Members across the entire paint and coatings supply chain faced numerous issues in 2018—raw material concerns, tariff threats, stricter environmental regulations, and talent shortages—all in the face of rising customer demands for even better performance. Many of the trends impacting the market in 2016 will continue to create both challenges and opportunities for formulators, ingredients suppliers, distributors, and other contributors to the paint and coating value chain in 2019. In this article, we examine some of these topics and during informal discussions with coating manufacturers and their suppliers, how they have impacted business this year, and what potential impacts they may have in 2019.

**TARIFF THREATS**

Tariffs have been a big topic of discussion throughout 2018, and this issue will remain a significant concern as 2019 unfolds. "We haven’t seen a major impact so far, but that could easily change as we move into 2019," notes Eric Dumain, North American commercial director for AkzoNobel Coatings Resins. How they might affect the industry, negatively or positively, is yet to be seen. Even for a global player like AkzoNobel, pain is everywhere, according to John Griffin, regional director, AkzoNobel. "What we make in the U.S. is predominantly sold in the U.S. However, many of our customers operate in a global market, and so do their supply chains. So even though it is too soon to tell, new tariffs and trade agreements, such as a renegotiated NAFTA, could impact the coatings industry," he explains. He adds that in the current environment AkzoNobel is able to import and export coatings to serve its global customers, but restricting this capability would lead to increasing costs if duplication of production capabilities in multiple countries is required. Tariffs could also impact the overall economy and thus the demand for paint and coatings across several sectors. Tariffs are a big topic of conversation for AkzoNobel’s large industrial customers, according to Griffin. "We work in many segments—automotive, packaging, consumer electronics, and aerospace—so we examine what tariffs do to our overall customer confidence. When investors are reluctant to make capital investments, or they move their production somewhere else, it can be an opportunity but also a challenge, depending on what our market position is in the region. Tariffs definitely impact those investors," he observes. He also stresses that uncertainty is never good for economic growth. Laura Burton, group leader at Taemas Company, agrees. "The market uncertainties caused by new and proposed tariffs are already causing strains in the industry. The supply and cost of foreign-made raw materials has started and will continue to be unstable until this situation has been resolved," she asserts.

That uncertainty is expected to continue through 2019. "With any major legislation, there will be market segments that will be advantaged and others that will be challenged," Griffin adds. "It will be difficult to predict ‘winners and losers,’ comments Dumain. "Right now, we can only prepare and put the resources, and more importantly, industry relationships between resin producers, distributors, and formulators, in place to deal with any potential issues," he states.

**STRICTER REGULATORY REQUIREMENTS**

Evolutionary regulations impacting painting and coating formulations around the world continued to cause both challenges and opportunities, and this ongoing trend is expected to remain a factor for the foreseeable future. Notably, regional changes in legislation can have an impact around the globe. One area that has been a particular focus is tighter VOC (volatile organic compound) legislation, which varies by region, according to Griffin. "As we head into 2019, new legislative regulations will continue to impact the coating industries. Coatings suppliers must understand that classification changes restrict certain ingredients in product formulations, and changes to raw materials can impact the properties of the finished coating. The good news is that regulatory demands can help create customer solutions and new revenue streams for coatings suppliers. In fact, these challenges offer opportunities for innovation, for example, in incorporating recycled and/or bio-based materials in products," he observes.

"In the U.S., changes in TSCA have dramatically affected the approval process for new products," notes Kelly Young, product steward for Dispersion Resins with BASF. "An increase in NRUAs (Significant New Use Rules) and Consent Orders for newly submitted pre-manufacturing notices (PMNs) has had a tremendous impact on launch efficiency and the ability to introduce new innovations in the market place. New registrations are taking 12-18 months compared to 90 days, and approximately 78% of all new substance registrations are getting SNRUs that require record keeping, ensuring proper PPE, tracking volumes, etc., by downstream customers. One way we are overcoming this problem is to, whenever possible, use the polymer exemption to market new polymers. Doing so allows us to remain compliant, meet our customers’ needs, and improve our launch efficiency—all while bringing in new innovations to the market," Young says.

