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en route

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In 2013, Colas Canada subsidiary Sintra was part of the consortium awarded a public-private partnership contract to upgrade the Iqaluit airport in northern Canada. This extraordinary project was delivered by Sintra teams in August 2017. We take a look back at this human adventure at the world’s end.

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In 2016, Colas acquired several companies in partnership in the United Arab Emirates, Oman and Qatar, covering the production of construction materials and road construction and maintenance. Report from the Persian Gulf.

Cover photo: polar bears, Lancaster Sound, Nunavut, Canada.
They all do their jobs with enthusiasm and have decided to share their daily routine and projects with us. Portraits of people at Colas.

“Let’s be ambassadors for our businesses and our corporate values to attract more talent.”

Acquisitions, equipment, innovation, human resources, environment, etc. A look back at recent months in the life of the Group.

Inauguration, awards, induction days… Some images of the Group's events, in France and around the world.

“A conductor needs to combine authority, confidence, high expectations, and a certain degree of flexibility.”

“On the road to school”: back to France.

Colas Foundation: Heidi Wood.
Colas’ strength as a decentralized company lies in the men and women who pave the way to its success across five continents.

Colas boasts a rich variety of personalities, cultures, backgrounds and expertise dedicated to a shared mission, ambition and common values, to attract talent and foster a sense of pride in belonging to the Group.

Firstly, our mission: to design, build and maintain transport infrastructures and facilities that improve the living environment for the planet’s inhabitants, to address the challenges of mobility, the energy transition and urban development.

Secondly, our ambition: to achieve excellence to ensure Colas becomes the reference company across its markets, preferred by all stakeholders.

Thirdly, our values: to work with entrepreneurial spirit, to be pioneering, to show responsibility and solidarity, and in particular, to be exemplary with respect to safety and ethics, and a leader in the field of innovation.

Mobilized in this way, the men and women of Colas — and the collective intelligence they provide — represent our most valuable asset. It is they who underpin the Group’s successes, development and sustained presence.

By retaining, training, promoting and uniting — including via sports events such as Colas Team Cup launched just before the summer —, the Group is committed to meeting the expectations of these talented people, particularly in terms of career development, while supporting the Group’s transformation within the context of the digital revolution.

A recent noteworthy success for Colas was an acquisition signed in Canada at the end of August, the biggest in the Group’s history, representing a major step in its development, with a substantial reinforcement of its base in North America.

I’d like to pay tribute here to the Canadian teams who established the relationship of trust so crucial to the conclusion of this agreement and the success of the forthcoming integration.

Colas can also be delighted with the opportunities generated by the upturn in activities in many of its markets around the world, particularly in France, as reflected in the significant growth recorded in the first half of this year.

I have no doubt that the men and women of Colas will take full advantage of this more favorable environment. I thank them and congratulate them in advance.
From Martinique to New Caledonia via the USA, Croatia and France...
A trip around the world to see the Group’s jobsites, work in progress and finished projects.

For the renovation of some of the pathways and a parking lot, the prestigious Saint-Léonard Stud Farm, in Calvados, Normandy, was seeking a single-color mineral surfacing solution, in keeping with the other pathways, covered with light sand. Teams from Colas Ile-de-France Normandie’s Caen profit center proposed Heliocol®, a surfacing solution with a natural appearance that is easy to walk on, even in wet weather. So in April they spent three days applying 1,200 m² of Heliocol®.

In order to preserve the tranquility of the surroundings and avoid upsetting the horses, teams took every precaution throughout the work to keep noise to a minimum.
Smac’s Limoges profit center was chosen to take part in a 1% art project on the square of the town hall in Rilhac-Rancon, central France. The 1% art initiative is a procedure for commissioning works in the public construction sector, supporting creativity and raising citizens’ awareness of art. Back in February, a team of seven skilled workers spent two weeks helping to bring to life the work of Clorinde Coranotto, director of art at nOmad and teacher at the ENSA art school in Limoges. The project consisted in assembling a variety of materials: bricks, asphalt, ceramic disc, a central mill-stone, etc. In total, 57 tons of sanded asphalt* were applied following the artist’s exact specifications. This was a real triumph for Smac in their very first full-scale urban and public development project using sanded asphalt in the region!

* Sanding is a process that reveals the aggregates incorporated in the material, thereby highlighting the diversities and combinations of hues between the color of the binder and that of the aggregates.

Pollution clean-up

Colas Environnement carried out operations around Paris to clean up the water table on a former brownfield site. The main challenges consisted in designing a treatment unit that could handle a flow of 250 m³/h – the equivalent of filling a swimming pool in two hours – and then installing the facility in a record time of three weeks in cramped surroundings. The solution? A unit of three independent lines (80 m³/h), each comprising several tanks to trap suspended matter, separate the hydrocarbons and filter the remaining particles. The final step: carbon filtering to trap the pollutants.
As part of its energy transition policy Martinique is preparing for the arrival of Galion 2, the island’s first all-biomass* cogeneration plant. The facility, located on the site of the Galion sugar refinery (the last remaining one in Martinique), will ultimately produce enough electricity to meet 15% of local needs. Since mid-2015, around fifty people from Colas Martinique have been on site carrying out a range of operations covering the earthworks, networks, paving, basins and civil engineering required for the construction of the power plant and the biomass storage facility. Due to the multitude of activities taking place within a restricted space, daily meetings are held to ensure operations are carried out in a coordinated manner. The project is scheduled to be delivered at the end of December 2017.

* Biomass consists of organic matter of plant origin (bagasse, wood residue, straw, etc.) that can be turned into a source of renewable energy via combustion in the form of electricity or heat.
Almost 12 MW, i.e., the electricity consumption of 11,500 households, that’s the energy production capacity of the future Val d’Ay wind farm, where teams from Colas Rhône-Alpes Auvergne’s Forez/TPCF profit center are hard at work.

Located in the heart of a forest, at an altitude of 1,100 meters on the col du Rouvey, in southeastern France, the project will be delivered in December 2017. In the fall of 2016, teams began by building the road network required to access the wind farm site, as well as work areas and areas for crane operations. The challenges along the way have been numerous: harsh weather conditions, difficulties getting supplies for the basecamp and considerable environmental constraints. The next phase, launched in the spring of 2017 once any risk of frost had disappeared, consisted in building the wind turbine foundations and drainage networks. The final phase will involve cleaning up and restoring the area around the site, once the turbines have been erected, in the fall.

FRANCE

The wind blows on the col du Rouvey

Line 14 subway extension in Paris

Since January 2017, some 60 employees from the Colas Rail Urban Railroad profit center have been at work 25 meters beneath the sidewalks of Paris’ 17th arrondissement. Their job: to lay 1.6 km of track in the first section of tunnel extending line 14 of the subway to the north of the French capital. Work is due to be completed in March 2019.
A brand new high school

GTOI, Colas’ Reunion Island subsidiary, carried out the major structural work on the Saint-Denis Lycée Nord high school, which will welcome up to 1,200 students. Between November 2015 and March 2017, 110 employees were mobilized for the construction of five buildings, including a gymnasium, a boarding facility with 96 beds and an amphitheater. Five tower cranes were used simultaneously to manage a 35-meter slope on the site.
In 2013, the citadel of Amiens rehabilitation contract was awarded to architects at Renzo Piano Building Workshop (RPBW)*. Their assignment? To transform this historic 17th century building into a university for some 4,500 students. Forty-five employees from Colas Nord-Est’s Ham profit center handled the outside redevelopment, roads and services. On the Place d’Armes, at the heart of the citadel, some 4,500 m² was covered with diabolos, long, terracotta bars separated by a 2-cm joint filled with a soil substrate before being planted with grass. The result: a specially-designed, completely flat, self-draining, green square, the first of its type anywhere in the world! The teams were also responsible for 8,000 m² of green roofs, 4 km of metal borders, 15 pre-fabricated stairways as well as 12,000 m² of pathways using stabilized sand, in order to make the site look like a park. ■

* Created by Renzo Piano, architect and winner of the Pritzker Prize, and designer of the Pompidou Center in Paris.

FRANCE

The Amiens citadel: Colas Nord-Est gives the Place d’Armes a facelift
The Croatian island of Mljet in the Adriatic Sea is famous for its rugged, rocky coastline, its Benedictine monastery built on a small island in the middle of a salt lake and its national park. It was against the backdrop of this lush vegetation that teams from Colas Hrvatska, a Colas company in Croatia, carried out renovation work on a 2-km section of bypass around the port town of Polače. The project, completed between February 2016 and June 2017, included earthworks, the construction of a dike, gabion walls, retaining walls, roads and services. The teams had to rent a ferry to transport the asphalt mixes, manufactured on the mainland at the Ploče plant, to the island site.■
Rehabilitation of the Sainte-Croix bridge

Built in 1972, the 290 meter-long Sainte-Croix bridge links the Var and Alpes-de-Haute-Provence area, in southern France. In early 2017, a team from Colas Midi-Méditerranée’s Cozzi profit center carried out renovation work covering the waterproofing of 1,600 m² of deck, along with roads, sidewalks and signage, 45 meters above the waters of Lake Sainte-Croix.
Located at the crossroads of numerous shipping routes, the port of Brest is undergoing a vast program of work aimed at developing existing land-based industrial activities and promoting the installation of new port sectors, particularly those related to renewable marine power, with the creation of a new industrial port terminal in the sea. Since the start of the year, two Colas subsidiaries have been involved in the project, due to be delivered in 2020, as part of a consortium. Spac’s Brittany-based profit centers are responsible for constructing the water networks (drinking, rainwater runoff and waste) while Colas Centre-Ouest’s Brest profit center is responsible for the roads (tracks, access roads, etc.). Once the maritime aspects of the work have been completed, teams will return to the site in 2019 and 2020 to carry out further work: permanent roads (Colas Centre-Ouest) and the manufacture of pre-fabricated elements (Segec, a Spac subsidiary), for the construction of a 400 m-long protective wall. A fine example of group synergies!

