



INEOS

TOUR DE FORCE

2019 REVIEW

INEOS eyes long-term vision
and **gears up for the future**

Team INEOS leads the pack



Image: David East

HISTORY IN THE MAKING

After 20 years establishing itself as one of the world's leading chemical companies, INEOS continues to grow

The rapid growth of INEOS these past few decades has been characterised by shrewd investments and great timing.

Whether acquiring businesses or transforming ageing plants into market-leading assets, this winning formula has helped create one of the world's leading manufacturers.

INEOS is now embarking on another exciting period in the company's history, says Director of Corporate Affairs, Tom Crotty.

"All the success we've had to date has been through acquisitions and now we're moving into a phase where we're growing through investment," he says.

"The ability to make sensible acquisitions, particularly in petrochemicals, has become extremely limited over the last few years because we've been at top of cycle and therefore, we believe asset values are priced too high. For INEOS, it now makes far more sense to build our own assets rather than to buy them. Why would you pay more for a used car rather than for a new one? This is a huge step

Sites such as Grangemouth are seeing investment



"We've never been a company that looks over our shoulders or at our competitors. We do what we think is right for our business"

Tom Crotty,
Director of
Corporate Affairs,
INEOS

change for us."

That is not to say the company is not making strategic purchases where appropriate, he says. Indeed, it recently expanded its portfolio with the addition of Ashland's composites business, Flint Hills' chemical intermediates segment, as well as the titanium dioxide business from Tronox. INEOS Styrolution has also bought two polystyrene plants in China.

"Moving forward, we will still be making acquisitions where it makes sense but we'll be looking more at new builds too. Our scale is such that we could arguably rest on our laurels but that's just not our style – we want to invest and grow," he says.

"We think this is now a critical point for the industry, particularly in Europe, because the asset base is aging and unless we address that, we'll have trouble in the next 10 years. We want to stay ahead by investing in the best available technology."

INEOS's response was to announce a €2.7bn commitment to build a new petrochemical complex

in Europe, including the region's first cracker for over two decades, marking its biggest-ever capital expenditure on a single project.

"This is exactly the sort of investment the European petrochemical industry desperately needs. It simply cannot continue to run on 50-year-old assets," says Crotty. "Industries that don't renew themselves eventually wither."

"We believe what we're building in Antwerp will be the most competitive cracker complex in the world and as good as anything in the US or the Middle East. This is essential for the future of European petrochemicals."

A further £1bn is also being spent in the UK to revitalise core assets, he adds. Half the budget has been set aside to upgrade the Forties Pipeline System to extend its life. Another £350m has been allocated for a state-of-the-art steam and power plant in Grangemouth, with the remainder heading to Hull to fund a 300,000 tonne/year vinyl acetate monomer facility.

"We've some important assets in the UK and these are well worth nurturing too. This investment will breathe new life into them," he notes. "We've never been a company that looks over our shoulders or at our competitors. We do what we think is right for our business."

In June, INEOS reached another major milestone by unveiling a \$2bn plan to make its first foray into the Middle East with the construction of three world-scale plants.

However, it is not just in petrochemicals where INEOS is breaking new ground.

Recent years have seen it add a clothing brand, improve fitness in schools, start a business to build a 4x4 off-road vehicle and launch a bid to win the elusive America's Cup.

More recently, it has bought French football club OGC Nice, won the Tour de France as Team INEOS and supported running legend Eliud Kipchoge as he attempts to run a marathon in under two hours.

Whatever the challenge, it all comes down to teamwork, grit and single-mindedness – and everyone involved shares the same resolute determination to succeed, notes Crotty. For INEOS, he says, absolutely nothing is impossible.

By Andy Brice

Too good to go to waste

Concerns about sustainability and the environment have put plastic in the spotlight

The positive effect plastic has on our everyday lives is undeniable yet it has been hitting the headlines for all the wrong reasons over the past few years.

As one of the world's leading plastics producers, INEOS is committed to changing this perception. Whatever its form and function, whether pellet, pipe or packaging, it has pledged to lead the industry in addressing this challenge.

INEOS Olefins & Polymers, INOVYN and INEOS Styrolution may deal with markedly different products, customers and technologies, but they are all equally committed to finding more sustainable solutions.

A prolonged campaign to ban polyvinyl chloride (PVC) by Greenpeace in the 1990s means INEOS is certainly no stranger to dealing with mounting environmental pressure, notes Chris Tane, CEO of INOVYN.

At the time, the industry responded with the launch of the Vinyl 2010 initiative to help improve PVC's environmental footprint. INOVYN is now a leading proponent of its successor, VinylPlus. The industry in Europe has since recycled some 4m tonnes of PVC, with 750,000 tonnes expected this year alone.

"Back then, the idea of recycling plastics was a big novelty and was certainly ground breaking," says Tane. "This was a new challenge that we needed to respond to. Instead of simply being defensive we came up

with a positive solution."

INEOS has built on this experience, he says, and is now also a supporter of industry-wide initiatives such as Plastics 2030 – which looks to recycle or reuse 60% of plastics packaging by the end of the next decade, and Operation Clean Sweep that aims to prevent plastic pellets, flakes and powders escaping into our waterways.

It has pledged to meet its own ambitious targets by 2025 too. INEOS has already ensured all of its plastics are recyclable. It also wants to include at least 325,000 tonnes/year of recycled material in its products, to use 30% recycled content in its polystyrene (PS) used for packaging in Europe, and at least 50% for polyolefin-based packaging. It also believes it can help deliver 900,000 tonnes/year of recycled PVC through the VinylPlus scheme.

"The need to develop a circular economy is well recognised and making headlines around the world. At the heart of this drive is the principle of conservation and efficient use of raw materials. This principle goes to the heart of all that we try to do in the business," adds Rob Ingram, CEO of INEOS O&P.

Over the past year, INEOS has formed several key partnerships with waste recovery and treatment companies. Its efforts in mechanical recycling are also paying dividends, while the ultimate goal of chemical recycling and depolymerisation is also now within reach.

Ingram says the O&P business is planning to launch a range of polyolefins by the end of the year that are 50% recycled content and 50% virgin polymer. Advanced testing with customers has so far met with a positive response.

Styrolution has achieved some significant milestones this year



"There's really no reason why we should landfill plastics or throw them away so they end up in the ocean. Plastics are a valuable resource"

Kevin McQuade,
CEO, INEOS
Styrolution

too. The business has successfully produced virgin PS from depolymerised styrene monomer in the laboratory – a first for the industry. Hailed as a potential game changer, this paves the way for commercial production within the next 18-24 months, adds CEO Kevin McQuade.

It also recently announced a collaboration with waste management company Indaver that will capitalise on the Belgium firm's Plastics2Chemicals programme. This aims to find a safe and sustainable recycling process for post-consumer plastics and includes the development of a 15,000 tonne/year demo plant in Antwerp by early 2021.