Meanwhile, the EPA’s designation of 51 nonattainment areas for ozone levels means that new lower VOC regulations are on the horizon in several states (e.g., Arizona, Colorado, etc.) that have not been impacted in the past. . . .

EPA’s designation of 51 nonattainment areas for ozone levels means that new lower VOC regulations are on the horizon in several states (e.g., Arizona, Colorado, etc.) that have not been impacted in the past. "Changes in legislation in the future will need to be considered as we move forward with our product offerings," Young notes.

**Adopt this change over time. Creating coatings that are low-VOC without the use of exempt solvents will be a tough challenge for the coatings industry. Removal of the exemption would force reformulation or elimination of products that are too high in VOC without the exemption. However, with these changes, there is also an opportunity for newer technologies to help bridge the gap to create coatings that meet or exceed the current performance of the coatings affected," she comments.

In Europe, Wouter Jongepier, global market segment leader for Coatings with Hexion, notes that while compliance with the last deadline for the Registration, Evaluation, and Authorization of Chemicals (REACH) legislation occurring in May 2018, this regulation places an ongoing burden on all companies that import chemicals and products into the EU, with changing requirements expected as science evolves. Indoor air quality legislation has placed increased scrutiny on acid-catalyzed systems that emit formaldehyde, according to Griffin. "When looking at specific coating ingredients, biocides are being notably impacted by the revocation of the active ingredients within the scope of the BPR (Biocidal Products Regulation) by the European authorities. Changes in the regulations for the active ingredients zinc pyritione (ZPT) and methylisothiazoline (MIT) are of particular interest, according to Nicolas Gallacier, global marketing director biocides for Industrial Preservation and Coatings in the Material Protection Products business unit of LANXESS. He notes that the 13th ATP (Adoption of Technical Process), which was published on October 4, 2018 by the EU Commission, does not allow the use of MIT above 15 ppm without an H 37 label. ‘40-300 ppm is necessary for effective preservation, MIT will only play a minor role for in-can preservation in Europe in the future,’ Gallacier says. ZPT, meanwhile, will be classified as a reprotox 1B compound in the future, thereby meeting the exclusion criteria of the BPR and further limiting the choice of active ingredients for preservation.

Perhaps, though, the most significant changes in environmental regulations are taking place in China. The country’s new Environmental Protection Tax Law took effect on January 1, 2018, driving further change to lower VOCs in coatings in China, according to Jongepier. VOC legislation for wood coatings is driving a fundamental change from conventional solventborne micro-cellulose (NC) and polyurethane technology to waterborne and UV systems, according to Griffin. Tighter
Innovation, Flexibility and Operational Efficiency: Keys to Industry Success

By Cynthia Challenger, CoatingsTech Contributing Writer

Members across the entire paint and coatings supply chain faced numerous issues in 2018—raw material concerns, tariff threats, stricter environmental regulations, and talent shortages—all in the face of rising customer demands for even better performance. Many of the trends impacting the market in 2016 will continue to create both challenges and opportunities for formulators, ingredients suppliers, distributors, and other contributors to the paint and coating value chain in 2019. In this article, we examine some of the topics raised during informal discussions with coating manufacturers and their suppliers, how they have impacted business this year, and what potential impacts they may have in 2019.

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Tariffs have been a big topic of discussion throughout 2018, and this issue will remain a significant concern as 2019 approaches. “We haven’t seen a major impact so far, but that could easily change as we move into 2019,” notes Eric Dumas, North American commercial director for Arkema Coating Resins. How they might affect the industry, negatively or positively, is yet to be seen. Even for a global player like AkzoNobel, paint is a very sensitive sector, according to John Griffin, regional director, AkzoNobel. “What we make in the U.S. is predominately sold in the U.S. However, many of our customers operate in a global market, and so do their supply chains. Even though it is too soon to tell, new tariffs and trade agreements, such as a renegotiated NAFTA, could impact the coatings industry,” he explains. He adds that in the current environment AkzoNobel is able to import and export coatings to serve its global customers, but restricting this capability would lead to increasing costs if duplication of production capabilities in multiple countries is required. Tariffs could also impact the overall economy and thus the demand for paint and coatings across several sectors. Tariffs are a big topic of conversation for AkzoNobel’s large industrial customers, according to Griffin. “We work in many segments including automotive, packaging, consumer electronics, and aerospace—we examine what tariffs do to overall consumer confidence.