On the S5 expressway

Colas Polska is supplying and applying 330,000 tons of asphalt mix on the future 4-lane S5 expressway, which will link Lower Silesia to northern Poland. Forty-five employees have been mobilized on a new 19.3-km section of road, between the cities of Poznañ and Wroclaw. The project is set to last 26 months. For the very first time in Poland, teams are using an innovative lime spraying technique aimed at improving adherence between the various layers of mix.
UNITED STATES

Wallops Island drone runway project

Colas’ American subsidiary Branscome Inc. has built a 300-meter runway on Wallops Island, on the eastern shore of Virginia. The landing strip, located on a NASA flight facility, will be used by the U.S. Navy for drone test flights. Bransome crews successfully overcame a number of challenges as they set about clearing the site for the project, including the presence of species such as long-eared black bats and protective bald eagles, a wetlands environment and even the discovery of civil war artifacts and WWII bombs!
Colas Sud-Ouest on the Oléron bridge

For the first time since it was brought into service in 1966, work has been carried out to upgrade the waterproofing on the bridge linking the Ile d’Oléron to the mainland in western France. Colas Sud-Ouest’s Dolus-d’Oléron agency secured the contract with a technical alternative based on Saflex OA®. In order to minimize traffic disruption, the project was broken down into 18 sections and conducted at night, with lane reversal. Launched at the end of March 2017, the work was suspended during the summer season, but should be completed by mid-October.
At the start of 2017, crews from Branscome Inc., a Colas company in the USA, completed the construction of the G95 Roundabout, a very busy junction in Dinwiddie County, Virginia. The employees who worked on the project installed drainage networks, applied asphalt mixes and built concrete curbs. In order to ensure the safety of all those present on and around the site, Branscome Inc. and the Virginia Department of Transportation drew up a traffic plan before the project was launched. Public meetings were organized to explain the nature of the work and motorists were informed about the traffic regulations in place to guarantee safety around the construction site. The project was completed without a single incident! 

Synergy on Highway A10

For the project to widen a 70-km section of Highway A10 to six lanes, Colas Projects (project manager), Colas Centre-Ouest, and Aximum formed a consortium to undertake mineral landscaping work on the median. The work included earthworks, asphalt paving, slot drainage channels, extruded concrete barriers and signage.
On the Nouville peninsula in Noumea, two Colas subsidiaries formed a consortium to construct a clinic and treatment and physiotherapy center on behalf of a private hospital. Overlooking the lagoon, the hospital center will bring together three private clinics covering 37,000 m² distributed over five floors. It will comprise 260 beds, seven delivery rooms, an ER department open 24 hours a day, 12 operating theaters, a CT and PET scan department, a dialysis center, a balneotherapy center and a biomedical laboratory. In August 2016, GTNC completed the structural work, then started secondary work on the project. Colas Nouvelle-Caledonie is responsible for the roads and services, including access roads, parking lots, etc. At the height of the project, up to 120 employees were mobilized. The challenges? To deliver a quality high-tech facility on schedule and ensure safety across the site. The clinic is set to be delivered mid-2018.
Route 18 CD, in the Aisne region of northern France, has been known as the “Chemin des Dames” (literally “Ladies’ Path”) since the 18th century, when it was taken by the daughters of King Louis XV, “Ladies of France”. The site of several battles during WWI, the section is part of historical heritage. In April this year, coinciding with the centenary of the Battle of the Chemin des Dames, the region asked Aximum’s Lille center to install reflective studs along a 26.5-km section of the road to improve visibility and safety, particularly at traffic islands and on dangerous corners. A total of 1,600 blue retroreflective studs were installed, the color chosen as a tribute to the “bleuets”, young soldiers who arrived on the front in their sky blue uniforms.

Geneva ready for Stellar 32

In the town of Plan-les-Ouates, in the canton of Geneva, Piasio, a Colas company in Switzerland, is involved in the Stellar 32 real estate project. The teams have carried out operations in a number of areas: site clean-up, the demolition of the old reinforced concrete apron, earthworks and the construction of a reinforced concrete sub-base. The principle difficulty: the depth of the area (14 m), with two rows of shoring, forcing teams to carry out earthworks in “steps”. Some twenty employees were mobilized between August 2016 and late June 2017.
Supermarket chain Lidl will shortly be inaugurating its biggest French logistics platform, in the town of Montchanin, in the Saône-et-Loire area of eastern France: a building of 56,000 m², on an 18-hectare site developed by Colas Rhône-Alpes Auvergne. The project, launched in April 2017 and due to be delivered in May 2018, has mobilized more than 50 employees from the Montceau-les-Mines profit center and the Saint-Priest Perrier Terrassement profit center. The work will comprise 170,000 m³ of earthworks, 9,200 m of wet networks, 15,000 m of dry networks, 20,000 m² of hydraulic concrete roadways and 40,000 m² of asphalt paved roadways, designed to carry 300 heavy trucks per day. The platform will supply around one hundred Lidl outlets throughout the region.

14 months on the M35 Motorway

Colas Hungária and Colas Közlekedésépítő, two of Colas' Hungarian subsidiaries, have 420 days to build a new 5.4-km section of the M35 Motorway and two interchanges. Having completed 1 million cubic meters of earthworks, the teams installed 25,000 vertical drains to help stabilize the ground more quickly in preparation for the infrastructure itself. In May 2017, teams began applying the 80,000 tons of asphalt mixes required to complete the road, scheduled for delivery in early 2018.
In early 2016, Transinvest Construction, a Colas company in Mauritius, was awarded two joint-venture projects relating to Sir Seewoosagur Ramgoolam airport, in the southeast of the island. The first project concerned the construction of a new 4.5-km four-lane airport access road from Highway M2 in 14 months. To connect this section to the existing highway, teams built an interchange, along with a 120-meter-long crossing. The project also involved 100,000 m$^3$ of fill, 45,000 tons of asphalt paving, the installation of 9 km of drains and safety barriers, as well as street lighting. The new infrastructure relieves traffic congestion through the village of Plaine-Magnien and facilitates access to the Holiday Inn hotel from the airport. The second contract concerned the construction of an apron for wide-bodied jets at the airport involving the application of high-quality concrete, the installation of a new access bridge specifically for Airbus A380 aircraft and the application of asphalt mixes on access taxiways.
FRANCE

Bastia, between land and sea

One of the objectives of the Spassimare project, launched in Bastia on the island of Corsica, is to allow cyclists to ride safely from the port of Toga to Arinella beach. This soft mobility infrastructure, reserved for pedestrians, disabled people and non-motorized vehicles, will also provide a scenic overlook of the Mediterranean Sea. SRHC, a subsidiary of Colas Midi-Méditerranée, contributed to this seafront upgrading project. The work, most of which was carried out at night by a team of around forty people, involved the application of 3,200 m$^2$ of Colclair® mix and the creation of 1,600 meters of curb.
Construction and maintenance of the southwest Calgary ring road

It’s two for one at Colas Canada in Alberta! Two of its subsidiaries will be involved in the construction and maintenance of the southwest Calgary ring road. The project concerns 31 km of 6- and 8-lane road, 14 interchanges, 47 bridges and a tunnel. Standard General Calgary, established in the city for more than 75 years, will produce and apply the one million tons of asphalt mixes required for the project. Work should be completed by October 2021. Alberta Highway Services Ltd. (AHSL), another Colas Canada company based in Alberta, will be responsible for maintaining the infrastructure until 2051. AHSL is well known for its expertise built up over a period of 22 years in the fields of highway and secondary road maintenance and winter viability projects throughout the province of Alberta.
As part of the road maintenance program launched by the Haut-Rhin council in eastern France, Colas Nord-Est’s Strasbourg profit center delivered the year’s biggest surface dressing project. Teams applied 100,000 m² of Neocol® high-performance emulsion along the road leading to Le Grand Ballon, the highest peak in the Vosges mountains. This maintenance technique is an economical solution to extend the service life of a road and restore its skid-resistance and impermeability.
FRANCE  Colas Rail aboard the Léman Express railroad

At the end of September, teams from Colas Rail’s South-East Mediterranean region finished laying the tracks on the French section of the Léman Express, the future Franco-Swiss rail link between the cities of Annemasse and Geneva. The teams also installed the high- and low-voltage catenary systems as well as safety mechanisms along the 2-km section of track, which includes 1.5 km of tunnel. Along with the difficulties associated with working underground, the project demanded impeccable coordination, an aspect overseen by the Regional Major Projects unit. The other special feature of the project: the building of a concrete slabtrack with the rails fixed to concrete blocks in the tunnel. The technique makes maintenance operations easier and requires a high degree of dexterity in order to obtain the desired spacing with tolerance to within a millimeter!
In 2013, Colas Canada subsidiary Sintra was part of the consortium awarded a public-private partnership contract to upgrade the Iqaluit airport in northern Canada. Extreme climate, isolation, logistical and geological challenges... after four seasons of hard work this extraordinary project was finally delivered in August 2017. We take a look back at this human adventure at the world’s end.
Between July and October, Frobisher Bay is freed from its ice shackles, allowing boats to bring in supplies to Iqaluit.
This is mid-July in Frobisher Bay and the mercury has soared to 15°C. Summer has arrived in Canada’s far north! Iqaluit, the capital of Nunavut, is bathed in an almost continuous white light. A timeless atmosphere reigns over this isolated lunar landscape, devoid of vegetation, located some 2,100 km north of Montreal, on the 64th parallel north. Out in the bay, freed from the grips of the winter ice, boats have started to come and go once again. The skies above echo to the sound of planes taking off and landing. And on the ground, teams from Sintra, Colas’ subsidiary in Quebec, are preparing for another night’s work on the airport’s main runway. Since 2014, they have been responsible for renovating and extending runways and aprons, i.e., 400,000 m², as part of the upgrade project under way at Iqaluit international airport. This is Colas Canada’s first public-private partnership (PPP) contract.