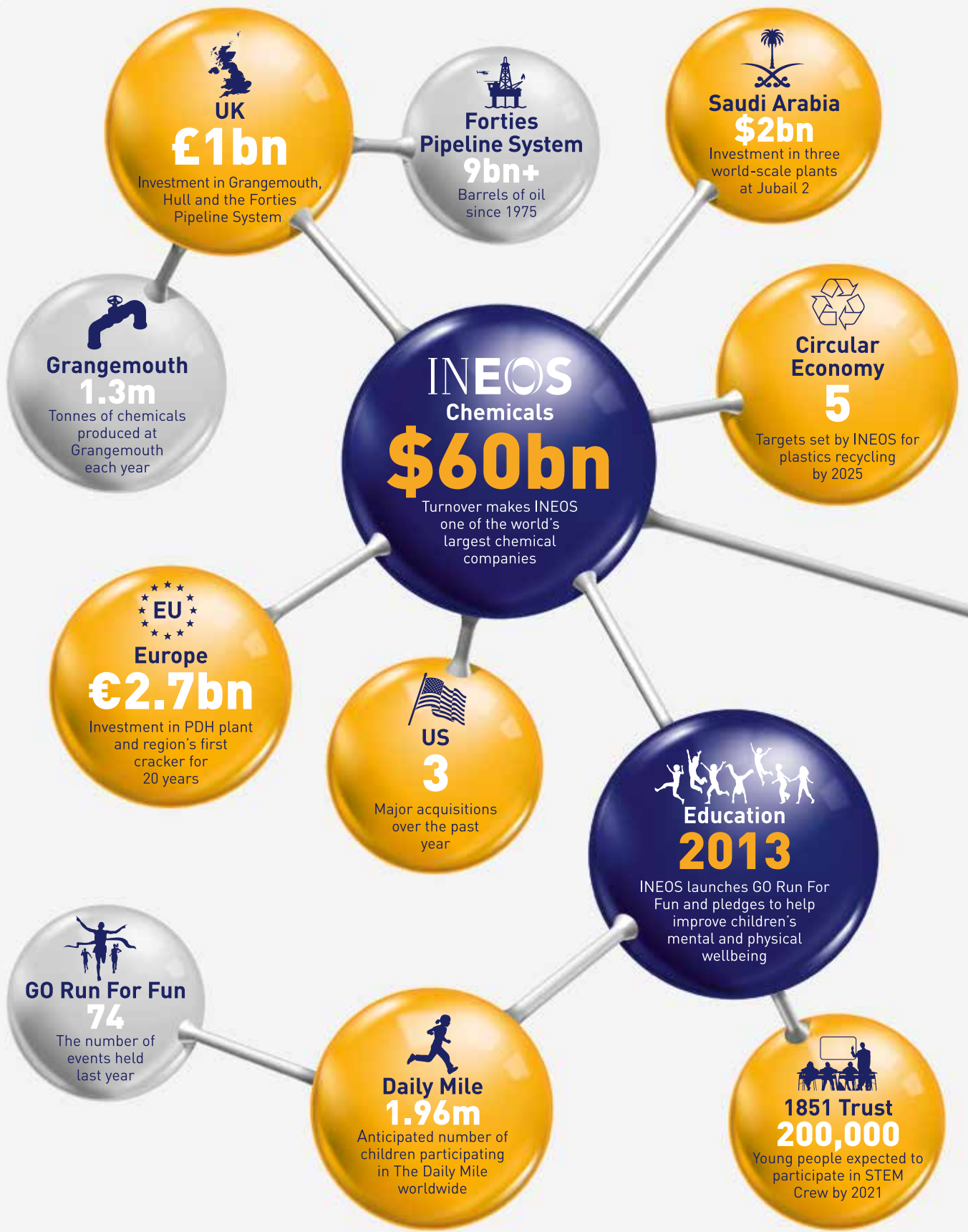
Another partnership with Canada-based clean technology company GreenMantra will harness proprietary catalytic depolymerisation technology to convert waste PS into a low molecular weight PS and recycled styrene monomer that will feed into Styrolution's production process.

McQuade says it is also working closely with US-based Agilyx on a commercial scale PS recycling plant in Europe, as part of a joint industry initiative – Styrenics Circular Solutions. This will process up to 50 tonnes/day of post-consumer PS feedstock.

"Most people used to look at recycled materials as an inferior and cheaper alternative to virgin material but now they're seeing them as an integral part of the solution," he says. There's really no reason why we should landfill plastics or throw them away so they end up in the ocean. Plastics are a valuable resource."

By Andy Brice

Showing the value of plastic waste will stop it heading into the oceans or landfill



THE RIGHT CHEMISTRY

INEOS goes from strength to strength

After 20 years of investment and innovation, INEOS has not only become a major manufacturer of chemicals and oil products, but a company committed to the circular economy, tackling plastic waste, applying best practice and ensuring the well-being and potential of future generations.

Through new technologies, processes and partnerships, INEOS has grown exponentially, acquiring unloved businesses, building

world scale facilities and rejuvenating existing assets.

It has made bold moves beyond its conventional markets in recent years, breaking into the automotive sector, leading major sports teams and encouraging young talent to fulfil their potential.

INEOS's conviction, commitment and strong team ethic has proven a winning formula and remains the cornerstone of its strategy moving forward.



Football
1904
OGC Nice was formed. It was a founding member of the French first division



Sport
2017
The year INEOS made its first major sporting acquisition with Swiss football team Lausanne-Sport



1:59 Challenge
40,000
Approximate steps Eliud Kipchoge will make while attempting to run a marathon in 1hr 59mins



Sailing
INEOS TEAM UK
168
Years since the first America's Cup event. INEOS wants to help Britain to its first-ever win



Cycling
Team INEOS
16
Number of wins since INEOS took over, including the Tour de France (from 1 May - 1 Sept)



Belstaff
1924
Year the iconic clothing brand was founded



Projekt Grenadier
25,000
Vehicles to be produced each year

Back to The future

INEOS is undertaking a massive expansion programme in Europe, driven primarily by the need for a dependable and sustainable supply of feedstock



The Antwerp site in Belgium has been chosen for the new cracker

Antwerp is where it all began for INEOS. Chairman Sir Jim Ratcliffe originally co-founded INEOS when he bought INSPEC's Belgian site in 1998. Fast forward 20 years and INEOS has returned to its roots with a €2.7bn investment at Lillo within the Port of Antwerp – its largest ever – to build a propane dehydrogenation (PDH) unit plus an ethane gas cracker, dubbed Project One.

INEOS looked at several sites across Europe – both new and existing – but Antwerp tipped the scales, says Rob Ingram, CEO of INEOS Olefins & Polymers. “We have a number of assets in the port area and the critical mass to develop a major project. We also have direct pipeline access to a large number of ethylene and propylene consuming units.”

