. Applications are also possible in the automotive and building sectors.

Definite Commitments

At a symposium on the circular economy held February 1, 2017, at the French Ministry of the Environment, Energy & Marine Affairs, and attended by 33 leading French companies, Arkema made three major commitments:
- To promote the recycling and recovery of waste and byproducts.
- To limit our resource use and cut our greenhouse gas emissions.
- To continue organizing a process to recycle PMMA.
Keeping Our COWORKERS SAFE Through Peer Observations

Ten years after peer safety observations were first introduced, employees continue this constructive practice because it works.

SAFETY REALLY IS ALWAYS IN MIND AT ARKEMA. We’ve been encouraging peer observation on the job for 10 years. Nearly 60% of Arkema sites now practice this method of collaborative, constructive critique.

There are two ways a peer observer might step in. Either a peer sets out to watch a colleague performing a task or a peer responds to a coworker’s request for an outside take. The purpose is the same: a safety debriefing based on the comments jotted down during the observation.

“The exercise encourages us to reach out to each other and talk about the safety of Others,” explains Paul Leonard, Vice President, Health, Safety and Environment at Arkema. “Safety isn’t just for specialists.”

THE PROCESS ENGAGES AWARENESS OF PERSONAL SAFETY and the safety of colleagues and has proved highly effective. “Peer observation has clearly made our teams more vigilant,” says Paul Leonard. For evidence you have only to look at the sharp reduction in the total recordable injury rate, or TRIR, per million hours worked, which has dropped by 50% in the last three years.

What are the basics of the SMART program? J.F. > The SMART program facilitates communication by encouraging frontline employees to interact and talk about their successes and difficulties. The program’s key elements are a daily performance review, housekeeping and problem-solving reviews, and visual measurements, that is, status dashboards that are seen by everyone and updated daily. This kind of feedback focuses attention on site performance and encourages everyone to get involved to achieve specific goals.

How was SMART designed? A.O. > We implemented a range of initiatives to get employees involved at specific sites. Working closely with corporate HR, we carefully picked best practices and put together a unique program. The ultimate goal is to move beyond local initiatives and share the principles across Arkema faster, driving company-wide success that benefits everyone.

How will the program be deployed? J.F. > Our teams will be trained, coached, and supported in applying best practices by a network of SMART facilitators. Employees will select and track indicators, conduct daily meetings on the front line and more. Resources will be provided to deploy this collaborative approach, including information panels and methods for solving problems and organizing work areas.

What benefits do you see? A.O. > The program is just getting started, but we already have 17 sites that want to implement SMART’s principles. It is one more driver of operational excellence. Making decisions on the front line empowers people, promotes responsiveness and efficiency, and is an effective way to solve problems.

Simon Hou, HSE Engineer, Sartomer plant, Guangdong, China “More than 60% of our people have been trained in peer observation, three years after it was introduced at the plant. In 2016 alone, our 85 employee volunteers carried out almost 1,900 observations, on average of over 20 each. This shows how invested our teams are in the method, which also benefits members personally. Spotting an at-risk situation not only lets you correct a behavior — thereby improving safety — it also points up a technical or organizational problem that was missed. For example, following observations on several machines, we replaced tools that were found hard to use.”

“Everyone Pays More Attention to the Safety of Others”

Marinusz Lewandowski, HSEQ Manager, CECA plant, Inowrocław, Poland “Peer observation starts conversations. Through constructive double-checking, everyone pays more attention to the safety of others. Vigilance becomes a collective effort. Our adoption of this method last year uncovered at-risk situations. Five percent of the 170 observations conducted in 2016 led to corrective actions, such as cleaning filters to cut down on dust and reminding people of the proper body mechanics for moving heavy objects. Our observers — two-thirds of our staff — are big supporters of the practice, which helps us come up with simple, tangible solutions to problems identified on the front lines.”

“What is SMART about?” An interview with Jérôme Fady, Arkema’s Vice President, Operational Excellence, and Arnaud Oblinger, SMART Project Manager.

The SMART program encourages employees to share their experiences, problems, and good ideas with managers every day. The goal is to engage frontline employees in making progress and improving our operational excellence.