Vital infrastructure
A former American army base opened in 1942 handed back to Canada in 1949, the Iqaluit Airport in Nunavut is the gateway to the Arctic region, and plays a strategic role in civil and military aviation. In Canada’s largest territory, which has no road network to speak of, aircraft is the only means of transport that can be used all year round to link the 25 surrounding communities.

In 2013, Sintra was part of the Arctic Infrastructure Partners’ consortium awarded the public-private partnership contract...
SERGE VEILLEUX, head of the earthworks teams

Setting the pace through planning
There are many routes to the construction professions. Serge Veilleux’s background is a perfect illustration. The 51-year old father of three has spent more than thirty years in the road construction business, after having originally studied theology. “A distinct advantage when it comes to people skills”, he declares. “My father was employed in the construction sector and I spent several summers working alongside him when I was young so I did have a certain aptitude for it”, he explains with a smile! Armed with plenty of experience, particularly in earthworks, he joined Sintra in 2009 and took part in some major highway projects, including the A85 (Trans-Canada Highway). And when the Iqaluit project came up, Serge jumped on the opportunity. His motto? “80% of a project’s success is down to preparation.” Serge anticipates and plans everything as early as possible, from the safety equipment his teams will need, right down to the bottles of drinking water. Like a metronome, he sets the pace. “I’m proud of my teams and the work they’ve done to stick to the schedules.”

August 2017, consisted in repairing and resurfacing the existing runway and two taxiways, creating three new taxiways, widening the apron and constructing roads adjacent to the airport.

Logistics: preparation is of the essence
For Geoffroy Lécureur, project manager, “preparation, planning and anticipating needs were crucial to the success of a project like this. While not technically complex, the geographic location and extreme climate made the project particularly challenging.”

The first challenge was getting supplies. In Iqaluit, ice blocks access to the bay from October to July: “The schedule had to be structured around a very short window of time during which materials could be delivered and the work carried out. So everything had to be anticipated and delivered a year ahead to guarantee being able to start on time.” Another particular feature of Iqaluit is that the port does not have deep-water docks. “Equipment was therefore unloaded out at sea onto barges that then ran aground on the beaches. Depending on the tides, it could take up to 18 days to unload a boat”, recalls...
mostly of barren land and permafrost. This type of soil has an active layer that freezes and thaws every year, leading to instability and subsidence. “In order to build in and on permafrost, the principle is simple: it’s necessary to excavate quickly, before the thaw, and insulate the soil with polystyrene plates”, explains Serge Veilleux, earthworks team manager. “The pavement can then be rebuilt.”

The other phenomenon facing Sintra’s teams was the presence of numerous surface cracks on the main runway, due to the considerable temperature range: -30 to +15°C. “So we...”
> spent 2014 and 2015 repairing cracks*, continues Serge Veilleux.

Adaptation and cultural integration

7 p.m. Teams arrive on the runway to the sound of music for their daily warmup routine. In Iqaluit, men and women work on a rotating shift basis, with 42 days “in” and 14 days “out” from May until the end of October. “The project site operates 7 days a week, day and night*, underlines Serge Veilleux. A relentless pace that employees need to adapt to, in addition to the weather conditions, being away from families, community life and the discovery of a new culture. With newly hired Inuit people making up 15% of the workforce, their integration and training were a crucial issue for Sintra. “The challenge was to bring together all these personalities within a spirit of understanding and respect for each other’s cultures in order to create a chemistry”, adds Geoffroy Lécureur. “It turned into a wonderful team adventure, demonstrated by the fact that we had very little staff turnover from one season to another.”

“Thanks to our know-how and proud entrepreneurial philosophy, we were able to adapt, raising our expertise, rigor and performance to new levels.”

Today the project is finished, etched in the memory as one that can truly be described as exceptional. ■

* The Arctic Infrastructure Partners consortium also includes Bouygues Building Canada (a subsidiary of Bouygues Construction), InfraRed Capital Partners and Winnipeg Airports Authority Inc.

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KEY FIGURES

- **4** seasons of construction between end-May and beginning-October (2014-2017)
- **34 years** of maintenance and operation
- **130** employees at peak
- **600,000 t** of aggregates produced
- **238,000 m³** of earthworks
- **131,000 m²** of insulating materials
- **111,000 t** of asphalt mix produced and applied, including 15% RAP
- **18,400 t** of equipment transported by boat
NIGHT AND DAY
Work on the Iqaluit airport project was carried out over four seasons between the end of May and the beginning of October, seven days a week, night and day.

PERMAFROST
To build in and on permafrost – an active layer that freezes and thaws every year – Sintra’s teams had to excavate and then insulate the soil using polystyrene plates.
In 2016, Colas acquired several companies in partnership in the United Arab Emirates, Oman and Qatar, covering the production of construction materials – via quarries and asphalt plants – and road construction and maintenance. Report from the Persian Gulf.

Colas in the land of Black Gold

| ROUTES No. 39 – October 2017 |

In the suffocating June heat, only half of the Burj Khalifa is visible. Along with Dubai’s artificial palm-shaped islands, the world’s highest tower – it soars 830 meters into the sky – is iconic. The city, nestled between desert and sea on the Persian Gulf, fascinates and attracts in equal measures. In early 2016, Colas Middle East opened its offices here having acquired the stakes owned by Anglo American Group in the capital of six companies held or operated in partnership with leading local players (Al Futtaim, Al Zawawi and Midmac), in the United Arab Emirates, Oman and Qatar. With two quarries, 10 asphalt plants and 15 asphalt application teams across three countries, these acquisitions are an illustration of Colas’ vertical integration strategy: aggregate production in quarries, asphalt production in asphalt plants and, using the materials produced, road construction and maintenance operations. A perfect example of an end-to-end presence throughout the value chain.

External growth

“As part of its targeted external growth strategy, Colas’ management had identified the Middle East as a development zone”, explains Paul-Henri Aumont, Colas Middle East Managing Director. With significant infrastructure requirements, countries that are politically and economically stable, a qualified and competent workforce and a growth rate of around 4%, the context was favorable. Having visited various facilities in the United Arab Emirates, Oman and Qatar, the program was >

> KEY FIGURES

- 3 countries: United Arab Emirates, Oman and Qatar
- 950 employees
- 2 quarries
- 8 million tons of aggregates produced annually
- 10 asphalt plants
- 1.8 million tons of asphalt mix produced annually
- 1.5 million tons of asphalt mix applied annually
In 2016, Colas Middle East opened an office in Dubai following the acquisition in partnership of several companies in the United Arab Emirates, Oman and Qatar.
launched. The strengths of Colas Middle East? “We are positioned as asphalt mix specialists, applying the highest standards of safety. Moreover, our aim is to bring our expertise and innovations in the field of road construction to these countries”, adds Paul-Henri Aumont.

The Group’s biggest quarry

The Shawkah quarry is located an hour’s drive from Dubai, towards the border with the Sultanate of Oman. On the way, the commotion of the city and its buildings are replaced by the calm of the desert sand dunes. “Producing 4.5 million tons of aggregates annually and with reserves of 520 million tons, it is the Group’s largest quarry”, underlines Graham Jones, Industry Manager. It operates round the clock, 7 days a week, supplying materials to sites up to 500 km from Dubai. Opened in 2005, its peak production came in 2008, with 9 million tons of aggregates produced for a number of major projects in Dubai such as The Palm, a luxury residential and tourist complex built on palm-shaped artificial islands on land reclaimed from the sea. “At the time, there was a constant stream of trucks loaded with aggregates leaving the site, stretching for more than a mile”, recalls Graham Jones.

Anticipating environmental regulations

Managing dust is also of vital importance due to the damage it causes to vehicle filters, mechanics and tires. This is a gabbro quarry. Gabbro is an igneous magmatic rock ranging in color.

Dust management is a major environmental concern at all quarries, including Shawkah. One way to minimize dust emissions is to water the tracks. But here, one of the objectives is to reduce the amount of water required to operate the site. “We're currently working with Dust-A-Side (DAS), Colas' subsidiary in South Africa specializing in mining site haul road maintenance. Its process, which uses bitumen-based emulsion solutions to stabilize roads, reduces both the amount of dust emitted and water consumption. This synergy allows us to anticipate environmental regulations”, explains Alexandre Salley, the quarry’s Assistant Manager.