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That uncertainty is expected to continue through 2019. “With any major legislation, there will be market segments that will be affected and others that will not. It will be difficult to predict ‘winners and losers,’” comments Dumas. “Right now, we can only prepare and put the resources, and more importantly, industry relationships between resin producers, distributors, and formulators, in place to deal with any potential impacts,” he states.

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Relatively, although VOC legislation also means refinishing shops have to reduce their emissions. In May 2017, the Chinese MEP (Ministry of Ecology and Environment) with the help of the CNTCA (Chinese National Coatings Industry Association) is expected to publish an initial draft of regulations aimed at reducing emissions of coatings, which many regions in China are expected to adopt as mandatory, according to Burton. She also notes that under the ISO 11860:2007, the test method used in China for measuring VOCs, PCTFE is considered to be a VOC, making reformulations more challenging.

RAW MATERIAL PRICING AND AVAILABILITY
China’s crackdown on pollution is having an impact around the world. According to Michael T. Venturelli, marketing director for Coatings at Sun Chemical Performance Pigments, “2018 will be remembered for many reasons, and China’s influence on global manufacturing may be one of them. The rapid moves by Chinese authorities to achieve environmental improvements have impacted many levels of the coatings industry.” He notes that while an overall positive move, environmental inspection and city-wide closings of manufacturers have created tight supply and uncertainty around key raw materials. This shift of governmental priorities and the shutdown of local manufacturing sites has affected environmental and safety regulations in turn.

In reality, to increase in raw material prices, pervasive cost increases in logistics, duties, and tariffs, among others, have been driven by economic, social, and geo-political factors, says Camilo Quiñones-Rosso, market segment manager Architectural Coatings for Latin America. According to Quiñones-Rosso, in addition, the cost of operations and capital outlay, including raw material, labor, and transportation, are driving up costs. Furthermore, China’s economic and sustained growth are driving greater demand for goods and services, with demand outpacing supply, straining the system, and causing imbalances. The scale of the price increases has left little room for governments along the value chain but to increase their own prices. As the trend continues, those who are able to minimize impacts to their cost structures and ultimately prices will be able to differentiate in the market place and be successful.

Several strategic changes must be made to increase supply chain flexibility, reduce costs, and answer key customer needs. One of the most critical is the focus on multi-source, single sourcing options can offer more security of supply in the current cloudy global economies. The tightest environmental requirements are likely to remain in place for quite some time. As a result, producers are raised to a sufficient level in terms of environmental standards. As a result, LANEXS expects temporary and permanent loss of various capacities at various levels of the value chain with regard to basic chemicals, intermediates, and end products. These lower capacities are resulting in limited availability and even scarcity, which is driving up prices. During 2018, raw material price increases of 100% within a few days occurred numerous times, according to Bernhardt. "Ongoing shortages will lead to the need for qualification of raw material alternatives and alternative suppliers, which adds further considerable cost, since purchasing and application science technology resources must be used for this purpose," he says.

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Tungsten dioxide (TiO₂) will be a main story for 2019, says Blenda Eilo, marketing director for Coatings and Inks at Eastman. "Tungsten prices are very volatile, and the need for alternative technologies is increasing," she says. "We believe rising prices will drive customers to look for solutions that reduce usage of TiO₂, in their formulation and/or allow them to use alternative formulations," she comments. "Continued emphasis on sustainability continues to be a core focus for the industry, as manufacturers and their customers continuously look for ways to reduce energy consumption, waste, and emissions. In addition, increased global pressures on VOC regulation continue, especially in China, additional efforts are being felt in other regions. "Large global players with platforms that need to span multiple regions are the first to respond, and this ultimately results in the creation of greater demand in the overall coatings industry, which drives regional players as well," says Andrew Stadler, head of Industrial Marketing in North America for Coatings, Adhesives, and Specialties for Covestro LLC. At PPG, for instance, sustainability is intertwined with innovation and growth, according to Vicente Morales, PPG EVP and president of Coatings. "Our range of products and services that provide visible and less visible benefits to our customers. Our products contribute to lighter, more fuel-efficient vehicles and aircraft that the help our customers reduce their energy consumption, conserve water, and reduce emissions," he says.