“Everyone plays a part in site performance.”

JACQUELINE TRIFF-TERRADINI, GENERAL MANAGER OF BOTH’S PLANT IN DISCOVERO, TRAVEL, WHERE “The SMART program was launched in three production units and the logistic’s team. A short meeting is held daily on the front line, with team members taking turns providing feedback on safety, quality, scheduling, production or other problems they may be having, their successes and their positive experiences. It’s a simple way to track the unit’s performance and identify the practices to be improved and solutions to be implemented. Because their opinions are taken into account, operators are willing to speak out. They’re aware of how they contribute to the site’s performance. The result has been a significant improvement in output of products that are ‘right the first time’ — the RFT quality indicator — and in delivery turnaround times.”

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OUR EMPLOYEES
Are Our Value Added

We owe our company’s performance and growth to our employees. To develop them to their fullest potential, Arkema offers development training, rotational career assignments (mobility) and ongoing coaching and support. An interview with Dominique Massoni, Vice President, Human Resources & Internal Communication Development.

What were Arkema’s human resources priorities in 2016?

D. M. – Both geographic and job mobility remain central to our career support and planning (see pages 51 and 53). We hope to accommodate each employee’s desire for advancement, without set tracks but with regard for each business’ specific requirements. Welcoming Bostik to the fold has created new career opportunities. And we hope that our newly introduced Talent Program is suited to newer hires, who often want to get international experience by working outside their home countries for a few years.

What projects did you introduce in 2016?

D. M. – As part of our diversity push, we now offer a mentoring program for women that encourages the development of their leadership skills. Twenty participants were enrolled in the 2016 program (see page 51). We also developed a new employer brand that includes Bostik and asserts our common hiring position (see opposite).

Lastly, we introduced our new Arkema Leadership Academy, which is scheduled to begin classes in 2017 (see opposite).

Tell us more about what you call “expert tracks.”

D. M. – Designated “expert tracks” give us a framework to help develop, recognize and reward technical experts in all areas of the company. The tracks provide avenues to senior technical positions based on a stepwise approach to expertise development in a variety of technologies, from research to manufacturing and managerial processes to project management.

Is talent management deployed everywhere?

D. M. – The answer today is yes. In 2015, a talent manager was appointed in Asia, to fill a role similar to the ones in France, Europe and the United States. This new well-established position develops employee’s skills and potential in a region famous for its churning labor market. The result: in 2016, 6% of our managers in Asia rotated into new assignments, up from 4% the year before. Business improvements like this show how our employees are at the center of our growth strategy and enhance our collective skills and capabilities Arkema-wide. Our employees are our value added.

ARKEMA LEADERSHIP ACADEMY: TRAINING THE LEADERS OF TOMORROW

We offer internships, tools and resources to help employees in development and support function roles move up the hierarchy. Specific courses to develop their leadership skills are organized in parallel with our training and management schools. After success in the United States, in France and Asia, we’re about to introduce the program. Developed with the elite French business school HEC, specialized weekend sessions are offered for 30 people in the fall of 2017. Nearly 2,500 Arkema managers are expected to enroll in the Arkema Leadership Academy between now and 2020.

ENGAGEMENT?

In 2015, Arkema Inc. surveyed its 1,250 employees in the United States, Mexico, Brazil and Canada and at Sartomer worldwide. It does this every two to three years to gauge employees’ level of personal investment in the company’s performance and future and to give everyone a chance to share their views and expectations of their managers and the company at large. And overall the company achieved a total engagement score of 77%, an 11-point improvement over 2013. This high mark — above average for U.S. companies — confirms Arkema’s push in a competitive job market.

Targeted action plans by both business and function are planned for 2017.

88%

of employees participated in the survey, which is a tremendous rate of response, and shows the level of commitment employees have to providing feedback on the company’s continuous improvement process.

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88% of employees participated in the survey, which is a tremendous rate of response, and shows the level of commitment employees have to providing feedback on the company’s continuous improvement process.
MENTORING: Driving Equal Opportunity at Arkema

Last year, Arkema began a mentorship effort in France. The initial focus has been on women in helping to better prepare them for senior management positions.