Dust-A-Side is a subsidiary of Colas, the world’s leading player in the Infrastructure Industry with turnover of €7.7 billion, and 66,000 employees globally. The Group is a leader in road, rail, air and maritime transport, supply of materials and services...
Located 50 km from Dubai, the Jebel Ali asphalt plant produces 180,000 tons of asphalt mixes annually.
SAFETY
Colas Middle East’s safety policy hinges around 10 golden rules. Here, the STOP card can be used by any employee to call a halt to an activity if he or she thinks it doesn’t comply with safety rules.

DUBAI HILLS
On the site of the Dubai Hills real estate project, teams from Colas Middle East are building the roads.
from dark green to black. It is extremely abrasive and dense, causing considerable wear and tear to equipment. A maintenance and welding workshop, along with a storage facility for spare parts near the quarry, are used to carry out repairs to vehicles without having to worry about supply times – six weeks by boat.

Safety first

2,700 days. More than seven years have gone by without a lost time accident at the Shawkah quarry. Safety is an integral part of the corporate culture at Colas Middle East. “It’s part of daily life, fully embraced by all employees”, explains Craig Streak, Regional Safety, Health and Environment Manager. Safety policy hinges around 10 golden rules, good practices that every employee must adhere to. “Everyone has an active role to play, particularly through the use of the STOP card, whereby any employee can bring an activity to a halt whenever he/she thinks it does not comply with rules or safety conditions are not being met. Safety at work is a permanent and ongoing endeavor”, adds Craig Streak.

Harsh weather

From the air-conditioned control room at the Jebel Ali asphalt plant, 50 km from Dubai, Filipino foreman Edwin Manapat Cruz keeps an eye on asphalt loading and delivery operations for the Dubai Hills real estate project a few kilometers away. “The plant starts early, well before the sites!” And with outside temperatures already hovering around 40°C at 8 o’clock in the morning, there’s little chance of the asphalt cooling en route! On the site, road construction teams from Colas Middle East are already at work, sporting their personal protective equipment (PPE). In the summer, due to the extreme heat and the risks of dehydration, there is a complete ban on working outside between noon and 3 p.m. Throughout the day, employees must make sure they drink plenty of water – one of the golden safety rules at Colas Middle East. These principles are reiterated at the daily Safety Meeting.

A reactive company

Let’s move onto the Abu Dhabi Mafraq asphalt plant. Another Colas Middle East facility, different customers. “Here, we carry out numerous projects – lasting from 2 weeks to a maximum of 2 months – for customers who demand a considerable degree of reactivity”, explains Youssef Arja, Lebanese-born site foreman. “Furthermore, we’re also keen to offer customers the specialty products that the Colas Group is known for.”

Multiculturalism and expats

Meanwhile, back at the Shawkah quarry, it’s lunchtime. The canteen echoes to the sound of conversation and, despite differences of language and culture, sport is always a safe bet, especially when it comes to cricket! Indians, Pakistanis, Filipinos, French, British, Nepalese, etc.: the teams at Colas Middle East are truly multicultural. More than 25 nationalities live and work together in the various entities. “This diversity is Colas Middle East’s strength”, underlines Paul-Henri Aumont. “We are keen to ensure the comfort and well-being of our employees, most of whom are expats, separated from their families for eleven months at a time.” A stone’s throw from the current living quarters, new, more modern and more comfortable facilities are being built. “We conducted a complete audit of living and leisure conditions”, continues Paul-Henri Aumont. “We used the results to develop our own standards in a program called “Colas: we care”, which includes nutritional and lifestyle advice among other things.” An undertaking by Colas Middle East that has been welcomed by employees: “Management listens to us, motivates us and encourages us. Colas really looks after us.”

> Multiculturalism and expats
Administrative supervisors, operations managers, site supervisors, site foremen... they all do their jobs with enthusiasm and have decided to share their daily routine and projects with us.

With a career spanning 37 years and counting, François Hendrickx remains as passionate and energetic as ever about his work. Born in Balen, in the province of Antwerp, Belgium, he has a degree in topography and road construction. He has had a number of roles, including site supervisor and project manager at Colas Belgium. “In 2015, the company was reorganized into five independent profit centers. I was appointed manager of the Nord profit center in the province of Antwerp. We handle roadways throughout the Flemish municipality as well as development projects in the port, one of the biggest in Europe.” François Hendrickx devotes a considerable amount of his time to commercial and personnel management. “Today, the profit center boasts 175 employees, of which 140 skilled workers. Half of them joined us last year. One of my biggest challenges is to ensure their induction and training”. A keen music lover, we can rest assured that he will fulfil his conductor’s role with great mastery.
“My mobility has been very fluid”

ULYSSE HOUINSOU-HOUSSOU
ADMINISTRATIVE SUPERVISOR
SMAC
FRANCE

Having occupied three job positions in three different towns in the space of eight years, Ulysse Houinsou-Houssou is an employee on the move! Born in Nantes, he went to business school in Tours. In 2010, armed with a master’s degree in management and specializing in corporate finance, he took on the role of financial controller with Bouygues in Paris. Three years later, he asked for a move to northern France to be with his wife. This took Ulysse to Colas Nord-Picardie (later Colas Nord-Est) as an internal auditor. “I arrived at a time when three brands were merging: Colas, Sacer and Screg. My job was to conduct audits of the different units within the subsidiary and harmonize procedures.” It was also an opportunity for Ulysse to familiarize himself with the various aspects of the construction sector and understand how profit centers operate. “In 2016, I asked to move again.” This time, he headed for Smac’s Bordeaux profit center where he took on the role of administrative supervisor. “The mobility process has been very fluid, one of the advantages of being part of a big group. I’d also prepared well and was very clear about what I wanted: to work in a profit center, be hands-on and live in southwest France.” Mission accomplished!
When Stéphanie Minnebois and Isabelle Tanière submitted their applications for the 2017 ESTP* women’s awards, they shared the same objective: “to demonstrate that women could thrive in the construction business.” Honored as “Women Leaders”, they were singled out for their exemplary careers to date. They both worked for the Colas IDFN Montlhéry profit center and love to travel. But that’s where their stories begin to differ. Isabelle, who was in the ESTP class of 2001, gradually climbed up through the ranks: “I joined Colas as site supervisor before being appointed deputy operations manager, a role that is anything but routine. It suits me perfectly!” she enthuses. Stéphanie, who graduated in 1999, “thrives on new experiences, challenges and cross-functional projects, epitomizing (her) career to date.” Recruited as a pricing engineer, today she works for Colas Projects, Colas’ major projects subsidiary, managing the development of bids for major urban development and transport contracts. Two very different career paths, but a single message for young women: “Don’t be afraid of engineering and construction!”

*Specialist civil and road construction engineering school.
The day in 1993 that Alterrra joined Colas remains fresh in the memory of Péter Sebestény. It was on the very same day that he himself began his career with the Group. “I'd just spent a year in Paris completing my engineering degree at the École des Ponts et Chaussées, after several years of studies at Budapest University of Technology. I was hired shortly after”, he recalls. Now 49, Péter has just been appointed CEO of Colas Közlekedésépítő, a recently-created (2016) subsidiary of Colas Hungária specializing in major infrastructure projects (highways and engineering structures) in Hungary. “I’m happy with how far we’ve come. When the company decided to diversify, we started out with a single department dedicated to engineering structures. Then, in 2004, we secured a contract to build a section of the M5 Motorway. It marked the beginning of an exciting adventure that has established us as one of the benchmark players in the sector.” So what does he like most about his job? “Winning a new contract is always important but seeing a highway or a bridge gradually take shape is spectacular to watch and something I'll never tire of!”
I’m not afraid of new challenges.

YANNICK LANDORMY
SITE SUPERVISOR
COLAS NORD-EST
FRANCE

Inquisitive, self-taught, atypical by his own admission Yannick Landormy loves to stray off the beaten track. A specialist in drainage projects having spent 15 years in an SME based in the Vosges region of north-eastern France, he joined Colas Nord-Est in 2006 as a foreman. Site supervisor since 2010, he’s just added another string to his bow: asbestos removal from surface dressings, an activity developed by the Valantin profit center in Lunéville as part of the “New Momentum” project launched by Colas France. “The center’s probationary certification, obtained in January, allows us to tender for major asbestos removal projects. Be that as it may, while drainage and asbestos removal are two very different worlds, I’m not afraid of new challenges.” Trained alongside 12 skilled workers, Yannick has already carried out a number of projects with his teams. “The biggest? The planing of 300 tons of asphalt on the boulevard de l’Europe in Nancy. Between safety standards and administrative requirements, when it comes to removing asbestos, preparation and reporting take up a considerable amount of time. I’ve forged links with other Colas employees involved in developing the activity in France. We help each other; it’s very rewarding!”