John McNally, CEO of Project One, adds that the decision also reflects the company's long-standing relationships with both the port as well as local, regional and national governments. The project is in the early phase and INEOS is currently performing front end engineering design work and applying for permits.

Current plans are for the PDH unit, which will use McDermott's Lummus Catofin technology and produce 750,000 tonnes/year of polymer-grade propylene, to go on stream in 2023 and for the cracker to follow in 2024, although McNally says start-up dates are “fluid”.

“Project One is our first big foray into major capital investment,” says McNally, explaining that INEOS has had a change in mindset from its previous strategy of buying unloved assets and turning them around.



“We want to see a renewal [of assets] in Europe”

John McNally,
CEO of Project One

The price of acquisition, he says, has become quite expensive now, at 9 or 10 times EBITDA compared to 4 or 5 times EBITDA before.

Consequently, INEOS has decided to use its access to competitive US shale-derived gas to build capacity and transform a stagnant European industry. “We want to see a renewal [of assets] in Europe, which has lost ground against the rest of the world in terms of petrochemical manufacturing,” McNally says.

Ingram believes the new cracker will redefine its leading competitive position in Europe “by some margin”.

“Replicating US Gulf Coast economics in Europe gives us a very strong position to capitalise our feedstock cost advantage for the long term,” he says.

Most of the output from the cracker, which will have an ethylene capacity of 1.5m tonnes/year, will be used captively in INEOS's derivatives production, although Ingram says it may make sense to sell some of the ethylene in other regions to keep its system balanced.

INEOS is structurally and significantly short of both ethylene and propylene to feed its downstream production. According to Ingram, INEOS buys between 1.5m-2m tonnes/year of ethylene and more than 1m tonnes/year of propylene. The new capacity will plug the gap and make INEOS more balanced on propylene although the company will remain a buyer of ethylene.

The sustainability profile of the new assets is also a key factor for INEOS. By integrating the two units and using modern technology,

Ingram says INEOS can capture efficiencies and significantly reduce associated carbon dioxide (CO₂) emissions for both ethylene and propylene compared to existing benchmark levels.

“This is about not just being economically sustainable but also about taking a step towards enhancing the sustainability profile of these essential building blocks that are used throughout the European petrochemical industry,” he says. He believes that Europe's reliance on old assets to meet demand for the next 40-50 years will be “a challenge”.

As well as at Antwerp, INEOS is also investing in other sites to boost its operational efficiency and flexibility. In Cologne, Germany, projects are underway to modernise the cracker and add a new power generation plant.

The Cologne crackers are naphtha-based but can take small amounts of butane. INEOS is modifying these crackers and adding infrastructure for handling butane so it can significantly increase the volume of gas the cracker can take, which Ingram notes will improve the competitiveness of the plant along with providing some flexibility and security around feedstock supply. The work is due to finish in 2020.

A project to expand the cracker in Grangemouth, Scotland (see box), by 100,000 tonnes/year is underway, but for the time being, Project One has replaced plans to further expand output at Rafnes, Norway.

Ingram says that the availability of competitive ethylene and propylene from Project One will definitely support potential projects for polyethylene (PE) and



“Replicating US Gulf Coast economics in Europe gives us a very strong position to capitalise our feedstock cost advantage for the long term”

Rob Ingram,
CEO of INEOS
Olefins & Polymers



FULL STEAM AHEAD AT GRANGEMOUTH

As part of a £1bn package of investment in the UK, INEOS is spending £350m on a new steam and power plant at Grangemouth, continuing its renaissance of the site and underpinning its growth plans for the future of manufacturing in the UK.

“The new energy plant will deliver improvements in reliability and environmental performance and increase efficiency,” says Tobias Hannemann, CEO INEOS Olefins & Polymers UK. “It will provide security of energy supply to the Grangemouth site for many decades, replacing an existing power plant that has been operating for more than 40 years and is nearing the end of its economic life.”

The main purpose of the new plant, says Hannemann, is to serve INEOS O&P UK, the Forties Pipeline System (FPS) and Petroineos (the INEOS/Petrochina joint venture) businesses with a reliable and continuous supply of steam and power. It will furthermore allow third parties to settle at Grangemouth and invest in new businesses that will benefit from the secure supply of steam, along with the site’s industrial infrastructure.

The facility, which is due on stream in 2022, will benefit from improved boiler fuel efficiency and heat recovery within the power station. It will also significantly cut SOx, NOx and CO₂ emissions.

INEOS is also investing £60m in a tenth ethylene furnace at Grangemouth to improve the

cracker’s efficiency and expand capacity to meet growing demand. Construction is underway and the furnace is due to be commissioned towards the end of 2020.

The extra ethylene will be used downstream in a variety of derivatives such as ethanol, ethyl acetate, ethylene dichloride (a precursor to polyvinyl chloride) and polyethylene, which are used in a variety of applications in the pharma, construction, automotive and food packaging sectors.

“It is a new and exciting time for Grangemouth and the investments demonstrate a strong vote of confidence in the site,” Hannemann says. “INEOS is working on a number of other projects at the site. These are focused on improving our efficiencies and consumption of energy, ultimately improving our access to markets and serving our customers’ needs as well as making our business stronger and more robust for the future.” He anticipates that INEOS will make further announcements on these projects in the near future.

One of the largest industrial sites in the UK, Grangemouth represents about 4% of Scottish GDP and houses the country’s one and only refinery that provides fuel and energy across Scotland. The complex, which has been revitalised by the use of shale-gas shipped across the Atlantic from the US, supports more than 3,000 jobs on site as well as more than 15,000 indirect jobs.

polypropylene (PP); the company produces PE and PP at Lillo, Antwerp and PP at Geel in Belgium.

A seventh alkoxy unit is almost certain to be built in Antwerp too, says Graham Beesley, CEO INEOS Oxide. “We are the biggest producer of alkoxyates in Europe and we continue to look at areas where we can grow and debottleneck,” he says.

INEOS Oxide has also this year completed a 30% debottlenecking of ethylidene norbornene (ENB) capacity at Antwerp and Beesley says it is now planning a second ENB plant somewhere either in the Middle East or Northeast Asia.

Another major INEOS Oxide project is the proposed 300,000 tonne/year vinyl acetate monomer (VAM) plant at Saltend in Hull, UK. The £150m investment is part of INEOS’s £1bn spending programme in its UK assets.

“We think the economics of this plant are very favourable,” says Beesley, noting that the plant can take advantage of ethylene from Grangemouth and import acetic acid feedstock from anywhere in the world, which can be stored in new tanks being built at Hull.

Detailed engineering work is underway on the unit, which will be based on fixed bed technology rather than the fluidised bed process used by the previous plant.

Security of feedstock supply is once again a factor behind another INEOS project, this time for cumene, a raw material to produce phenol.