Indeed, the need for higher productivity and lower VOC solutions is relevant across multiple market segments and geographies. "Global health and wellness advocacy is a key trend for coatings today and going forward," says Eilo. "NGOs and public health advocates groups continue to look for ways to expand regulations such as REACH in Europe. In the United States, the SCAQM will continue to be a strong and vital voice in driving change for improved air quality. Not will it continue," Eilo adds. "Weigh's health and safety issues may be harder to substantiate that a final tinted paint is indeed zero VOC. Positioning, especially in the ultra-low VOC or some variant thereof is an alternative trend as a result."
Gupta. In 2019, Eastman expects coatings formulators across multiple market segments to raise the bar on performance as it relates to paint protection and durability, according to Elio. In the automotive segment, coatings need to provide attractive aesthetics for the longer lifetimes of today’s cars because appearance impacts resale value for consumers and brand perception for OEMs. Elio adds that this demand for improved durability and aesthetics is also driven by the requirement toward shared mobility, where vehicles are expected to look good despite traveling longer distances; the propagation of ride-sharing services such as Uber, Lyft, and Didi; and emerging transportation trends.

In the architectural market, there is continued interest in coatings that offer better stain resistance and washability for interior and improved dirt pick-up resistance for exterior applications, according to Mangan. For industrial protective applications, regional construction efforts in the chemical and fluid transportation industries, as well as infrastructure repair and renovation will drive the need for new corrosion-resistant coatings, according to Duman. New hybrid epoxy aliphatic resin technology is allowing the utilization of isocyanate-free topcoats with improved anti-corrosion, performance, higher service temperatures, and anti-graffiti properties along with gloss retention and reduced yellowing, according to Weimann. Chrome plating is also being replaced by more economical and environmentally friendly metalization technology for steel and aluminum substrates, according to Cash. The technology is currently evolving from batch production to full-scale continuous line production and is expected to expand to plastic and composite substrates in the future.

Talent Concerns

Another trend that will continue into 2019 and that raises concerns about the future of the coatings industry, according to Griffin, is a dwindling trained workforce. In the automotive industry, there is a serious skills shortage, especially in the collision repair industry. “If this trend continues, it will be increasingly difficult for repairers to deliver quality repairs and estimators maintaining cycle times,” he says. To help train the next generation of professionals, AkzoNobel has partnered with the non-profit Automotive Management Institute (AMI) as a Foundation Partner and recently launched the AkzoNobel Technical College Support Program that supports vo-tech schools. Shortages of truck drivers in the United States, particularly those with the necessary hazardous materials endorsements, are an issue not only the coatings industry. Similarly, the chemical industry must find ways to attract the next generation of research and development associates, including those interested in becoming coating experts. “The coatings industry may not be perceived as favorably as some other industries, so the industry must demonstrate that it is also a key part of a sustainable future,” Jongegeer states.

Impacts of Consolidation

While the industry has established somewhat with respect to merger and acquisition activity, the flurry of deals that occurred in recent years—and the resultant consolidation, particularly in the industrial sector—has had a significant impact to the paint and coating sector. “The industry is pressured today to identify more areas of value creation in supply chains, research and development, and business development and will continue to adapt to this new landscape into 2019,” observes Duman. He adds that this landscape includes scaled-up research, more volatile supply chain disruptions, and increased importance of individualized customer support. There is also the potential for a shift in the reverse direction, according to Venturini. “We may start to see the market move toward more spin-offs and the formation of separate business groups to allow for specialized businesses focusing on innovation and lack of dependency in the marketplace,” he explains.

Even so, globalization of the industry will continue into 2019, according to Quiñones-Rozo. “Companies that used to concentrate on a specific region now have an international footprint,” she observes. Automakers with a reliable global footprint are critical partners for the expanding number of coating and supply chain organizations of these companies as they seek to provide a product and service support across all regions,” he says.