ROUTES No. 39 – October 2017
Abilio Domingues
ASPHALT CREW WORKER
COLAS RHÔNE-ALPES AUVERGNE FRANCE

Restaurant work, masonry... after several years of trying his hand at different trades, Abilio Domingues finally settled on construction work as his chosen path. “Two of my uncles worked for Colas, so I decided to try my luck.” Hired in 2007 as an asphalt raker at the Grenoble agency of Colas Rhône-Alpes Auvergne, he worked on a wide variety of projects, from trenches to highways and driveways. In 2016, he spent two months at the Annecy profit center in the French Alps, and rediscovered the city that he had loved so much when he was a seasonal worker. Back in Grenoble, Abilio asked to be transferred to a smaller city to be closer to nature. “I wanted a change of scenery, to get away from the urban environment of Grenoble. Colas helped me by taking care of the move and assisting me in finding a new place to live.” Today, he has been part of the Annecy crew for more than a year. He concludes: “I am glad I was able to transfer so quickly within the Group.”
CHAHRAZAD OUKILI
TECHNICAL “TOUR DE FRANCE”
COLAS FRANCE FRANCE

There was nothing to suggest that Chahrazad, an engineering school student, would finish up in the construction sector… until, that is, she completed an internship in Canada working in a lab specializing in asphalt pavements. “I hadn’t considered a career in the roads sector when I was studying. And yet we use roads every day without thinking about how they’re made.” She decided to do her end-of-study internship at Colas’ Campus for Science and Techniques, working on fiberglass grids (Colgrill R). In 2016, she joined Colas and began an internal training program, the “technical Tour de France”. First stop: Colas Midi-Méditerranée, in the south of France, where she spent six months learning about asphalt mix formulations. She then moved on to Colas Rhône-Alpes Auvergne in the center of the country as a site technician based in Clermont-Ferrand. While there she took part in the Highway A71 project. In August 2017, she joined Colas Centre-Ouest in western France to be trained as a technical assistant. The opportunity to learn about cold techniques, after the visually-appealing mixes she worked on previously. “This ‘Tour de France’ is a really great opportunity. It’s a wonderful learning experience, allowing me to be trained in a variety of areas in a short space of time. You obviously have to be willing to move about! It also allows me to build up my network.”
“It runs in the family!”

PASCAL SENANGE
SUPERINTENDENT
CHRISTOPHE AND
SÉBASTIEN SENANGE
SITE FOREMEN
AXIMUM
FRANCE

The three Senange brothers work for Aximum’s Nord-Est profit center. Road marking is in their blood! Pascal, 52, got into the business at the age of 19 after a chance meeting. “I hitched a ride with someone who was looking for a seasonal worker. I gave it a shot, liked it and stayed!” Christophe, 50, joined the profit center in 2001, having spent fourteen years working in retail. “I was looking for a change of scenery. My brother had told me about the business and it sounded interesting. I started out as an assistant applicator, did some training and got promoted.” A year later, ex-barman Sébastien, 42, was hired for the same job and began climbing the ladder. “I love working outside, the independence and the variety of tasks, just like my brothers.” While they clearly get on very well, the three brothers admit that it isn’t always easy working together. “We all stick to our own job, because our methods are very different”, specifies Pascal. Still too young to be choosing a career, their children are already showing an interest and are very proud of what their fathers do. However, under pressure from their wives, the brothers follow a golden rule: absolutely no shop talk at dinner!
A father of two grown-up children and grandfather twice over, this hiking and DIY enthusiast holds dear the values of passing on expertise. Now retired, Dominique Duval can devote his full attention to his passions: motorbikes, cycling and his family. "But I'll miss my job and Colas. Don't forget I spent 30 years as a truck driver, twenty of which as a Skilled Worker!"
“Safely scaling the heights”

JEAN-MICHEL CARVALHO  
WELDER AND ROPE ACCESS TECHNICIAN  
TEAM LEADER  
SPAC  
FRANCE

Acrobatic worker, working at height operative, rope access technician… whatever you want to call him, these descriptions give a fair idea of what Jean-Michel Carvalho does at work! The 41-year-old skilled worker is a welder and rope access technician with Spac’s Gennevilliers profit center. After completing his military service, he was hired as an assistant plumber in 1996, later working as a plumber and then a welder. His speciality: working on pipes located on building façades. Although Jean-Michel sometimes uses baskets and scaffolding, most of the time he maneuvers across the front of the building using ropes, carrying out his welding operations dozens of meters above the ground. Local residents are always transfixed by the spectacle! It’s a painstaking and physically demanding job because, as well as the ropes, Jean-Michel has to carry his welding equipment, his leak detector, etc. “Each operation is different. The first job is to assess the condition of the building and any access difficulties and make sure everything is in place to be able to work safely. I always work with the same partner. When you’re suspended by ropes over a sheer drop, you have to really trust the person you’re working with.”
HR Strategy 2017-2020

“Let’s be ambassadors for our businesses and our corporate values to attract more talent”

To accompany the organizational and administrative transformations taking place at Colas, the Group’s Human Resources Department is setting out its HR strategy for the period 2017-2020, structured around four cornerstones: recruitment, skills management, career management, and health and well-being in the workplace.
The human resource strategy has been defined for the period 2017-2020. Can you explain its broad lines?

Philippe Tournier: Our strategy hinges around four objectives: to attract and retain more talent; to manage skills and the transmission of knowledge; to manage careers; to ensure health and well-being in the workplace. Led by Hervé Le Bouc and the Group’s general management team, the strategy is designed to enable us to anticipate and accompany the Group’s development in all its aspects – economic, social, societal and ethical – in order to support an objective of sustained long-term growth, while allowing our 55,000 employees to thrive professionally.

The first priority is to attract and retain talent...

Ph. T.: Absolutely. Activities across our businesses are gradually picking up and we need to recruit the men and women who will enable us to successfully carry out all our projects, both functional and operational. So we have to further boost the company’s appeal in order to recruit more applicants and reinforce our skills pool. We’re going to diversify our recruitment resources so we have access to a broader variety of profiles and bring in more interns.

How do you go about managing skills and encouraging transmission of know-how?

Ph. T.: The Group is going to launch a skill mapping program to better define our needs in terms of recruitment and training. We will be asking employees to carry out an assessment of their own skills, and those that need to be developed. This will then be used in their individual performance reviews as a basis for discussions with their line managers about career paths and training needs.

Skill mapping is a crucial tool to manage our employees’ careers, offer training programs in line with the evolution of our businesses, and above all perpetuate the Group’s expertise and know-how.

Why are individual annual reviews important for employees? And for the company?

Ph. T.: For employees, the annual review is an opportunity to take stock, to reflect on their missions, their objectives, their future and their professional and personal aspirations. It’s time set aside for a one-to-one discussion between the employee and his/her manager. As far as the company is concerned, it represents a fundamental career management tool. It allows us to evaluate knowledge and interpersonal skills, to develop individual support via training and mentoring, and to promote functional and geographic mobility. I have said it time and time again, annual reviews must be conducted, it’s the duty of the manager and the right of every employee. It’s also a legal requirement!

The fourth priority area concerns health and well-being in the workplace. How can these aspects be promoted within the Group?

Ph. T.: Safety is Colas’ number one value. We have to ensure that employees incorporate it into their day-to-day behavior, that they make it their own. Safety depends first and foremost on health. So we wanted to raise employees’ awareness of the importance of good health and the building blocks for it, the flagship theme for our 2017 Safety Week (read article p.58). Work organization methods will also be revisited with greater flexibility and options for remote working set out within a defined framework. These initiatives will make it possible to improve the quality of life at work and employees’ well-being. They will be measured and fine-tuned via the Colas&You survey, which will be repeated in 2018.
OUR HR COMMITMENTS

When drawing up the HR strategy for the period 2017-2020, a working group led by Bruno Trouche, Colas France HR Manager, and Frédéric Bourghelle, HR Manager at Colas Rhône-Alpes Auvergne, began by characterizing Colas’ employees in order to define appropriate HR commitments. These commitments should be disseminated and carried by each of us.

PROXIMITY AND TEAM SPIRIT:
• Let’s make sure our doors are open, let’s encourage dialogue
• Let’s cultivate solidarity and cohesion
• Let’s facilitate networking to increase collective expertise
• Let’s support employees by sharing knowledge

INNOVATION AND INITIATIVE:
• Let’s combine creativity and audacity to enable ideas to emerge
• Let’s express ourselves, let’s be a source of inspiration
• Let’s use our agility to seize opportunities
• Let’s encourage projects without worrying about breaking the mold

TRUST AND EXCELLENCE:
• Let’s maintain relations founded on reciprocal candor, fairness and respect
• Let’s encourage individual empowerment and autonomy to enable everyone to blossom
• Let’s target excellence for outstanding results!

SKILLS AND CAREER PATH
Individuals responsible for their own training

In early June, Colas Campus, the Group’s in-house training school, launched a digital training platform in order to accelerate skills development and increase staff employability. “Today, individual employees have a key role to play in managing their own training and reinforcing their skills. So we’re providing them with content in line with their expectations and the strategic requirements of the company”, explains Thierry Debien, training and skills development manager. This tool provides access to innovative learning approaches covering a range of themes (safety, office technology, BIM, ethics, management, etc.):
• e-learning: e-learning covers IT-based training methods;
• serious games: fun applications promoting learning via video games;
• MOOC: Massive Open Online Courses (online courses open to everyone);
• COOC: Corporate Open Online Courses (online courses produced by a company and open to all its employees).
This new training provision consists of modules that are available to employees freely or on request. The platform will be fully operational for subsidiaries in France and Europe in 2017 and across the rest of the Group in 2018.

Go to:
https://colascampus.elmg.net
DIVERSITY
The Gender Diversity ambassadors’ network is here!

“Gender diversity is a vector for attractiveness and performance”, explains Pascale Zurcher, head of diversity. “Female talent is essential to the Group as it tackles today’s recruitment challenges. Promoting gender diversity will give Colas an image that is more in line with customers’ expectations.”