INEOS Phenol has received the final go-ahead on the 750,000 tonne/year plant, which will be built in Marl, Germany, and go into operation in 2021. Preparatory

groundwork has started and the official groundbreaking ceremony is scheduled to take place on 1 October.

“Phenol is a key market for us. We produce phenol but are a very large consumer of cumene. This plant will give us more security of supply and create savings,” says INEOS Phenol CEO Hans Casier.

He adds that INEOS Phenol’s customers are developing applications in several areas, such as polycarbonate in lightweight components in cars, epoxy resins for wind turbines, and in insulation, among others. According to Casier, global demand for phenol is growing at 3-4%/year, driven

primarily by Asia.

As well as providing a key feedstock for INEOS, Casier notes the project is also important in that it reinforces the chemical cluster in Germany’s northern Ruhr area, comprising Gelsenkirchen, Marl and Gladbeck.

INEOS has taken some bold decisions in its 20-year history, which have paved the path of its unrivalled growth to date. The current round of capital investment is another step towards laying the foundations for future growth and potentially revitalising European petrochemical production.

By Elaine Burridge

LIFE BEGINS AT FORTIES

A few years after strategic acquisitions established INEOS as one of the leading oil and gas companies in the North Sea, it is starting on yet more ambitious investment plans



INEOS is certainly no stranger to investing in its assets to give them a new lease of life. The aptly-named 2040+ Strategy is applying this philosophy to the Forties Pipeline System (FPS) on the east coast of Scotland, ensuring it operates for at least another two decades.

The £500m modernisation project aims to enhance the efficiency, profitability and reliability of this vital piece of the UK's infrastructure, says Geir Tuft, CEO INEOS Oil & Gas.

"With FPS, we have assessed what needs to be done to extend its life beyond the late 2020s that the former owner was talking about, into the 2040s," he says, "Our announcement earlier this year that we were committing to more investment will allow FPS to not only last longer but also to have a cost base that is commensurate with the production volumes. We're already seeing the positive effects of doing this, with customers saying they're prepared to drill wells or develop discoveries because of that long-term commitment."

Commissioned in 1975, the FPS has since transported over 9bn barrels of oil and remains the lifeblood of the North Sea, a meandering artery linking

a network of 85 oil rigs to the mainland. The 500km pipeline delivers 40% of the UK's oil & gas, with around 600,000 barrels flowing through the system each day.

"The North Sea may be past peak oil but there is still a lot out there and the FPS remains an important transportation system," adds Andrew Gardner, CEO of INEOS FPS. "We happen to be the custodians of it just now. We're putting our profits and energy back into our asset to extend its life."

FPS was built in two phases, the first in the 1970s with a major capacity increase in the 1990s. The previous owner, BP, had pencilled in a 2029 retirement date but INEOS believed it could continue to play a major role far beyond that.

Plans include essential maintenance at the Unity Riser Platform where the various pipelines connect, as well as upgrades to the valve technology, pipework, and cleaning and inspection tools at the Cruden Bay terminal, north of Aberdeen.

The majority of the budget, however, will be spent on the Kinneil facility, where one of the three existing compression trains will be retired and the others modernised, says Gardner.

New environmental treatment

facilities that far exceed current standards are also being introduced, along with modern ground flares that use the latest technology to limit noise and luminosity.

The works are due for completion by 2023.

Beyond the FPS, the oil and gas business has also been a hive of activity.

"We've evolved to become a fully-fledged exploration and production company. We remain focused on M&A opportunities but also have an interesting bucket of in-portfolio opportunities and development projects," says Tuft. "It's a matter of finding the right opportunities and the right deals at the right times."

Clipper South, for example, had been due to decommission in 2020, but a re-routing project has extended its life, he says. Part of the works included installation of water treatment facilities. As the platform is unmanned, INEOS adapted existing technologies to create a water separation unit that could continue to run without an on-site operator. This innovative approach proved so successful that the Oil and Gas Authority is looking at how this solution could be applied at other locations too.

Exploration appraisal of previous discoveries and development drilling is also ongoing, with work on seven wells in Norway and the West of Shetland taking place this past year. INEOS is also looking at the potential of the recent gas discovery it made with Total at the Glendronach prospect near Shetland, he says.

Another three relatively low-risk projects at the Hejre, Ormen Lange and Breagh fields are also within 18 months of a final investment decision. Combined, Tuft suggests these could provide an additional 90m barrels of reserves – not insignificant given INEOS's total in late 2018 amounted to 178m barrels.

Shale gas in the UK remains another untapped resource, yet opinion is still divided on its development and government policy is restricting progress, he says.

"We still believe this is a fantastic resource that the UK should utilise," says Tuft. "We're still optimistic but this is clearly a long-term game."

By Andy Brice



"We're putting our profits and energy back into our asset to extend its life"

Andrew Gardner,
CEO of INEOS FPS

THE NEW FRONTIER

An agreement to build three plants in Saudi Arabia fills a hole in INEOS's global manufacturing network, particularly for acrylonitrile and alpha olefins

The Middle East has been a noticeable gap in INEOS's geographical footprint but this changed in June 2019 when the company announced "a milestone agreement" with Saudi Aramco and Total to build three plants as part of the Jubail 2 complex in the Kingdom of Saudi Arabia (KSA).

The units will include a 425,000 tonne/year acrylonitrile (ACN) unit, a linear alpha olefin (LAO) unit and a polyalphaolefin (PAO) plant. All three plants will be 100% owned and operated by INEOS and represent a capital investment of around \$2bn.

Under the terms of the agreement, INEOS will take ethylene and propylene output from the world-scale mixed-feed cracker that Aramco and Total are building at the site. The cracker is part of a \$5bn petrochemical complex – dubbed Project Amiral – with another \$4bn of downstream derivatives and specialty chemicals units from third parties, including the INEOS plants.

A feasibility study is currently underway and due for completion in Q2 2020, following which front end engineering design work will start. INEOS anticipates taking a final investment decision by the end of the third quarter 2021, with the plants planned to start up in 2025.

INEOS says the location gives the group access to competitive raw materials and energy, along with readily available infrastructure. Output from the plants will mostly serve markets in the Middle East, although a portion could be supplied to Asian countries. The company says it will be working with the Saudi

government to develop and attract further investment in the Kingdom's downstream industries.

"This deal is transformational and a significant development for the ACN business," says INEOS Nitriles CEO Paul Overment, adding that the ACN plant will be the first of its kind in the Middle East and the biggest of its type ever built. Overment notes that INEOS is the world's leading producer of ACN (and acetonitrile) and 90% of world ACN production uses INEOS technology.

According to Overment, the global ACN market stands at about 6.5m tonnes/year and is growing at more than 3% annually – the equivalent of an additional 200,000 tonnes/year capacity – to meet demand for lighter, stronger, energy efficient materials such as acrylonitrile butadiene styrene, composites and carbon fibre.