Anacapa is one region where consolidation is likely to continue. “APAC is the largest market and still remains highly fragmented,” Gupta notes. She expects the regulatory changes in China to lead to further consolidation and presents opportunities to those equipped with the means and technology to meet new requirements, resulting in innovation in raw materials and formulation and application technologies.

Need for Flexibility and Collaboration

The year 2018 has been one of rapid change, leading to even greater need for flexibility to respond to dynamic situations and the ability to collaborate across the supply chain. “Global raw material shortages, trade wars, and tariffs creating a shift in economical supply base, heightened environmental regulations, and higher energy costs are all creating a long-term desire by customers to find true partners—paint suppliers that can effectively adapt to the shifts in the operating environment, minimize the impact, and deliver innovative products to play a role in customer success stories,” states Michael Cash, senior vice president and president of Industrial Coatings at Axalta Coating Systems.

Manufacturers must adjust to a greatly accelerated pace of change driven by cultural and technical factors, adds Venturini. “Historically, he says, “environmental regulations were developed over an extended period of time. A paint custom follows an industry and scientific review that led to a targeted deadline and date and phase-in period.” Manufacturers had time to research, engineer, and implement custom solutions. “Fast forward and combining this with a lack of regional diversity for some key raw materials will continue to be a major challenge for the supply chain to adapt quarterly or even monthly in many markets,” he says.

Managing supply, strengthening partnerships, and formulating agility to address evolving requirements and ensure an uninterrupted supply of product, according to Venturini, is more than ever going to be a major challenge to execute successfully and with a high level of customer and plant communication, and working with them on a personal level to address concerns is more important than ever. “Companies that work closely together across the supply chain will be able to take better advantage of these new relationships and react more quickly to any issues that may arise than companies that compete on raw material shortages,” he says.

Efficiency, Connectivity, and Digitalization

Customers are also looking for efficiencies. A growing economy also results in greater activity in terms of both residential and commercial painting projects, according to Benjamin Moore’s field integration manager, Mike Mundschul. “From a contractor’s perspective, taking advantage of this economic recovery allows the very top end of and retaining labor Coatings, meanwhile, must do more, and application and performance characteristics must excel in ease of use and quick repair or service,” he comments. Stalder notes that in 2019 there has been an increased demand for products at Axalta. “We have continued evolution towards the future displayed in the continual demand for increased efficiency in coating systems, leading to high performance with benefits such as lower processing costs and fewer layers. New product development focused on unleashing capacity for customers has become the most requested attribute of new products at Axalta, according to Cash. Similarly, customer convenience is increasing in importance.

Digital technologies are influencing the efficiency and speed of processes and transactions, according to Bernhardt. “Technology and analytics, robotics, artificial intelligence, and the Internet of Things create new options. Digitalization opens up new horizons and possibilities with respect to all aspects of business, including value propositions, models, processes, products, and the way we work together,” he asserts. Digitalization is in fact, a key enabling technology. “Rapid digitization and helping our customers function more efficiently continues to be the hottest and most demanding trend,” Cash says. Customers now rely on real-time information and a more flexible approach to work. “The digital world allows them to interact and work with us digitally, use social media as a learning and training tool, and effortlessly access the latest digital and product information. We can help them identify processes to work faster with minimal (if any) capital investment, helping address their concerns, or raw material shortages,” he says.

Automation

Automation is another topic receiving significant attention in the context of digitalization, big data, and the opportunity to leverage advanced analytics tools. “Whether it is a 2019 event or beyond, we can expect trends in automation to impact our industry to solve customer problems, whether these problems are in tracking, material flows, or communications,” Duman notes. Cash predicts the digitalization of the first fully automated, “lights-out” factory—a production line that is fully automated, producing parts without human intervention. To achieve this goal will require capabilities in remote line monitoring, real-time computer monitoring and control via feedback loops, and the ability to schedule color changes in advance.

Modern Mobility

Advances in automotive technology are also impacting the coatings industry. Four broad mobility trends—autonomous vehicles, connected vehicles, electrified powertrains, and shared mobility—depend in part on advanced coatings technologies, according to Morales.