Twenty-one women employees volunteered to pair up with a program to help them move into male-dominated fields. The women were paired with female executive volunteers in the Colombes office to regularly discuss their careers and opportunities for growth at Arkema. The relationship is fairly informal. The mentor listens and offers experience, incisive advice to mentees. Backed by the Diversity Steering Committee, the program will continue in 2017.

"I'm fortunate to coach a talented young woman working in a field I'm not familiar with. But she has the same questions I had and the issues we share reassure her. I help her clarify her plans, articulate her expectations and show what she can do without fear of failure. And I encourage her to broaden her network. Example is a good way to motivate people and keep them from holding back. It's a constructive, supportive relationship and our meetings are useful breathers in the calendar."

"My mentee demonstrated her potential and built her network in just one year." CHANTAL DEGROSENE, ENVIRONMENT DIRECTOR, EUROPE

"Sharing experiences is a very effective way to proactively move women up the corporate ladder. I tell my mentees about my successes as well as the problems I have encountered."

"Women bring a different approach to the job, we are improving working conditions by making ergonomics a priority."

A rkena educates employees on the value of a safe, practical and comfortable work environment. In an agreement signed with French labor unions in March 2016, ergonomics became the centerpiece for workplace improvements. It’s all connected: by working on ergonomics, we reduce physical hardship and improve working conditions," says Raphaële Grivel, Recruitment, Diversity & Employee Development Manager.

"We established trust immediately through regular meetings, easy access to our very strong support at critical moments."

HENRI KOUSAIDE, VICE PRESIDENT, GLOBAL MANUFACTURING

"Women bring a different approach and viewpoint, which is a real asset for the company. I’ve seen it over and over again throughout my career. Mentoring is a way for me to share my experience, help new talent succeed, and support young women so that they move to higher management positions."

"The mentoring was the start of a very productive period that will last well beyond the program. Our discussions always dealt with daily concerns. There was no need for formal preparations." "Input from plant operators is vital to design group. At meetings with the frontline workers, the design group facilitated by an ergonomics resource person tries to identify issues. Then the responsible departments act on the information the study group forwards to them. Our role is to be a sort of early warning system, providing information and, most of all, facilitating improvements based on our training."

"An early warning system."

PHILIPPE FILIPIAK, HSE MANAGER IN THE HSE MANAGER IN PIERRE-BÉNITE, FRANCE

"Project from plant operators is vital to design workstations and drafting certain procedures. At meetings with the frontline workers, the design group facilitated by an ergonomics resource person tries to identify issues. Then the responsible departments act on the information the study group forwards to them. Our role is to be a sort of early warning system, providing information and, most of all, facilitating improvements based on our training."

"Too many women still voice doubts about their ability to advance to positions of responsibility. My role as a mentor is to build confidence and motivate them to take the leap and explore new avenues. I check in with my mentees often, with any formal process or report relationship and without any formal processes. I check in with my mentees often, with any formal process or report relationship and without any formal processes.

"Helping young women managers advance gives Arkema the benefit of their skills and capabilities.

CHRISTIANE CHAPUIS, VICE PRESIDENT, FINANCE & CASH MANAGEMENT

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Why WE ENJOY WORKING at Arkema

Engaged, enthusiastic employees share their thoughts about the company, the values, and the opportunities they found at Arkema.

SIMPLICITY OF PERFORMANCE

"After 18 years at two other chemical companies, I joined Arkema in 2013. I was offered an intriguing mission: to oversee logistics and manage resources for the Fluorchemicals business line and to combine three regional departments into one. The collaborative work atmosphere and trust at the company allowed us to tackle complex problems together. Arkema’s values of solidarity and simplicity resonate with me and contrast with my past experiences at other organizations. Arkema is both detail-oriented and open to creativity."

Fu Cai Wang
China

REAL OPPORTUNITIES FOR ADVANCEMENT

"You don’t get locked into a career track at Arkema. I was hired in 2013 as Director, Logistics & Supply Chain for the hydrogen peroxide business in North America. I then transitioned to Senior Business Director for hydrogen peroxides in North America. Since March 2014, I’ve been Regional Vice President of Purchasing for North America, focusing on feedstock, energy and packaging. My career highlights the opportunities that exit for engaged, motivated employees who seize the chances that come up and are ready to rise to challenges."