A Gender Diversity plan has thus been initiated in 2017 to attract, recruit and retain more women, particularly in managerial roles. Launched in September 2017, the Gender Diversity ambassadors’ network represents a crucial link supporting initiatives conducted within the context of ties with higher education and the employer brand. The thirty or so employees in the network reflect the diversity of profiles and businesses within the Colas Group. Their mission? To embody the Group, become its representatives to attract new talent, because “who better than an employee to promote the Group by sharing his or her experiences and speaking about the reality of life at Colas?”

How? By taking part in two or three higher education initiatives per year (higher education forum, sports tournaments, inter-school challenges, business/engineering school evenings, etc.), incorporating the “Buzz Club”, an influence group to share content on the Group and create online emulation. “Because new talent can be conquered offline and online.”

JOB AND SKILLS MANAGEMENT
The individual review: a right and a duty

On December 16, 2016, Colas Group signed an agreement with its social partners relating to job, skills and career management. “The key words within it are anticipation, skills, individual review and mobility”, indicates Michel Gentil, social and human development manager. The agreement, covering all Colas companies in France, reiterates the legal requirement to organize individual reviews for all of the Group’s employees (every year for foremen, technicians, supervisors and managers, every two years for skilled workers). An essential component in the career management process, the individual review can lead to mobility within a subsidiary in France or around the world. At the beginning of the year, the Group significantly improved the mobility conditions for employees in France and the initiative could be extended to entities around the world.
Colas is pursuing its growth strategy targeting North America with the signature of a major acquisition agreement in Canada at the end of August. In the first half of the year, Colas also acquired assets in two companies, one in the USA and one in Canada. The deals are perfectly in line with Colas’ long-term development strategy in North America, where there are strong growth prospects given the major transport infrastructure and maintenance needs. In 2016, 23% of the Group’s total revenue came from North America.

Agreement to acquire the Miller McAsphalt Group in Canada
On August 30, 2017, Colas Canada signed an agreement for the acquisition of the Miller McAsphalt Group, a major player in the road works sector in Ontario and in bitumen distribution across Canada. Closing is slated for the beginning of 2018. Hervé Le Bouc, Colas Chairman and CEO, said: “This acquisition reaffirms our confidence in the Canadian economy. In becoming one of the leaders in a competitive and dynamic market, Colas is pursuing its development, bringing to the market its expertise and capacity for innovation.” And Louis Gabanna, Managing Director, Colas North America, continued: “Once closed, this acquisition will be a great opportunity for the employees of both groups to pool their knowledge and experience and to continue to safely deliver quality and excellence much to the satisfaction of customers across Canada.”

Two other acquisitions in North America
In the USA, Colas Inc., via its company Barrett Industries Corporation, has acquired all of the assets of the Graymont Materials Group in New York State. These assets, operating under the Upstone Materials brand, include several quarries, asphalt and concrete plants. The acquisition allows Barrett to reinforce its network in New York State and to position itself as one of the region’s leading suppliers of construction materials.

In Canada, Sintra Inc., Colas Canada’s Quebec-based subsidiary, has acquired the assets of La Compagnie Meloche Inc., which is active in the western region of Montreal. Meloche operates from two sites: one in Kirkland, on Montreal Island, and the other in Coteau-du-Lac, in Montérégie. The acquisition concerns a quarry, two asphalt plants, two concrete plants and a concrete post manufacturing facility. The company also carries out road works.
Exopush, a mechanical rake designed for applying mixes by hand, has been rolled out across road subsidiaries. The principle: the handle detects the user’s intention and amplifies it, enabling the user to push or pull up to 35 kg. Exopush’s leg deflects the effort to the ground, bypassing the user’s body.

Applying asphalt mix by hand on road pavement projects is physically demanding. Back in 2009, Colas began working to improve exoskeleton technologies with a view to designing a new support tool to help workers. The result is Exopush, a partial exoskeleton to help the operator spread the asphalt. “The design of each Exopush prototype is the fruit of the combined efforts of skilled workers, Colas experts and robotics engineers from RB3D,” explains Marc Maranzana, Open Innovation and Digital Manager at Colas. “Field tests have played a crucial role during the various research, modeling and design phases.” The benefits for the workers? Improved comfort and working conditions day-to-day and throughout their career. “The effort required by the user to carry out tasks is reduced, relieving strain on the parts of the body involved. Posture is also improved.” Simple to use, accurate and maneuverable, Exopush combines know-how with worker comfort. An exciting technological innovation!
To enable the Group’s entities to develop their BIM expertise, a series of online training episodes in a COOC (Corporate Open Online Course) along with other tools are available at www.bimbyco.com.

**BIM (Building Information Modeling) is a tool based on a collaborative digital model enabling information about a project to be shared between companies, customers and other stakeholders throughout its duration. Individual phases of a project are optimized, from design and preparation, through to implementation, maintenance and even demolition. Several bids requiring the use of BIM have already been secured within the Group, and the Pôle sanitaire de l’Ouest hospital center project, carried out by GTOI, Colas’ subsidiary on Reunion Island, won a silver BIM award in the category “new buildings of more than 40,000 m²”. “Today, BIM is more than just a choice; it represents the digital transformation of the construction businesses”, explains Maud Guizol, Colas BIM manager. “Tomorrow, if we want to remain competitive, we have to lead the way in the use of BIM. To do so, we have to transform our working methods, roll out BIM across the board as soon as possible and acclimatize the entire Group to a common foundation and a definition shared by everyone. This is what the BIMbyCO concept is about, bringing together all of Colas’ BIM tools and expertise.”**
A dedicated BIMbyCO unit

The roll-out of BIMbyCO is being led by the CIB (Colas Innovation Board), via the “digital project” theme, and Colas’ Campus for Science and Techniques. A unit made up of four employees has been set up to define the strategic priorities of BIM and the methods for rolling it out within the Group, draw up a body of BIM processes and standards and, lastly, manage a network of BIM Officers. “To do this, the BIMbyCO unit is supported by a considerable pool of research and development expertise”, continues Maud Guizol. “We’re constantly seeking to innovate, focusing, in particular, on the field of interoperability and permanent technological intelligence activities.”

A comprehensive range of services is also provided: technical support for the Group’s entities, giving them access to BIM expertise to help them carry out their projects; solution integration (for example, the drawing up of the BIM execution plan, the definition of a set of interoperability processes and solutions); the production of projects in the fields of modeling, coordination, BIM management and the operation of the digital model.

BIM experts

A network of more than 25 “BIM Officers” has been set up in France and around the world by territory, by subsidiary in France and by specific business or sector (Colas Rail, Smac, Colas Projects, Aximum, Spac, RH, Training, etc.). “BIM Officers” are the BIMbyCO contacts responsible for supporting subsidiaries through this transition. They ensure the effective implementation of BIM across their territory or in their entities, identify potential BIM themes or projects and communicate information to the BIMbyCO unit to meet needs and define an action plan. “BIM Officers” also take part in technological intelligence and benchmarking activities.

Rolling out tools

For the purposes of BIMbyCO, training tools and solutions have been developed to enable the Group’s entities to get up to speed on BIM. Since September 2017, tools have been available at www.bimbyco.com, supported by a COOC (Corporate Open Online Course) including a series of online training episodes. On the menu:

- an educational guide called #BIM (or “BIM for dummies”) explaining all there is to know about BIM (definition, challenges, potential, political context, standards, etc.);
- “Execut’BIM”, the BIM execution plan or technical clause specifications, drawn up by and for Colas;
- “BIM Book Colas”, a catalogue of Colas projects carried out using BIM to promote the Group’s expertise internally and externally;
- “BIM Box Colas”, Colas’ BIM tool box, bringing together objects, templates, modeling protocols, etc.

BIMbyCO reflects the depth of Colas’ expertise and the capacity of its teams to adapt to and anticipate the digital transformation.
The Compulsory Wearing of PPE*

**JOB SITES, QUARRIES AND INDUSTRIES**
- Protective hard hat
- Ear protection
- High-visibility full-body work clothing
- Protective gloves
- Sturdy safety boots

**WORKSHOPS**
- Safety hat
- Protective glasses
- Ear protection
- Full-body work clothing
- Protective gloves
- Sturdy safety boots

Colas’ safety policy in three questions

Safety is Colas’ core value. Following the 5th Safety Week, which took place from June 26 to June 30, we take another look at the Group’s safety policy, with Philippe Simarik, Workplace Prevention, Health and Safety manager.

Could you briefly explain the Group’s safety policy?
**Philippe Simarik:** At Colas, people have always been central to safety efforts. In order to make further progress in our zero accident, in 2016 we decided to give it fresh momentum via a new Group safety policy. The policy hinges around four priorities: compliance with rules, training and information, the design of projects and processes within a framework of safety and the verification of initiatives implemented. Each year an action plan is defined that is applied across the company for everyone. In 2017, for example, in addition to the compulsory wearing of PPE*, we have introduced the compulsory wearing of safety belts on all machinery. We’re also rolling out a safety culture training program for all new employees in France (see box p.59). Our ambition is clear: to become the industry reference when it comes to safety.

Why was the theme of “Health and Well-Being” chosen for Safety Week in 2017?
**Ph. S.:** Being physically fit is an effective way of avoiding all sorts of accidents. In choosing the theme of health and well-being, we wanted to raise employees’ awareness of the need to look after their health and give them tips to improve it. Across all sites, employees were able to test their fitness through simple, fun exercises focusing on balance, breathing and heart rate, strength, flexibility and sleep. Let’s not forget that, at Colas, 15% of accidents are due to tripping and the same number due to back pain! The initiative was widely welcomed since health is a topic that affects everyone.
What are the results in terms of safety?

