Annual Report 2020

Achieving a fossil-free world

Contents

Avantium at a Glance

Company Highlights 2020

Revenue
(in € million)

9.9

2019: 13.8

–29%

Newly granted patents

18

2019: 31

–42%

Investments
(in € million)

3.5

2019: 8.5

-59%

Number of FTEs

218

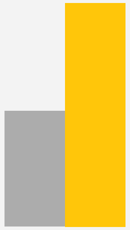
2019: 209

4%

Grant recognition
(in € million)

8.4

2019: 4.2



99%

Newly reported inventions

41

2019: 87

–53%

Cash outflow
(in € million)

18.8

2019: 37.8

–50%

Nationalities employed

21

2019: 19

11%

Number of goverment grants

20

2019: 27

–26%

Number of safety accidents

1

2019: 1

Key Financials 2020

(€1,000)	2020	2019	% change
Revenues	9,863	13,821	-29%
Other income from government grants	8,403	4,217	99%
Net operating expenses	(33,173)	(35,056)	-5%
EBITDA	**(14,907)**	**(17,018)**	**-12%**
Depreciation, amortisation and impairment charge	(7,597)	(5,948)	28%
Finance costs - net	(325)	(319)	2%
Share in loss of joint ventures	-	(259)	-100%
Loss for the financial year	(22,830)	(23,544)	-3%
Cash flow from working capital movements and adjustments	9,446	463	1940%
Cash flow from investing activities	(3,453)	(12,734)	-73%
Cash flow from financing activities	(1,981)	(2,032)	-3%
Net cash flow	(18,817)	(37,846)	-50%
Cash position	26,626	45,443	-41%
Segment revenues			
Catalysis	9,173	12,456	-26%
Renewable Chemistries	405	1,195	-66%
Renewable Polymers	285	170	68%
Total segment revenue	**9,863**	**13,821**	**-29%**
Other income from government grants			
Catalysis	235	85	176%
Renewable Chemistries	5,764	3,467	66%
Renewable Polymers	2,288	531	331%
Support	116	134	-13%
Total segment other income	**8,403**	**4,217**	**99%**

Message from the CEO

Tom van Aken

> "A fossil-free world lies ahead"

Dear Stakeholder,

I never anticipated that reviewing and reflecting on the outcomes for 2020 would be so different from my expectations at the beginning of the year. We had set our ambitions high and identified major objectives for Avantium during this critical period in our journey. As it turned out, unforeseen global events had a significant impact on how we conducted our business and worked with our partners. Nevertheless, guided by our mission, we took positive steps forward in 2020 and we remain firmly committed to a fossil-free world.

Progress in a Difficult Year

With COVID-19 spreading around the globe, we implemented new safety measures to protect and support the health and well-being of our employees. We took early action, encouraging remote working whenever possible. I was pleased and proud to see how our teams handled the crisis and its challenges, meeting every obstacle with creativity, determination, flexibility and optimism. I am especially proud of how we kept operations running safely at our plants and laboratories throughout 2020, enabling us to reach a number of milestones despite the difficult circumstances.

Nevertheless, Avantium's progress in 2020 was slower than we had anticipated. We encountered setbacks alongside our successes.

In our Renewable Polymers business unit, we remained focused on reaching a positive Final Investment Decision (FID) for our FDCA flagship plant. While we made significant progress, some of our objectives for 2020 were delayed. Delfzijl, in the north of the Netherlands, was announced as the planned location for the flagship plant in January. However, due to the COVID-19 crisis, negotiations with financial, commercial and other strategic partners are taking longer than we had hoped.

By early 2021, we conditionally secured €95 million[1] of the total €150 million funding needed (excluding 20% contingency) and we had signed the first two conditional offtake agreements for PEF in food packaging applications.
We made good progress in engineering and scale-up in 2020, while also devoting significant time to developing and validating PEF applications with our partners. The broad application potential for PEF is a central part of our commercialisation strategy.

In our Renewable Chemistries business unit, we made good technological and operational progress with our Ray Technology™. Our plantMEG™ demonstration plant was successfully commissioned and became fully operational, proving that the technology works at scale. This progress puts us at an exciting stage of the development process and we aim to capitalise on this by establishing partnerships that will allow us to maximise the commercial potential of plantMEG™.