By the time INEOS starts up its plant, he says the extra ACN capacity will only be enough to cover around a third of market growth.

Meanwhile, INEOS continues to have ambitions to build in the Far East, where most of the demand growth lies. Currently, Asia accounts for between 20-30% of INEOS's ACN sales. Overment says INEOS has looked at several different projects in the past five years but getting all the factors in line to get a return on investment is not particularly easy as ACN plants are costly and complex to build.

"This project represents a significant milestone in the division's growth strategy," says Joe Walton, CEO INEOS Oligomers.

Plans at Jubail are for an LAO plant producing 400,000 tonnes/year along with an associated world-scale PAO unit, for which the capacity still has to be defined. The plants, says Walton, will be of a similar design to the ones which

INEOS has just finished building at Chocolate Bayou in the US. INEOS has already appointed a contractor and started early engineering work.

The location of these units will allow INEOS Oligomers to significantly enhance its market presence in the Middle Eastern region. "There is a ready-made market in KSA for LAOs as polyethylene comonomers," Walton says, adding that the Kingdom imports a large amount of material to meet domestic demand. The PAO unit will represent the first of its kind in the Middle East and will support the growth of synthetic lubricant production in the region.

INEOS's principal goal is to supply markets in both KSA and other Gulf Cooperation Council (GCC) countries. However, the units could also serve as an alternative source of supply to Asian export markets, which could prove advantageous given the situation with international trade at the moment.

"The units will have access to globally competitive costs for feedstock and services. Upon the completion of this project, INEOS Oligomers will then have capacity based on the world's leading low-cost petrochemical regions, including Canada and the US Gulf Coast," Walton says.

He adds that while INEOS Oligomers' customers were "caught by surprise" by the timing of another announcement for a big project, Walton says "it was important to maintain our momentum and make this great next step for the business".

"This project will secure the position of INEOS Oligomers as the leading merchant supplier of LAOs and PAOs in the world. Our growth strategy will ultimately double the size of the INEOS Oligomers division."

by Elaine Burridge

The \$2bn project is its first in the region



SWEET SUCCESS

FOR CHOCOLATE BAYOU

The site on the US Gulf Coast is home to multiple projects

INEOS has big plans for Chocolate Bayou. The group has announced major projects for the site in Texas, US, all driven by a strategy of reinvesting to meet its customers' growing requirements.

"Chocolate Bayou is already a phenomenal site and its infrastructure capability and asset base is growing substantially," says Bob Learman, chairman of the three business units investing there. "We have a large, well-located parcel of land, modern infrastructure and flexible supply chain options. We can move products by pipeline, barge, truck and rail. INEOS is investing a lot of money in all three businesses [Oxide, Oligomers and Olefins & Polymers]."

Learman adds that INEOS is

GROWTH BY ACQUISITION

INEOS has boosted its US footprint with three acquisitions. In May 2019, INEOS Enterprises paid \$700m to buy two titanium dioxide (TiO₂) plants in Ashtabula, Ohio from Tronox, marking its entry into the TiO₂ market, where it is now the second-largest producer in the US. Ashley Reed, CEO of INEOS Enterprises, comments: "The INEOS Pigments business, as it will be known, presents new opportunities for INEOS to enter the pigments market with excellent people and assets."

Late last year, INEOS Enterprises added the chemical intermediates business of Flint Hills Resources and also agreed to buy the entire composites business from Ashland Global Holdings for \$1.1bn. The former Flint Hills Business, which manufactures isophthalic acid, trimellitic anhydride and maleic anhydride at a plant near Chicago, Illinois, is now trading as INEOS Joliet.



The US remains a key area of focus

trying to leverage its raw material cost position, driven by shale gas, along with economy-of-scale advantages to grow its businesses.

Chocolate Bayou already hosts two olefins crackers, two polypropylene (PP) units and two cogeneration plants.

INEOS Oxide says the selection of a new foothold in the US to host an ethylene oxide (EO) and EO derivatives facility will reinforce on-site integration to the benefit of both the crackers and the downstream units. The availability of additional land close to the proposed EO/EOD plant will also allow third-parties to co-locate and consume EO by pipeline.

"There is a real appetite from companies to come onto Chocolate Bayou and we are in active discussions with third parties," says INEOS Oxide CEO Graham Beesley. "The idea is attractive to a number of people seeking dependability and efficiency of EO supply."

He says INEOS is aiming to replicate operations in Zwijndrecht, Belgium, where there are 12 third-party companies on the site.

The EO plant will have a capacity of around 520,000 tonnes/year and be operational in 2023. The company will also install derivative ethoxylates capacity on the site. A final investment decision is about 18 months out.

In the meantime, INEOS Oligomers is building plants at Chocolate Bayou for linear alpha olefins (LAO) and polyalphaolefins (PAO). The 420,000 tonne/year LAO plant is due to be commissioned in August/September, with full commercial

production anticipated in the fourth quarter of 2019.

Start-up of the PAO unit, which will be the world's largest single train producing 120,000 tonnes/year, will follow in the fourth quarter of 2020.

Joe Walton, CEO of INEOS Oligomers, says INEOS has earmarked the business for growth. "The global market for alpha olefins is growing at about 3-4% per year. We saw the need for new capacity by the end of 2019, so the market is ready for the plants we have built," he says.

Driving that need is the wave of polyethylene (PE) capacity that has started up in the past two years – especially for high density polyethylene (HDPE) and linear low density polyethylene (LLDPE) – which has been spurred by multiple investments in new crackers, fed by low-cost shale gas. One of the big end-uses for LAO is in HDPE/LLDPE to improve the polymer's performance. Walton also envisages a second wave of PE investment in 2021-2022.

The PAO output will also be needed to meet high demand for base oils/lubricants.

An ongoing programme of olefin/polyolefin debottlenecks is also underway at Chocolate Bayou. Mike Nagle, CEO of INEOS O&P, says a debottlenecking project to go on stream in mid-2020 will add roughly 272,000 tonnes/year of olefins.

INEOS O&P has also completed a 45,000 tonne/year expansion of PP production at the site and has plans for a further 32,000 tonnes/year PP for start-up in 2021.

by Elaine Burridge

Grenadier gears up

Projekt Grenadier has taken a huge step forward with the announcement that it will build its 4x4 off-road vehicle at Bridgend in South Wales, UK.

The company has also chosen “Grenadier” as the vehicle’s name, reflecting the name of the pub where INEOS Group Chairman Sir Jim Ratcliffe first conceived the idea. More than 6,000 international followers responded to INEOS’s online poll to select a name, with the biggest vote (twice that of the second-best proposal) for Grenadier.

Development work is underway on the greenfield manufacturing site with production scheduled to start in 2021. The plant will create 200 jobs initially and up to 500 in the long term. INEOS Automotive said the area’s skilled workforce was one of the positives that attracted it to the site.