We will soon see realization of the first fully automated, “lights-out” factory—a production line that is fully automated, producing parts without human intervention. To achieve this goal will require capabilities in remote line monitoring, real-time computer monitoring and control via feedback loops, and the ability to schedule color changes in advance.
Gupta. In 2019, Eastman expects coatings formulators across multiple market segments to raise the bar on performance as it relates to paint protection and durability, according to Ello.

In the automotive segment, coatings need to provide attractive aesthetics for the longer lifetimes of today’s cars because appearance impacts resale value for consumers and brand perception for OEMs. Ello adds that this demand for improved durability and aesthetics is also driven by an increased movement toward shared mobility, where vehicles are expected to look good despite traveling longer distances; the propagation of ride-sharing services such as Uber, Lyft, and Didi; and emerging urban trends.

In the architectural market, there is continued interest in coatings that offer better stain resistance and washability for interior and improved dirt pick-up resistance for exterior applications, according to Mangano. For industrial protective applications, regional construction efforts in the chemical and fluid transportation industries, as well as infrastructure repair and renovation will drive the need for new corrosion-resistant coatings, according to Duman. New hybrid epoxy siloxane resin technology is allowing the formulation of isocyanate-free topcoats with improved anti-corrosion, performance, higher service temperatures, and anti-graffiti properties along with gloss retention and reduced yellowing, according to Weitzmann. Chrome plating is also being replaced by more economical and environmentally friendly metal plating technologies for steel and aluminum substrates, according to Cash. The technology is currently evolving from batch production to full scale continuous line production and is expected to expand to plastic and composite substrates in the future.

Talent Concerns

Another trend that will continue into 2019 and that raises concerns about the future of the coatings industry, according to Griffis, is a dwindling trained workforce. In the automotive industry, there is a serious skills shortage, especially in the collision repair industry. “If this trend continues, it will be increasingly difficult for repairers to deliver quality repairs in a timely manner,” he says.

To help train the next generation of professionals, AkzoNobel has paired up with the non-profit Automotive Management Institute (AMI) as a Foundation Partner, and recently launched the AkzoNobel Technical College Support Program that supports vo-tech schools. Shortages of truck drivers in the United States, particularly those with the necessary hazards materials certifications, is an issue not only the coatings industry. Similarly, the chemical industry must find ways to attract the next generation of research and development associates, including those interested in becoming coating experts. “The coatings industry may not be perceived as favorably as some other areas, so the industry must demonstrate that it is also a key part of a sustainable future,” Jungopeter states.

Impacts of Consolidation

While the industry has stabilized somewhat with respect to merger and acquisition activity, the flurry of deals that occurred in recent years—and the resultant consolidation, particularly in the coil coating sector—will continue to impact the paint and coating sector. “The industry is pressured today to identify more areas of value creation in supply chains, research and development, and business development, and will continue to adapt to this new landscape into 2019,” observes Dammin. He adds that this landscape includes scaled-up research, more volatile supply chain disruptions, and increased importance of individualized customer support. There is also the potential for a shift in the reverse direction, according to Venturi. “We may start to see the market move toward more spin-offs and the formation of separate business groups to allow for specialized businesses focusing on innovation and looking to expand their credibility in the marketplace,” he explains.

Even so, globalization of the industry will continue, according to Guillermo Rizo. “Companies that used to concentrate on a specific region now have global ambitions,” he notes. “We see this with companies with a reliable global footprint are critical partners for the expanding development efforts in emerging markets and supply-chain organizations of these manufacturers as they seek to provide product and service support across all regions,” he says.

As a result, one region where consolidation is likely to continue is APAC. While the largest market and still remains highly fragmented, according to Gupta, the region has also been impacted by the regulatory changes in China to lead to further consolidation and support opportunities to those equipped with the means and technology to meet these requirements, resulting in an innovation in raw materials and formulation and application technologies.

Need for Flexibility and Collaboration

The year 2018 has been one of rapid change, leading to even greater need for flexibility to respond to dynamic situations and the ability to coordinate across the supply chain. “Global raw material shortages, trade wars, and tariffs creating a shift in economical supply base, heightened environmental regulations, and higher energy costs are all creating a long-term desire by customers to find true partners—paint suppliers that can effectively adapt to the shifts in the operating environment, minimize the impact, and deliver innovative products to play a role in customer success stories,” states Michael Cash, senior vice president and president of Industrial Coatings at Axalta Coating Systems.