Our Catalysis business unit was affected by the global travel restrictions that prevented us from carrying out installations, maintenance and upgrades of Flowrence® systems at our customers' sites. The turmoil in the world's oil industry had an impact on the operations of many of our customers, resulting in cost reductions, temporary laboratory closures and delayed purchasing decisions. However, we were able to maintain business continuity in our laboratories, and the contract research portion of our Catalysis business generated increased revenues compared with 2019. We have been able to work on expanding our technological and experimental capabilities, and we hope these will become the foundation of future business for Avantium Catalysis.

The Global Environment

The environmental crisis has dominated the global agenda for several years. There were concerns that the pandemic would stall progress in this area and that the environment would again be neglected in the face of a new threat. However, I believe the opposite has in fact occurred. Sustainability topics became even more prominent as people re-evaluated their ways of living. One of the year's most interesting global trends was the growing consumer awareness of the importance of circularity, and this fits well with the superior functionality and environmental advantages of Avantium's products and technologies.

Our focus remains on scaling up technologies that produce plant-based materials with improved recycling possibilities, thereby providing valuable opportunities to our partners and helping their customers make more informed choices.

Governments, industries and consumers know that change is needed to avoid the worst-case climate and environmental scenarios. This provides a sobering but relevant background for Avantium's work, as we continue to develop technologies to produce environmentally sustainable and high-performing materials. We remain well placed to provide solutions that help tackle climate change and plastic waste, and that have a positive impact on our planet.

A Clear Strategy

We aim to be a world leader in renewable and sustainable solutions for the chemical industry. Our strategy - to invent, develop and commercialise sustainable technologies - remains unchanged, as does our ambition to drive transformation in our industry. The promising signs of change in consumer attitudes, as well as policies and regulations worldwide, helped further motivate us to persevere throughout a challenging year.

At Avantium, our people continue to be foundational to the implementation of our strategy. We champion ambition, creativity, determination and diversity. As we move from research and development to scale-up, operations and commercialisation, we are broadening our talent pool and assembling the expertise required to make the transition a success.

To support our strategy and facilitate the commercialisation phase, Avantium welcomed three new Supervisory Board members in 2020. Michelle Jou, Trudy Schoolenberg and Cynthia Arnold bring very valuable commercial, engineering and technology expertise from the chemicals and plastics industry. We also welcomed a new CFO, Bart Welten, to the company.

Sustainability in our DNA

Finally, in a year when the importance of our work became more apparent than ever, Avantium's sustainability plan, Chain Reaction 2030, made a powerful statement. Sustainability has always been at the very core of what we do, and it is exciting to see our efforts laid out so comprehensively. I believe the plan is a first for our industry in setting such clear, ambitious and measurable sustainability targets: ten major goals to achieve by 2030 and the ambition to realise a fossil-free chemical industry by 2050. I look forward to continued discussions around our sustainability actions - and those of others - in the coming years.

In spite of unprecedented circumstances, we made notable progress in 2020. I take great pride in our talented and driven employees who made this possible. We are a disruptive force in the chemical industry, with a new value chain that makes our road more challenging to navigate. Nevertheless, we are determined to reach our destination with the support of our stakeholders and our partners. A fossil-free world lies ahead.

Tom van Aken
Chief Executive Officer

[1] Subject to multiple conditions, including the fulfilment of the key conditions for the FID. Please see p. 30 for all financing elements related to the €95 million.

Who We Are

We believe in a fossil-free world. Let's go!

Our vision speaks for itself. Sustainability is not an afterthought: it sits at the heart of everything we do at Avantium. Fossil-based plastics still have a powerful hold on the chemical industry, and it is clearer than ever that this is a major factor in the current environmental crisis. We believe we have the solutions - a range of products and technologies to drive the transition to a circular economy and a more sustainable world.

We create disruptive technologies across entire value chains

Avantium is a pioneer in the emerging industry of renewable and sustainable chemistry. We are an innovation-driven company dedicated to developing and commercialising breakthrough technologies that will transform the chemical industry. Our focus is on revolutionising polyesters, enabling the production of fully circular plastics that can be indefinitely recycled. We believe this is the area with the most potential to drive the industry towards becoming fossil free. Our plant-based materials can be used in packaging, textiles, film and more – everyday items fit for today's world.

... bringing them to the world with partners

At Avantium we know that we cannot realise our vision without support from others. Luckily, times are changing, and consumers and governments are putting increasing pressure on brands, retailers and the chemical industry to eliminate fossil feedstocks and embrace the circular economy. We work with like-minded partners from around the globe to commercialise our products and bring them to consumers.