Len Mazzanti
United States

PUTTING PEOPLE FIRST

"I started at Arkema in 2005, just before the spin-off. Arkema had a lot to do to get off the ground, something I found really motivating. I was quickly offered new challenges, such as managing a team to purchasing to strategic planning. I recently became Business Director, Fluorogases Europe. Every assignment has been exciting, demanding and stimulating. I’ve worked with highly motivated, supportive colleagues and accessible management, and have never felt that being a woman has held me back. This people focus is vital for us to advance together and feel fulfilled in our work."

Mélanie Jourdain
France

"BEING ABLE TO WORK THROUGH OPPORTUNITIES AND CHALLENGES TOGETHER HAS LED TO GREATER VALUE FOR THE COMPANY AND PROFESSIONAL GROWTH FOR ME."

"EMBRACING ARKEMA’S VALUES OF PERFORMANCE AND SOLIDARITY."

"STAYING FOCUSED ON A COMMON GOAL."

"BEING PART OF MAJOR TRANSMUTATIVE PROJECTS FOR ARKEMA."

"CONTRIBUTING TO ARKEMA’S INTERNATIONAL SUCCESS."

"OVER MY 13 YEARS AT ATOFINA AND THEN ARKEMA, I’VE HAD A CHANCE TO WORK IN PRODUCTION AND BUSINESS, IN FRANCE, FINLAND, THE UNITED STATES AND NOW CHINA. I’VE BEEN REGIONAL GROUP PRESIDENT, FLUORCHEMICALS ASIA-PACIFIC, SINCE 2015. I’VE PARTICIPATED IN LARGE-SCALE PROJECTS THAT REFLECT ARKEMA’S STRATEGY. OVER MY CAREER I’VE BOTH WITNESSED AND HELPED CREATE ARKEMA’S SUCCESS IN ASIA. AND WITH MY TECHNICAL BACKGROUND — I HAVE A PhD IN MACROMOLECULAR MATERIALS — I APPRECIATE THE FACT THAT ARKEMA IS CONSISTENTLY INNOVATIVE."

Anthony O’Donovan
United States

"LEN STAYING FOCUSED ON A COMMON GOAL."
During 2016 we organized, led and funded almost 900 initiatives associated with Common Ground®, our local community outreach and communications program. Several of these initiatives focused on young people and education in China and France.

**A Pair of Textbook Cases IN CHINA**

**IN CHINA**

**IN JUNE 2016, ARKEMA TEAMED UP WITH C.GÉNIAL [IT’S GREAT], A FOUNDATION THAT PROMOTES STEM (SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS) TRACKS TO MIDDLE AND HIGH SCHOOLERS IN FRANCE.**

The program has two parts. The first, called **Professeurs en entreprise**, takes teachers on tours of Arkema’s plants and R&D centers. Nine sites — Mont, Pierre-Bénite, Feuchy, Serquigny, Lannemezan, La Chambre, Carling, Venette and Lacq — took part in Professeurs en entreprise in November 2016, hosting several groups of teachers. The teachers went on guided tours, chatted with employees and discussed potential opportunities. “Teachers are involved in student guidance and appreciate getting concrete information about career opportunities in the chemical industry,” commented Aline Teyssier, in charge of Partnerships at Arkema.

The second, **Ingénieurs et Techniciens dans les Classes**, invites volunteer technicians and engineers to talk about what they do at schools located near our sites. **ARKEMA CARRIED OUT TWO INITIATIVES UNDER THIS PART OF THE PROGRAM.**

At a Tarbes middle school, three women employees talked to students about their careers in science. At the Venette Research Center, we hosted the young winners of the 2016 C.Génial contest, a fun science competition. It was a thumbs-up experience, according to Aline Teyssier: “Our employees love to share their enthusiasm for their profession.”

**CHEMISTRY CONNECTS ART AND SPORTS IN ZHANGJIAGANG**

Employees from our Shanghai headquarters and the Changshu and Zhangjiagang production sites visited Lvfeng School in Zhangjiagang in Jiangsu province. They led several student workshops on environmental protection, everyday safety and creativity in the arts. A donation was also made to expand the library’s science collection and IT hardware was upgraded.