Ph. S.: They’re improving year to year. In the space of fifteen years, the Group has seen the number of accidents halved and in 2016 Colas recorded its best ever safety results. Standards are gradually being put into place. But, more importantly, attitudes are changing. Safety is now central to everything we do and it is clearly established as our number one value. We must now continue our efforts to roll out a genuine safety culture across the Group and reinforce the sharing of good practices. Working safely is also a question of professionalism. Innovation and new technologies, such as virtual reality training and Exopush (read article p.55), will also help us.

Focus on road safety

In 2016, the road safety charter, first signed with the public authorities in France in 1997 and renewed every four years since, was renewed once again. Colas is not relaxing its efforts: every year, prevention and road safety awareness workshops are organized in the different entities. The objective: to improve behavior at the wheel. Together with other initiatives, over the past twenty years, they have led to a 70% reduction in the frequency of road accidents involving one of the Group’s vehicles in France. “Half of all road accidents today involve the vehicle either just in front of or just behind the vehicle being driven. To protect our own lives and those of other road users, let’s switch off our mobile phones before driving and increase the distances between us and other vehicles. Drivers, passengers, motor-cyclists and pedestrians will appreciate the additional ‘no contact’ braking distance, in the event of a sudden deceleration…,” concludes Jean-Yves Bignon, Colas Group Risks and Insurance manager.

"Safety for new employees" induction training program

“In France, the figures speak for themselves: 60% of accidents involve employees who have been with the company for less than two years”, explains Luc Nogrix, the Group’s Technical and Business Line Training manager. “So the prevention and training departments decided to set up a safety training program for all new recruits, irrespective of their job, qualifications or subsidiary.” The objective: to make sure they know and understand the Group’s health and safety rules and policy in order to reduce the number of hazardous situations, and hence the number of accidents. Called “Safety for new employees”, this day-long module comprises theory and practice and makes use of new learning technologies (digital tablets and interactive software, virtual reality, etc.). On the agenda: familiarization with risks related to Colas’ businesses and with the job site environment, focusing on the practical (lifting loads, risks of being hit by a machine, risks associated with using small tools). Aimed at a broad audience – around 3,000 employees per year – the training module has been rolled out across 23 sites in France.

* Personal protective equipment.
Since its creation, in 2014, the Colas European University has welcomed more than 100 participants from three continents who have been able to share their experience and reinforce their network within the Group.

In the classroom at the Colas European University

Created in 2014 by the Northern Europe and Central Europe departments with the support of the Group’s Training department, the Colas European University is an English-language “university without walls” aimed at managers. Today it is open to managers from the International General Management division (excluding North America), Aximum and Colas Rail. From 2014 to 2017, some 123 participants, representing three continents and 20 nationalities, have been able to share their experiences and reinforce their network within the Group, having attended the two training programs: “Management and leadership in a rapidly-evolving world” and “Project and Contract Management.”

“This initiative represents an extraordinary platform for interaction, the comparison of ideas and methods and cultural exchange, giving those attending an insight into the diversity and wealth of the Group as well as the values uniting us, such as humility, team spirit, solidarity, raising the bar… and conviviality!” underlines Patrick Pujalte, Human Resources Manager, Central Europe. Three years down the line, the training delivered with its forward-looking, international focus, is held in high regard by those taking part.
Colas Sud-Ouest’s Limoges profit center has designed a mix incorporating porcelain aggregates, produced from waste recovered from porcelain factories in the region.

A circular economy success story

Breaking away from the traditional model, the circular economy operates in a “loop”: waste is recovered and processed to be turned into a reusable raw material. This responsible approach guided the design of an asphalt mix incorporating porcelain aggregates by Colas Sud-Ouest’s Limoges profit center. Through a partnership with a number of porcelain factories, the company recovered some scrap to be incorporated in a hot mix containing 30% porcelain. This enabled it to respond to a call for bids issued by the city of Limoges, which was seeking a clear, reflective – hence safer – surfacing solution for a 400 m² raised intersection. A promising project, leading to a second similar one currently under way in a neighboring district. “The porcelain-based mix represents just a tiny part of the activity at our Condat recycling platform, i.e. 300 tons out of a total of 80,000 tons of materials”, says Jacques Senant, profit center manager. “But it symbolizes our ambition to achieve zero waste by recycling everything that can be recycled… Today, it’s an absolute must.”
Sailing challenges, soccer tournaments, rugby tournaments... sports have always been an important part of life in the Group. In 2017, Colas has innovated, launching its first international sports event, called the Colas Team Cup. “I wanted to rally, bring together and mobilize the Group’s 55,000 employees around a global event that would add value to Colas and be centered around the values of going beyond one’s own limits, team spirit, conviviality and solidarity”, explains Hervé Le Bouc, Chairman and CEO.

An international competition
This competition consists of two sports: five-a-side soccer and running. Once participants have signed up online at www.colasteamcup.com, local selections take place until November 11, 2017. The international finals will be held in Paris on February 7 and 8, 2018. The objective is to get as many employees as possible involved in this event, as athletes, supporters or coordinators.

Sporting performance and digital presence
One of the specific features of the competition is its point rating system, incorporating both the sporting performance and the “digital presence” of the athletes on the Colas Team Cup website and Instagram. Employees or anybody from outside the
Colas Group can encourage a participant or team via the website and help them increase their total number of points. On Instagram, each participant or team can publish a photo linked to the Colas Team Cup on their account by adding hashtag #colasteamcup.

Go to www.colasteamcup.com on November 20, 2017 to discover the athletes and teams who have qualified for the international finals.

“The Colas Team Cup promotes cross-functional communication. Through sport and team interaction, employees forge links and build up networks that will help them work better together thereafter.”

Hervé Le Bouc, Chairman and CEO, Colas

Colas Group can encourage a participant or team via the website and help them increase their total number of points. On Instagram, each participant or team can publish a photo linked to the Colas Team Cup on their account by adding hashtag #colasteamcup.

Go to www.colasteamcup.com on November 20, 2017 to discover the athletes and teams who have qualified for the international finals.
Inauguration, awards, induction days...
Some images of the Group’s events, in France and around the world.

FIRST STONE
At the beginning of June, the first stone of the future head office of Colas SA was laid in the presence of Martin Bouygues, Chairman and CEO of the Bouygues Group (1st on right), Hervé Le Bouc, Chairman and CEO of Colas (center), François Berthière, Chairman of Bouygues Immobilier (1st on left), André Santini, Mayor of Issy-les-Moulineaux and French Deputy (2nd on right) and Christian de Portzamparc, project architect (2nd on left). The building is slated for completion at the end of April 2018.
COLAS INDUCTION DAY
For the first time ever, the 300 employees at Colas Polska in Poland came together for an induction day hinged on several themes: competition, cohesion, expertise, trust and communication. Sports events were held (field hockey, soccer, etc.).

INAUGURATION
Colas Midi-Méditerranée (CMM) inaugurated its new head office in Aix-en-Provence, in the presence of Hervé Le Bouc, Chairman and CEO of Colas (left), Thierry Méline, Managing Director, France (center), and Pascal Trouf, Chairman of CMM (right). The site hosts some 100 employees. Urbalith® (ecological surfacing solution containing aqua-binders) was used for the external surfaces while Compaxem (a mix made from hydraulic binder) was used for the roadways surrounding the building.
DIVERSITY COMMITMENT
On April 20, Hervé Le Bouc, Chairman and CEO of Colas, Thierry Méline, Managing Director, France, and the chairmen of Colas’ ten subsidiaries in France signed the Diversity Charter, highlighting the Group’s commitment to non-discrimination and equal job opportunities. Four priority areas were defined: gender equality, disability, insertion and age management.

BIM IN THE SPOTLIGHT
At the Films & Companies Festival, organized in La Baule back in June, Colas won the “Best Presentation” award for the BIM film, which was handed over to Madgalena Dulac, head of the Video and Film library at Colas. (BIM: Building Information Technology)
In March and April, 121 graduates, recently hired by Colas subsidiaries in France and around the world, attended induction days held at the Group’s head office in Boulogne. It was an opportunity for the intake of 2017, dubbed the Tangier class in tribute to the Tangier-Kenitra high-speed rail project carried out by Colas Rail in Morocco, to meet the Group’s management team and discuss Colas’ current challenges.

HAPPY AT WORK
Colas is placed 3rd in the “Happy at work” rankings of companies that are considered to be the best places to begin a career. The award was handed over to Benjamin Devos, head of recruitment and integration, and Cyrielle Sabrou, head of school relations and recruitment.
Colas Circle
Zahia Ziouani
“A conductor needs to combine authority, confidence, high expectations, and a certain degree of flexibility.”

Colas Life
“On the road to school”
Back to France

Colas Foundation
Heidi Wood
“Whether I travel it or not, the road plays a central role in my work.”
In June, Zahia Ziouani, conductor and musical director of the Divertimento orchestra, recounted the story of her musical background and commitments at Colas Circle. The unique and rich journey of a true music lover.