Ratcliffe commented: “We have looked long and hard at possible manufacturing locations for Grenadier across the world with lots of good options to

choose from. The decision to build in the UK is a significant expression of confidence in British manufacturing, which has always been at the heart of what INEOS stands for.”

In parallel, INEOS Automotive will be investing in a sub-assembly plant in Estarreja, Portugal, to produce the body and ladder chassis, working in conjunction with INEOS’s European supply chain partners that are located nearby.

The new 4x4 vehicle will be built at Bridgend in the UK



Engineering and design are now moving into series development, with announcements on appointed suppliers and partners to be made in the coming months.

The Grenadier will be a “robust, no-nonsense” utility vehicle incorporating BMW powertrains, diesel and petrol, with the power and torque to cope with a 1 tonne payload and 3.5 tonnes in tow.

For INEOS Automotive, an “uncompromising” off-roader means a separate body on a ladder chassis, solid beam axles, class-leading approach and departure angles, and a mechanical transfer case. Grenadier will also offer lockable differentials and an interior that can be hosed down.

Development of this 4x4 is the first major project for the INEOS Automotive business. Ratcliffe believes he can apply the group’s manufacturing best practices from chemicals, across other industries.

INEOS is investing £600m to bring the Grenadier to market.

by Elaine Burridge

THE CLOTHING CONNECTION

Belstaff’s acquisition by INEOS in autumn 2017 may have appeared an off-centre move by the chemicals and polymers group. But consider Chairman Sir Jim Ratcliffe’s penchant for buying entrepreneurial businesses with good assets, add a dash of motor racing and sporting heritage, and the reasons become more obvious.

Designed with the “adventurous” customer in mind, Belstaff is a brand that represents quality, innovation and style, says CEO Helen Wright, who adds that is an “enormous positive” that Belstaff is back in British ownership.

Perhaps best known for its waxed cotton motorcycle and aviator jackets, the clothing company is nearly 100 years old, tracing its roots back to 1924 and boasting links with many famous adventurers and sporting icons –

pilots Amy Johnson and Amelia Earhart and motor racing legend Jackie Stewart, to name just a few.

“Being part of INEOS presents a world of possibility and fresh thinking around a clothing brand. For us it is groundbreaking and very stimulating,” says Wright, adding that Belstaff has big plans for the future.

“We plan to double our revenues in the next 3-4 years and keep growing thereafter. First and foremost, it is about increasing the awareness and relevance of our brand in people’s lives.”

The company has been busy defining a new retail concept and relocating current stores to locations that Wright believes are better suited to the Belstaff brand and its customers. Having opened new stores in Munich on the Residenzstrasse in May 2019 and in Glasgow on Ingram Street in July 2019, Belstaff’s most

visible project to date will be the relocation of its London flagship store from New Bond Street to Regent Street this October. The opening of a new store in New York’s Meatpacking District in April 2020 completes the revitalisation of its current retail portfolio, with a few select new locations to open over the next five years.

Also top priority is Belstaff’s investment in its online business, which Wright says represents 30% of total revenues in 2019, providing promising returns.

She says that the INEOS sponsorship of the British challenger to the 36th America’s Cup was a great opportunity for Belstaff in terms of visibility and global reach. Belstaff has created the on-shore collection for the senior teams for the series, which will launch as a consumer collection next April.

IN A LEAGUE OF THEIR OWN

INEOS has just added to its ever-expanding sports portfolio by netting French football club OGC Nice.

The takeover, completed in August, ends months of media speculation but marks the start of an exciting new journey, says INEOS Community Football CEO, Bob Ratcliffe.

INEOS already owns second division Swiss side Lausanne-Sport and had been linked with a number of top European clubs before striking the deal.

It certainly had a clear goal in mind with its new acquisition. Despite finishing seventh last year, Ratcliffe believes that given time, the Ligue One club can climb the table and qualify for a highly-coveted Champions League place, putting it among Europe's elite.

It should prove a great investment too, costing a twentieth of the price of a top six club in the UK, he notes.

"Nice is a football club with a great history, great supporters and lots of potential," says Ratcliffe. "INEOS has been a phenomenally successful company and achievement has become part of our DNA. We want sports franchises that are exceptional or on a path to becoming exceptional."

"If you're going to own a football club and it's going to be successful both on and off the pitch, it has to be run as an effective business."

"We know from our experience with Lausanne that patience is important in football – you can't achieve success overnight but we believe this could be a top six club and challenge for European places in the next 3-5 years."

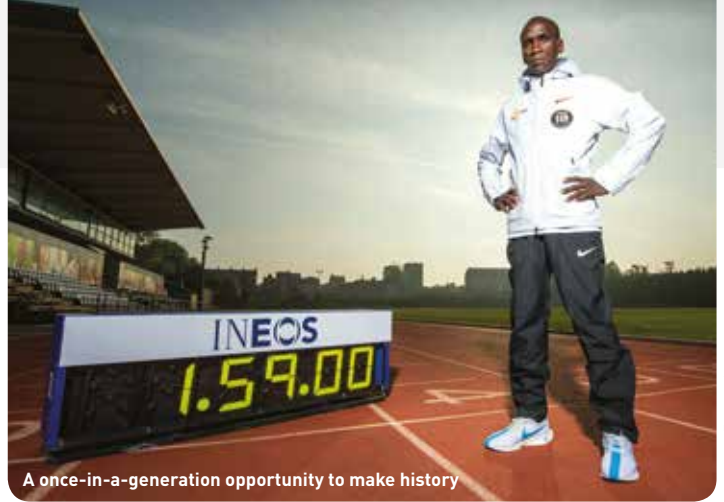
Not only does football's team ethic resonate with INEOS, he says, but this acquisition will be about optimising performance, working together and achieving success – echoing the ethos of the chemical major itself.

"We want to be a commercially successful club and a sustainable business. We don't just want to spend the most money to get success, we want to earn it. We want to have preeminent scouting, develop youth and have a first-class academy. The INEOS philosophy will run through the club – we're looking to improve performance and the way the club is run."

It boasts the stunning 36,000-capacity Allianz Riviera stadium, which was built for the 2016 Euros, and also has new modern training facilities just 3km away.

INEOS is a keen supporter of children's health and wellbeing, and this also provides another opportunity to give back to the local community and encourage young people to take up sport too.

"We want to see what can we do to at grassroots level to improve skills and leave an imprint with community football," he says.



A once-in-a-generation opportunity to make history

Image: Tom Lovelock

HITTING THE GROUND RUNNING

Having crossed the finish line at the London Marathon in April, Eliud Kipchoge barely had time to collect his winner's medal, or his breath, before he was planning his next world-class race.

On 12 October 2019, the 34-year-old would be making history by running a sub two-hour marathon in the INEOS 1:59 Challenge.