At a separate event in December, 100 students competed in a sports field day organized by Arkema.

**A LITTLE ENGLISH PRACTICE IN HENGBU**

Liminlu Elementary School is located in Hengbu, Hebei province, home to the Casda facility. A Common Ground® member since 2016, the school has been getting a little foreign language learning support. Every two weeks Arkema employees teach classes on environmental protection and sustainable development in English.

**WHAT IS COMMON GROUND®?**

Common Ground® aims to build trust with our neighbors through dialogue and openness. The program sponsors educational and awareness initiatives that focus on understanding our neighbors’ expectations, creating dialogue, and preventing risk. Started in 2002 in France, Common Ground® is now deployed in the 50 countries where Arkema operates.

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At its February 27, 2017 meeting, Arkema’s Board of Directors recommended that Yannick Assouad, Chief Executive Officer of Latécoère, be elected as an independent director. She will bring Arkema both her experience as a senior corporate executive and the production skills and expertise she acquired throughout her career in the aerospace industry.

If the Annual Shareholders’ Meeting approves her election and that of Marie-José Donsion, there will be six women on the Board of Directors, bringing the percentage to 45%, as required by French law.

TWO PERMANENT SPECIALIZED COMMITTEES

THE AUDIT & ACCOUNTS COMMITTEE

The Committee is chaired by Philippe Vassor — who will be replaced after the 2017 Annual Shareholders’ Meeting by Marie-José Donsion — and is made up of two other directors, Isabelle Boccon-Gibod and Hélène Moreau-Leroy. Thierry Lemonnier, Arkema’s Chief Financial Officer, is its Secretary. The primary responsibilities of the Audit & Accounts Committee are to ensure the quality of internal control procedures and the reliability of the information provided to shareholders.

THE NOMINATING, COMPENSATION & CORPORATE GOVERNANCE COMMITTEE

The Committee is chaired by Thierry Le Hénaff and comprised of three other directors: François Enaud, Bernard Kasriel and Victoire de Margerie. Michel Delaborde, Executive Vice President, Human Resources & Corporate Communication, is its Secretary. The primary responsibilities of the Audit & Accounts Committee are to ensure the quality of internal control procedures and the reliability of the information provided to shareholders.

The Nominating, Compensation & Governance Committee makes recommendations and proposals concerning the Board and its committees, Arkema’s compensation policy, and corporate governance principles and best practices.

Shareholders’ Notebook — A few pages to learn more about our governance bodies, understand our financial performance and track our share price for the last 10 years.
THE EXECUTIVE COMMITTEE

The Executive Committee consists of Chairman & CEO Thierry Le Hénaff, three executive vice presidents in charge of operations and four executive vice presidents with functional responsibilities.

THE DECISION-MAKING BODY

The Executive Committee is responsible for the day-to-day management of Arkema. Made up of eight members — including two people new to the team in 2016 — it is chaired by Thierry le Hénaff, Chairman & Chief Executive Officer. In addition to the Executive Committee, in 2016 we created a Management Committee.

FOUR EXECUTIVE VICE PRESIDENTS WITH FUNCTIONAL RESPONSIBILITIES

BERNARD BOYER, Executive Vice President, Strategy

MICHEL DELABORDE, Executive Vice President, Human Resources & Corporate Communications

THIERRY LEMONNIER, Chief Financial Officer

THIERRY LE HÉNAFF, Chairman & CEO

LUC BENEOIT-CATTIN, Executive Vice President, Industry

TWO NEW EXECUTIVE COMMITTEE MEMBERS IN 2016:

VINCENT LEGROS AND CHRISTOPHE ANDRÉ

Christophe André joined the Executive Committee on September 1, 2016.

He oversees Technical Polymers & Performance Additives (thiolation, organic peroxides and photoinitiator resins) and leads Arkema’s digital transformation project.

Mr. André, 45, graduated from France’s Ecole Nationale Supérieure des Télécommunications engineering school. He also has a degree from the ESSEC business school and an MBA from INSEAD Business School.