What led you to become a conductor? Zahia Ziouani: I grew up in the Paris suburb of Pantin in a Franco-Algerian household. At home, we listened to lots of classical music. I studied at the Pantin Conservatory of Music, starting with the guitar and then the viola in a chamber orchestra. I then discovered the reams of sheet music in the library and was particularly fascinated by the most complex scores, aimed at conductors. Later, during a summer course, I was lucky enough to be noticed by one of the assistants of the conducting maestro Celibidache and invited to join his conducting classes for 18 months. It was then that I began to express my ambition to become a conductor myself. Some people tried to put me off, suggesting that it was a man’s job, and only accessible in the second half of your career. But others encouraged me to continue and I never stopped believing it was possible. It was my secret dream that I just had to make come true.

At just 20 years old, you became a conductor, but one without an orchestra… Z. Z.: Nobody had heard of me, I had no experience and I was a woman. Who was going to ask me to conduct their orchestra? So the best thing to do was create my own. Which I did in 1998 with the Divertimento symphonic orchestra. At that point, I was teaching music in conservatories in Seine-Saint-Denis and Paris. All my pupils were passionate about music but they came from very divergent social and cultural
backgrounds, with each of them staying in their own little “bubble”. I wanted to bring these young musicians together within an artistic and human project, to evolve towards a more open musical environment, to transform the image of classical music – deemed to be old-fashioned – and to use it to reflect the social and cultural diversity of French society today.

Is it difficult to be a woman in what's often seen as a man's job?
Z. Z.: It's true that musicians demand more of a woman. When a conductor begins to flag a little after working on a piece for several days, the musicians are generally pretty forgiving. I've been in the business for twenty years now and from experience know that no orchestra other than my own will be so forgiving. My first steps when I get up on stage, the way I address the orchestra, how I salute the first violinist… everything I do is watched, scrutinized and judged! Today there are more women conductors than in the past. However, the emblematic figure of authority in an orchestra is the conductor. And it's not always easy for a woman to fill these shoes.

How would you describe your role as conductor?
Z. Z.: An orchestra is like a company, made up of tall people, short people, shy people, introverts, extroverts, etc. The conductor stands out front, at the podium. He or she unites and directs dozens of musicians, all with their own unique personalities and musical sensitivities. He or she coordinates, sets the pace, manages sound imbalances on the basis of each individual's positions and the acoustics of the venue. With his or her eyes, breathing and gestures. The conductor issues musical instructions but, above all, he or she manages a group. A conductor needs authority, to inspire confidence, to demand the very highest standards down to the last detail, but also to know how to release pressure when fatigue sets in. The job is simultaneously highly technical and very human.

What is your personal approach to managing your orchestra?
Z. Z.: Firstly with a constantly changing and interesting program so that the musicians can take on the challenge of new pieces. And then by developing a team spirit, with the musicians participating in the orchestra's strategic reflection process. They are not all involved to the same degree in the global project vision. But, it's important to draw people out of their own personal bubble so that they can understand the challenges of the project, the difficulties encountered, our weakness and our strengths. I'm still the conductor and musical director, so sometimes I take decisions that aren't shared by everyone… but that's my role. I need to be able to combine high standards – sometimes authority – with a certain degree of flexibility.

Ten years after creating the Divertimento orchestra, you founded the Divertimento academy. Why?
Z. Z.: If we want to have a diversified audience in the future, it's important to reach out to young people from less privileged backgrounds. We have run awareness-raising initiatives with these youngsters to familiarize them with the orchestra, the instruments, the repertoire and the artists. Discovering music is great… but really experiencing it and bringing it to life by learning to play an instrument is even better. At the academy, we've set up a variety of mechanisms to facilitate music learning, help more advanced youngsters progress and offer a first professional experience to skilled musicians. The fact is that many of these young people have lots of potential but don't have the contacts to join an orchestra. All this costs money and takes time. We're supported by a variety of bodies – the national education authority, local authorities, businesses – to turn this fine project – of significant artistic and educational significance – into a reality.

BIOGRAPHY
After studying at the Pantin Conservatory of Music, in a northern suburb of Paris, Zahia Ziouani trained in orchestra conducting with the celebrated maestro Sergiù Celibidache. She is regularly invited to conduct orchestras on some of France's most prestigious stages, and beyond. Between 2007 and 2012, she was the first guest conductor of Algeria's national orchestra. In 1998, she created the symphonic orchestra Divertimento, which brings together 70 musicians from a broad diversity of backgrounds. Ten years later, in 2008, she created the Divertimento academy. She has written a book – La chef d'orchestre published by Anne Carrière – retracing her story and the obstacles she has overcome to make her childhood dream come true.
Croatia, the USA, Morocco, France, Togo, Vietnam: since 2010, as part of its “On the Road to School” solidarity sponsorship program, Colas has supported six projects aimed at facilitating access to education for children in countries where the Group is present. In 2017, the program has returned to France for a new mission to facilitate the reintegration of minors under the protection of the State.
In Port-Vendres, in southwestern France, the Reinforced Education Center (CER) looks after 12 minors who have been sent there by the French juvenile justice under legal protection (PJJ) authority as an alternative to a custodial sentence. Managed by the Pyrénées-Orientales Regional Association of Public Education Pupils (ADPEP 66), the CER has launched an original project that Colas has got involved with as part of its “On the Road to School” initiative. The two-year partnership agreement was signed on June 22. “The mission objective is to help teenagers from deprived backgrounds back to school, via the restoration of an old sailing ship”, explains Joan Reynier, Colas employee and sponsor of this 7th mission. Manager of the Roussillon Aggregates quarry (Colas Midi-Méditerranée), in Thuir in the eastern Pyrenees, and father of two children, aged 8 and 12, Joan will be closely monitoring the progress of a project that is unusual both in terms of the profile of the beneficiaries and the partners involved.

Bringing Lo Gaudi back to life

Lo Gaudi is a traditional longline fishing vessel. To bring it back to life, the ADPEP 66 approached the Paulilles boat restoration workshop, managed by the Pyrénées-Orientales council. The site, a landmark in the region, represents the memory of local maritime culture. Supervised by an instructor from the center and supported by professionals, it is here that the youngsters are working to bring the vessel back to life. As far as Dominique Vidal, head of department at CER, is concerned, Lo Gaudi is a godsend. “Through this project the young people can build, plan, do something useful and benefit from the expertise of skilled craftsmen.” Two teenagers are already spending one afternoon per week on deck. “We began by removing everything that wasn’t required on the boat so that we could get cracking on the restoration work”, explains Jérémy Thiel, a shipwright at the workshop. The technical approach adopted at the workshop is backed up by time in the classroom, led by Laure Montalno, a teacher working with the young people under the CER. “This project is a tremendous educational platform. While here, the youngsters learn how to use tools such as a compass and templates. Geometry or life at sea: I consolidate the teaching in the classroom, linking everything back to the project.”

Paving the way for a return to education

As well as the boat restoration, the purpose of the mission is to get the youngsters motivated to learn again to get them back into an educational environment. “By encouraging the young people to re-embark learning, they should then be able to consider training for a particular trade, which may or may not be relating to wood and the sea”, confirms Alexandre Le Boulch, manager of the Childhood and Youth Protection Unit at ADPEP66. And, for Samuel Villevieille, the workshop’s manager, the project seems to be paying off. “The youngsters appear to be focused. It’s great to see that we’ve got them interested in something we’re really passionate about. It doesn’t matter that it may not be something they want to do in the future”, he enthuses. Through the values of the maritime environment developed by CER, the objective is also to help these teenagers, many of whom have no real roots, develop a feeling of belonging to a collective project. “It’s not necessarily what I want to do later on but this experience has forced me to reach out to people, to come out of my bubble”, says Melvin, one of the participants. “In a way it’s helping me back into society. My mother can see that I’m making an effort and growing up. It’s a relief for her as well.” Once the longline fishing vessel has been fully restored, there’s no way it will be staying in dry dock! “In addition to CER, ADPEP 66 manages some thirty establishments, retirement homes and leisure centers”, explains Alexandre Le Boulch. “Lo Gaudi will be used by some of the other children at the association, particularly those suffering from a disability. Accompanied by their teaching staff, they will go out on sailing and fishing trips. This is intended as a long-term project.”

routes No. 39 – October 2017
Heidi Wood

“Whether I travel it or not, the road plays a central role in my work.”

How did you approach the Colas Foundation commission?
Heidi Wood: The commission is a familiar exercise because I always work from a given context, and if the constraints don’t exist, I create them. For any painting, I determine a site that has been decommissioned; such as a brownfield site or a suburban area, for instance, I immerse myself in the atmosphere and build up a repertoire of pictograms that I can then use in paintings. So I’m creating a sort of off-the-wall advertising, for places no tourist would ever think of visiting.

What is the role of the road in your work?
H. W.: Traveling is an essential part of my work. I’m invited to art centers all over the place... and travel with the budget airlines. Sometimes I take the car, but I prefer to take the bus. Whether I travel it or not, the road plays a central role in my work, particularly in the way I use road signs.

How did you choose to illustrate the road theme in your Streetscape painting?
H. W.: I depicted buildings in a suburban area with a road in front of them. The line of buildings is interrupted by breaks created by balconies and floors. They’re the sort of apartment blocks you see in every town. I paint on fabrics to create a contrast with the architectural rigidity. You can see the movements of the fabric. They evoke the domestic intimacy of these apparently alienating buildings, perceived as bars over people’s lives. On the ground, violet stripes represent the white lines of the road, with a notion of connection between places and travel.