Kipchoge already holds the world record of 2:01:39 hrs, and unofficially ran the 26.2 miles (42km) in 2:00:25 in 2017 – but even for the greatest-living long distance runner, shaving 26 seconds off your best time is no mean feat.

INEOS Chairman, Sir Jim Ratcliffe, had no doubt it could be done. Kipchoge's vision typified the pioneering spirit that he had instilled among his own team over the years. It seemed appropriate therefore, that INEOS should lend its full support to the challenge.

"It's such a multi-faceted project and we're pulling in people from all across the INEOS Sports family. While it might look simple on paper, it's an incredibly complex and challenging endeavour – and ultimately that's what we all live for," adds project lead Fran Millar.

"We've got this once-in-a-generation athlete who is the only person capable of doing this but it needs to be done in absolutely the right conditions, with the right support, the right people and the right sports science around him."

The Projekt Grenadier team,

for example, has been sharing its engineering knowledge and expertise on everything from the pace cars to the clocks for timing the race, while meteorologists from Sir Ben Ainslie's sailing team have offered their insight into weather conditions to help find the most suitable venue.

The course had to meet a very specific set of criteria to give Kipchoge the best chance of success – all while meeting the high standards of the IAAF, the governing body for athletics. It had to be at the right altitude, in a climate with favourable weather conditions – and importantly, somewhere that a crowd could cheer him on. He wanted a flat course with limited camber that fell within a three-hour time zone of his training camp in Kenya.

After an extensive selection process, the team identified five potential courses and eventually decided on the Austrian capital of Vienna, 4.4 laps of a 9.6km loop in The Prater, the city's famous park.

"This has really required a ground-up approach, breaking down the performance, analysing the demands of the event, and looking at all of the components to try and establish where we can lose those 26 seconds," says Millar. "We have felt an enormous sense of responsibility to ensure he has the support he needs."

Find out more details at: www.ineos159challenge.com.

By Andy Brice

Within a few days of launching in May, Team INEOS got off to a winning start with a Tour de Yorkshire victory. By the end of July, the black and burgundy shirts had also secured the coveted Tour de France trophy – cycling’s biggest prize.

“This has been a really exciting time for us as an organisation. There’s a freedom and excitement that comes from working with INEOS,” says CEO Fran Millar. “There really are no limits and Sir Jim Ratcliffe is hugely motivated to help support us in being better than before. It all feels very new, exciting and fresh. You wouldn’t expect a petrochemical company to have synergies with a professional cycling team but in fact, we’re really closely aligned both culturally and attitudinally in how we approach things.”

Millar has been with the team since its inception in 2009 but says the takeover has already seen them step up a gear. Along with team principal Sir Dave Brailsford, she is keen to leverage the skills, expertise and contacts of INEOS to ensure future success.

“We’re now owned by one of

INEOS starts a chain reaction

the biggest businesses in the world and one which has been a pioneer in its industry,” she says. “We’re keen to see what we can learn, from how we operate to health and safety, and how we structure our contracts. So far, it’s been a really exciting voyage of discovery.”

From changing procedures and the running of the team, to considering improvements to everything from the bike frames and wheels, to the helmets and skinsuits, there are plenty of potential crossovers and alignments with the various parts of the business, she insists.

“We’re one of the highest performing sports teams in the world from a sustained success perspective but for us, it’s all about getting better. We race 276 days a year and have a squad of 30 riders constantly in motion. We’re not a team to sit still; it’s in our DNA. We

don’t consider the success we’ve had so far to be anything other than our past and INEOS is our future. We’re all very excited by this opportunity to be even better than before.”

Team INEOS took the title in this year’s Tour de France



Image: Russ Ellis

SMOOTH SAILING FOR CUP CHALLENGE

INEOS TEAM UK is making great progress in its bid to be the first-ever British winner. The first of the two boats being built for the 36th America’s Cup has undergone its final structural tests and been fitted out, ready to launch in September.

The 75-foot mono-hull vessel uses huge foils to offer support and manoeuvrability while moving at high speed through the water – marking a first for the competition.

Since the successful launch of a smaller two-man, 28-foot prototype last year, practice sessions in the Solent, UK and at the winter training camp in Mar Menor near Alicante, Spain, have been vital for collecting data to help determine the designs for the final boat, says team principal and skipper, Sir Ben Ainslie.

“We were the first team to get a test boat out on the water and that was a huge milestone. A foiling mono-hull like this has never been

tried or tested before so we felt it was significant to get out early and understand this new concept of boat,” he says. “Our focus has been on maximising our time on the water and giving design and performance data back to the team. We’ve been looking at how the boat handles and collecting critical information which we can use in our simulations.”

The team now faces an equally hectic schedule in the run up to the main event, including a four-day regatta in Sardinia next April, the first time the AC75 class has been in competition. The PRADA Cup Challenger Selection Series in January 2021 will then determine which of the entrants competes against the current holder.

Since INEOS announced its support and came onboard in early 2018, the team has been able to call on its resources and expertise, says Grant Simmer, INEOS Team UK’s CEO.

“There are many parts of the business that are lending their support,” he says. “We’ve had a series of meetings with engineers from the Projekt Grenadier team about machining capabilities, and constant dialogue about where we can help each other with the supply chain. The cycling team has offered help too, from physical training and optimising performance to advice on well-being and nutrition.”

The team kit on-shore is being supplied by INEOS-owned Belstaff and there has also been assistance on the chemical side, with INEOS Nitriles introducing the team to Japan’s Toray to source carbon fibre used for the boat, for example.

“The INEOS partnership with all that support and expertise has been fantastic for us,” adds Ainslie. “The America’s Cup is incredibly hard to win but we’re confident we have the team to do it.”

Fitness plans gather pace

Children's fitness campaigns The Daily Mile (www.thedailymile.co.uk) and GO Run For Fun (www.gorunforfun.com), have grown enormously since INEOS became involved. Collectively, the two initiatives have inspired more than two million children around the world to get active.

Working with Elaine Wyllie, founder of The Daily Mile, INEOS set up The Daily Mile Foundation in 2016. Fast forward to 2019, the programme, which Wyllie started at her Scottish primary school in February 2012 and involves getting children to run or jog for just 15 minutes every day, has now spread worldwide.

Kerry Davis, partnership manager at The Daily Mile Foundation, says the charity's main remit is to get as many schools around the world signed up and taking part. One of its core aims is to partner with like-minded organisations in the UK, Europe and beyond to help get the initiative embedded in more settings globally.

So far, the Foundation has official partnerships in France, Germany, Belgium, Spain, Portugal, Ireland, Scotland, Wales, England (including with Sport England and London Marathon Events), the Netherlands, Austria and the United Arab Emirates.