After several positions in telecommunications, he joined the specialty chemicals manufacturer Bolm & Haas in 2001, where he oversaw business development for the Monomers Division before heading up the Adhesives & Packaging Division. In 2008 he joined AppiWiggins, the world’s leading manufacturer of technical and creative fine papers, as head of AppiWiggins Graphic, one of the company’s five divisions. In 2012, he joined Arkema as head of the Thiochemicals business line.

On September 1, 2016, Vincent Legros became Executive Vice President, Bostik and member of our Executive Committee, succeeding Bernard Pinatel.

Mr. Legros, 43, is a graduate of the École Polytechnique and Ponts et Chaussées engineering schools in France and has a postgraduate degree in production and business organization. He joined us from Saint-Gobain, where he had spent his entire career.

He started there in 1998 as a production engineer at the FournilLuxembourg plant, then served successively as manager of the Tour factory, assistant manager of the FournilLuxembourg plant, head of the pipes, fittings and valves business and, in 2006, head of operations for Saint-Gobain FournilLuxembourg.

From 2009 to 2013, he led Saint-Gobain PAM International in China. From 2013 on, he served as Executive Vice President of Saint-Gobain PAM International and head of the company’s pipe business.

A NEW DECISION-MAKING BODY, THE MANAGEMENT COMMITTEE

In addition to our Executive Committee, in 2016 we created a Management Committee chaired by Thierry le Hénaff. Its members comprise the Executive Committee plus a limited number of senior executives from the business lines, regions and support functions. It meets four times a year.

A key task of the Management Committee is to conduct a quarterly review of our HSE, financial and operational performance. It also oversees major projects and priorities and discusses Arkema’s medium- and long-term strategic goals and directions.
FINANCIAL PERFORMANCE Makes Gains

Arkema turned in an excellent financial performance in 2016, including its highest EBITDA since 2006.

$7,535 million Revenue
($7,683 million in 2015)

- Volumes were up 3.2%, in a global environment of moderate growth.
- They increased in all three of our business segments, driven by innovation in technical polymers, adhesives’ expansion into new markets, a stronger demand for acrylic monomers and the ramp-up of the thiocyanate plant in Malaysia.

$1,189 million EBITDA up 12.5%
($1,057 million in 2015)

- EBITDA was up sharply from the prior year, setting a record.
- The increase was driven by Bostik’s successful integration and growth, significant innovations in technical polymers and downstream acrylics, and the recovery in fluorogas earnings, in line with the announced plan. That means major internal projects accounted for roughly three-quarters of EBITDA growth for the year. Lower prices for certain feedstocks and measures to promote operational excellence also made positive contributions.

$427 million Net income – Group share
(up 50% from 2015)

EXCELLENT CASH GENERATION

In 2016, Arkema reported a very solid free cash flow of €426 million. This excellent performance reflects our good management of investments and working capital, despite higher activity and less favorable feedstock prices at the end of the year. The 36% free cash flow to EBITDA ratio was in line with our medium-term target for Arkema’s operating cash flow to EBITDA ratio.

PERFORMANCE BY BUSINESS SEGMENT

COATING SOLUTIONS
- Performed well and showed signs of an acrylic monomer recovery at year-end
- Revenue: €1.8 billion, down 4.2% year-on-year
- EBITDA: €208 million, up 9.5%
- EBITDA margin: 11.7%

HIGH-PERFORMANCE MATERIALS
- Bostik’s targets achieved a year early and new materials innovation
- Revenue: €3.4 billion, up 1.9% year-on-year
- EBITDA: €570 million, up 12.6%
- EBITDA margin: 16.7%

INDUSTRIAL SPECIALTIES
- Excellent performance by each product line
- Revenue: €2.3 billion, down 5.5% year-on-year
- EBITDA: €473 million, up 13.2%
- EBITDA margin: 20.4%