Manufacturers must adjust to a greatly accelerated pace of change driven by cultural and technical factors, adds Venturi. “Historically,” he says, “environmental regulations were developed over an extended period of time. A problem was followed by a months-long industry and scientific review that led to a targeted change in test date and phase-in period.” Manufacturers had time to research, engineer, and implement changes. “Today, accelerated development and change combined with a lack of regional diversity for some key raw materials will continue to test the industry,” he says. “Coatings customers need to adapt quarterly or even monthly in many markets,” he says.

Managing supply, strengthening partnerships, and formulating agility in the supply chain are the key steps to ensure continued supply and support chain organizations of these manufacturers as well as maintain flexibility in the marketplace,” he notes.

Efficiency, connectivity, and digitalization

Customers are also looking for efficiencies. A growing economy also results in greater activity in terms of both residential and commercial painting projects, according to Benjamin Moore’s field integration manager, Nile Mandelweiler. “From a contractor’s perspective, taking advantage of this economic recovery hinges on finding and retaining labor. Coatings, meanwhile, must do more, and application and performance characteristics must excel in ease of use and quick return to service,” he comments. Stader notes that in 2014 there has been a continued evolution towards the future displayed in the increasing demand for increased efficiency in coatings systems, driving both high performance with benefits such as lower processing costs and fewer layers. New product development focused on unleashing capacity for customers has become the most requested attribute of new products at Axalta, according to Cash. Similarly, customer convenience is increasing in importance.

Digital technologies are influencing the efficiency; speed of processes and transactions, according to Bernhardt. “Digital technologies like data analytics, robotics, artificial intelligence, and the Internet of Things create new opportunities,” he says.

Automation

Automation is another topic receiving significant attention, according to the extent of digitization, big data, and the opportunity to leverage advanced analytics tools. “Whether it is a 2019 event or beyond, we can expect trends in auto-

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Mortgaging our efforts to improve customer experience, whether those problems are in tracking, material flows, or communications,” Duman notes. Cash predicts that the advent of the first fully automated, “lights-out” factory—a production line that is fully automated, producing parts, and coating them without human involvement. To achieve this goal, companies will require capabilities in remote control, monitoring, real-time computer monitoring and control via feedback loops, and the ability to schedule color changes in advance.

Modern Mobility

Advances in automotive technology are also impacting the coatings industry. Four broad mobility trends—automobiles, connected vehicles, connected vehicles, connected vehicles, connected vehicles, connected vehicles—depend in part on advanced coatings technologies, according to Morales.
"PPG is addressing these opportunities by developing advanced coatings for use outside, inside, and within tomorrow’s vehicles and the transportation infrastructure. Overall, modern mobility promises to not only change how PPG delivers its products to customers, but also what our customers will do with those products," he comments.

Urbanization is also impacting multiple market segments, including the automotive sector. Shiona Stewart, industry marketing manager for Transportation, Industrial, Furniture, and Floor Coatings at BASF points to ride sharing as an example. "An increasingly common tool used in urban cities, ride sharing allows residents to drop their dependence on owning a vehicle and take advantage of unbundled parking strategies, which ultimately provides additional incentive for attracting new apartment building residents," she remarks.

IMPORTANT OF INNOVATION

"The pain and coatings industry is experiencing a technology renaissance," asserts Merales. "Paints and coatings are being relied upon for increased functionality—corrosion resistance, sustainability, and aiding advanced technologies such as mobility and connectivity. In addition, technologies are being developed that further optimize the customer application of paints and coatings. Because of this increased technology pull, we expect investment in research and development to continue at a healthy pace in 2019 and beyond driven by increasing customer demands and rapidly changing industry needs," he concludes.

WHAT LIES AHEAD?

The global paint and coatings industry can be tricky to navigate without the proper intel. Plot your business course with the International Paint and Printing Ink Council’s Global Market Analysis for the Paint & Coatings Industry (2015-2020).

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