A current key focus is to expand across the US where the Foundation has hired a project lead based in the INEOS Houston office. Initial work is centred on encouraging schools in Houston and Chicago to sign up with further expansion through 2020 and beyond. So far, over 100 schools in the US have registered for the initiative.

Davis says the ambition is to continue expanding The Daily Mile into other countries, taking a targeted approach to "ensure that partnerships happen at the right time, with the right people".

While it seems obvious that getting children fitter and healthier is beneficial, Davis says there is

a growing global community of independent researchers who are looking at The Daily Mile and studying its impact on children's health, wellbeing and learning.

In 2018, the Foundation set up a research steering group to provide a forum for gathering and sharing data globally.

In June 2019, it announced a research partnership with Imperial College London to explore the benefits of The Daily Mile.

INEOS is funding the three-year project, which started in late 2018 and will be the first large-scale assessment of The Daily Mile's potential impact on the health and educational achievement of primary school pupils across England.

As The Daily Mile's plans gather pace, the GO Run For Fun campaign has also been racing ahead with its ambitions. The GO Run For Fun Foundation says it is now the world's largest children's running initiative, with more than 400 events organised and 300,000 children taking part since it was set up in 2013.

GO Run For Fun, which is organised and delivered by over 24 INEOS site teams, holds events all around the world. Amy Tayler, GO Run For Fun's project manager, says the campaign has just delivered in August its inaugural event in India and is also hoping to host others next year in Spain, Sweden and Brazil.

The initiative has set several targets for 2019. It wants to get more than 64,000 kids active each year and reach the 350,000th participant; hold 30 events in Europe and another 30 across North and South America and Asia; deliver events in 11 different countries; engage with more than 1,000 schools and get 20 schools to host their own events through its 'Event in a Box' package.

Another aim for 2019 was to hold a flagship event in London, including The Daily Mile in a celebration of running. This event, GO Run London, took place in June at Battersea Park, where 2,448

children from 44 schools competed.

INEOS sites all around the world work with their local communities to set up these events. For example, 60 workers from INEOS's site in Sarralbe, northeastern France, volunteered to host its fifth run this year, which attracted 4,000 children from local schools.

Despite its name, GO Run For Fun is not all about running. The initiative also has a budding programme, with an international network of schools sharing their experiences and children able to get involved in activities such as letter writing, art and design, maths and short film production.

INEOS Chairman Sir Jim Ratcliffe himself is also involved in some film making, namely the



The initiatives encourage children to stay fit and healthy

animated films featuring GO Run For Fun's mascot Dart. Ratcliffe writes the scripts, which are mostly focused on topics such as teamwork, healthy eating and improving fitness, and the GO Run For Fun team works with an educational consultant who pulls the content together.

Millions of children across the globe have already been reached through the success of these two initiatives. Their ambitions are limitless and that can only help children and generations to come to lead healthier and fitter lives.

For more information, contact info@gorunforfun.com or team@thedailymile.co.uk.

by Elaine Burridge



Image: Phil Williams

Each week, around eight school groups attend workshops hosted at STEM Crew's base in Portsmouth, UK, which it shares with INEOS TEAM UK.

There they learn about the science behind sailing as well as conservation and sustainability. They also have access to interactive hands-on exhibits, which highlights the many innovative technologies and materials used onboard INEOS TEAM UK's America's Cup boat. From the techniques used in its construction to learning about hydraulics and hydrofoils, students come away with a better understanding of how science and sport are connected.

Rebels Crew, is an altogether different initiative targeted specifically at 11-14 year old students from disadvantaged backgrounds. It aims to remove barriers and help to dispel the myth that sailing is exclusive or unaffordable.

Through their schools, participants join a 6-8 week sailing programme that not only gives them a taste of the sport but helps them develop vital life skills.

"Rebels Crew is making a real difference," says Cartledge. "We find that the behaviour and motivation at school improves not only for those who are directly taking part but the rest of the school feels the benefits as well."

By October, more than 7,500 children will have taken part. With INEOS's support, the Trust aims to double this to 15,000 next year and exceed 20,000 in 2021.

The scheme had previously been focused on a fairly small perimeter around its Portsmouth base, says Cartledge but the additional funding has made it possible to expand its reach and work with sailing centres and clubs across the country, including London, Liverpool, Manchester and Edinburgh.

"Our national expansion would not have been possible without their support. INEOS has allowed us to scale that up considerably," he says, "We now have 12 flagship centres around the UK and are working with local schools to get their students inspired by sailing."

"The programme is building momentum and has been a huge success," insists Cartledge.

By Andy Brice

INSPIRING A NEW WAVE OF TALENT

Encouraging health and wellbeing among young people has been a key focus for INEOS these past few years, so the opportunity to combine this with an educational programme of science, technology, engineering and mathematics (STEM) all so central to its core business seemed the perfect fit.

The 1851 Trust is an education charity that uses the context of the America's Cup, dubbed the Formula 1 of sailing, to bring STEM subjects to life.

INEOS got involved in late 2018 when it formed INEOS TEAM UK and launched its bid to win the 36th America's Cup with Sir Ben Ainslie at the helm.

"The Trust has been doing a fantastic job focusing on getting young people out on the water and engaged in science," says Ainslie, patron of the Trust. "We're absolutely delighted INEOS has given us its backing and we're already seeing the benefits, with more children getting active and inspired by sailing."

INEOS's support for the 1851 Trust funds two programmes with INEOS TEAM UK's challenge for the America's Cup at their core: STEM Crew and Rebels Crew.

The 1851 Trust uses sailing to inspire and educate young people



"We want to give them opportunity and ambition. It's all about making the experience as real as possible and relevant to their day-to-day lives"

Ben Cartledge,
CEO of the
1851 Trust

The former is a free programme that provides a range of teaching resources targeted at 11-16 year olds. Established in 2014, it uses its link with the America's Cup and sailing to inspire young people and open their eyes to their potential. Part of this is to emphasise that the success of the team extends far beyond the 11-strong crew and involves over 120 people each with unique abilities and disciplines.

"The America's Cup is a real combination of technology and teamwork," adds CEO Ben Cartledge. "It's a coming together of different people from a lot of different backgrounds and skillsets, with the single aim of making the boat go as fast as possible."

STEM Crew reflects this and leaves children feeling confident and enthusiastic in their abilities, knowing that they could pursue a career as an athlete, designer, scientist or an engineer, he says.

"We want to give them opportunity and ambition. It's all about making the experience as real as possible and relevant to their day-to-day lives."

"Teachers use our resources for two reasons: the content really delivers and it excites and inspires their students," says Cartledge.

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INEOS

Founded in 1998, UK-headquartered INEOS has grown to become one of the world's largest chemical companies. It comprises 34 businesses, employs 21,000 people globally and achieved sales in excess of \$60bn. The vertically-integrated chemicals producer has 168 manufacturing sites in 26 countries, and boasts a diversified portfolio serving the petrochemicals and oil & gas markets.

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