> KEY INDICATORS

<table>
<thead>
<tr>
<th>INCOME STATEMENT (in millions of euros unless otherwise indicated)</th>
<th>2016</th>
<th>2015</th>
<th>% change</th>
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</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>€7,535</td>
<td>€7,683</td>
<td>-1.9%</td>
</tr>
<tr>
<td>EBITDA</td>
<td>€1,189</td>
<td>€1,057</td>
<td>+12.5%</td>
</tr>
<tr>
<td>EBITDA margin (%)</td>
<td>15.8%</td>
<td>13.8%</td>
<td>+2%</td>
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<tr>
<td>Recurring operating income</td>
<td>€724</td>
<td>€604</td>
<td>+21.5%</td>
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<tr>
<td>Non-recurring - Group share</td>
<td>€477</td>
<td>€268</td>
<td>+79.8%</td>
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<tr>
<td>Earnings per share (in euros)</td>
<td>€5.36</td>
<td>€4.23</td>
<td>+21.4%</td>
</tr>
<tr>
<td>Adjusted net income per share (in euros)</td>
<td>€5.25</td>
<td>€4.21</td>
<td>+25%</td>
</tr>
</tbody>
</table>

BALANCE SHEET (in millions of euros unless otherwise indicated)

- Shareholders’ equity: €4,249, 3,749
- Net debt: €1,482, 1,379
- Net debt-to-equity (%): 35%, 35%
- Capital employed: €6,829, 6,466
- Working capital/revenue ratio (%): 14.5%, 16.5%
- Net provisions: €863, 907

CASH FLOW (in millions of euros unless otherwise indicated)

- Cash flow from operating activities: €821, 858
- Free cash flow: €426, 462
- Capital expenditures: €423, 431
- Capital intensity (investments/revenue - %): 5.8%, 5.6%

1. Dividend recommended to the May 23, 2017 Annual Shareholders’ Meeting.
2. Working capital/revenue ratio, as defined in Section 4.1.9 of the 2016 Reference Document.
3. Provisions of non-current assets, as defined in Section 4.1.9 of the 2016 Reference Document.
4. Cash flow from operating activities and remaining activities excluding impact of portfolio management.
5. Capital expenditures, as defined in Section 4.1.7 of the 2016 Reference Document.
A Remarkable STOCK MARKET RIDE

Arkema’s share price has significantly outperformed the CAC 40 index since we were publicly listed in May 2006. Over 10 years, Arkema has gone from an unknown to a recognized chemical manufacturer.

ARKEMA SHARE PRICE IN 2016
IN €

<table>
<thead>
<tr>
<th>Jan. 1</th>
<th>Feb. 1</th>
<th>March 1</th>
<th>April 1</th>
<th>May 1</th>
<th>June 1</th>
<th>July 1</th>
<th>Aug. 1</th>
<th>Sept. 1</th>
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<td>48.17</td>
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<td>70.70</td>
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<td>95.28</td>
</tr>
</tbody>
</table>

Performance over 10 years
Arkema: up 250% Average for peers: up 68% CAC40: down 1%

UP 250% in 10 years
The Arkema share’s cumulative gain since we were publicly listed in May 2006. Over the same period, other CAC 40 companies saw their share value decline by an average of 1%.

BY TYPE OF SHAREHOLDER

Individual investors 89%
Employees 6%
Institutional investors 5%

BY REGION

France 34%
United Kingdom 14%
Rest of Europe 19%
North America 29%
Rest of the World 4%

Dividend Up 8% in 2016
The Board of Directors reaffirmed dividends as a key component of shareholder return. The €2.05 dividend proposed for 2016 is 8% higher than in 2015. It represents a payout of 37% of adjusted net income and is equal to 2.2% of the share’s value on December 31, 2016. The decision shows how confident the Board of Directors is in our growth outlook and in the robustness of our cash flow and balance sheet.

CONTACTS

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Institutional Investors
investor-relations@arkema.com
+33 (0) 4 90 00 74 63

CALENDAR

May 23, 2017 Annual Shareholders’ Meeting (Théâtre des Sablons, Neuilly-sur-Seine)
August 2, 2017 First-Half 2017 Results
November 9, 2017 Third-Quarter 2017 Results
Lighter vehicles, wind turbine blades, phone batteries, water management, sustainable housing and more — Arkema designs advanced materials and innovative solutions to meet tomorrow’s challenges today.