... to accelerate the transition towards renewable and circular products

We put all our efforts into creating a pipeline of proprietary technologies and products that form part of the circular, sustainable, bio-based economy. To reach a truly circular economy, we need to ensure that only renewable sources of carbon are used, alongside reducing, reusing and recycling plastic materials. Our chemicals and materials are made from renewable feedstocks and have a significantly lower carbon footprint than traditional petroleum-based alternatives. Aside from being fully scalable, our products are economically competitive, fully recyclable and superior in performance.

... and we foster a safe and vibrant place to make an impact.

Avantium attracts talent from all over the world. Our 229 employees are committed to a sustainable future and our collective ambition creates an inspirational environment where everyone's expertise has a role to play. Together, we strive to be an accident-and incident-free organisation, and we cultivate diversity, equality and inclusion in our work-place. We are proud that our purpose and values keep our people engaged and deter-mined to work together to bring about significant, positive change.

Our Business Units

Avantium has three business units united by a common goal: to invent technologies that enable partners and consumers to choose products made from renewable sources, eliminate plastic waste and reduce CO_2 emissions.

Avantium Renewable Polymers

Changing the Nature of Plastics

Avantium Renewable Polymers aims to commercialise our proprietary plants-to-plastics YXY® Technology, which is used to produce furandicarboxylic acid (FDCA) - the main building block of the high-performance, plant-based plastic polyethylene furanoate (PEF). We have fully proven the technology in our pilot plant in Geleen and our ambition is to open the world's first commercial FDCA plant in 2023.

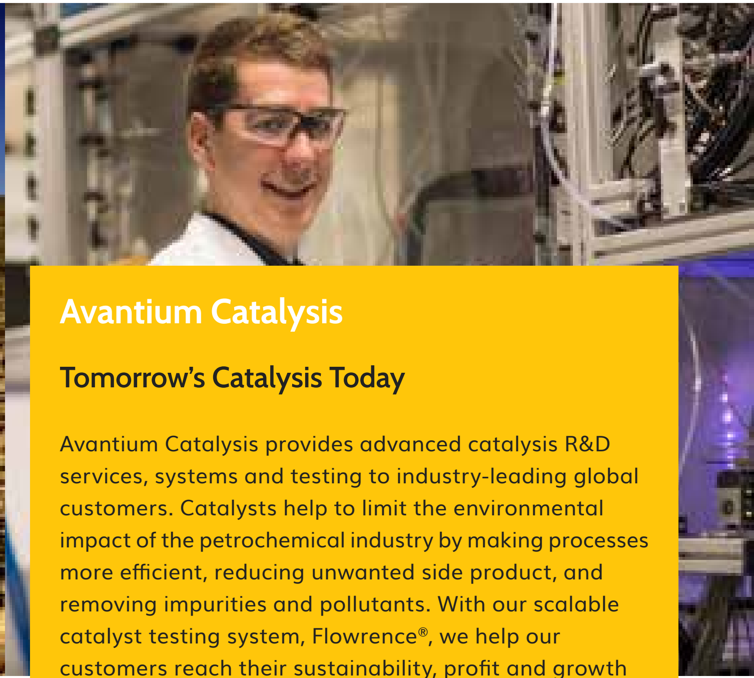
Technologies	Chemicals /Products	End markets
YXY®	FDCA → PEF	Packaging, textiles, film

Avantium Renewable Chemistries

Groundbreaking Technologies for a Sustainable Carbon Future

Avantium Renewable Chemistries develops technologies based on viable, non-fossil sources of carbon, making the need for fossil feedstock a thing of the past. We use plant- and air-based sources as the raw materials for innovative new technologies and products. The business unit is home to three lead programmes: Ray Technology™, Dawn Technology™ and Volta Technology.

Technologies	Products/Industries	End markets
RAY	PlantMEG™ PlantMPG™	Packaging and various textiles, de-icing and coolants
Dawn	Industrial sugars	Feedstock for chemicals and materials
	Lignin	E.g. bio-asphalt
Volta	High-value ingredients, such as glyoxylic and glycolic acid, commodity chemicals	Chemical and aviation fuels



Avantium Catalysis

Tomorrow's Catalysis Today

Avantium Catalysis provides advanced catalysis R&D services, systems and testing to industry-leading global customers. Catalysts help to limit the environmental impact of the petrochemical industry by making processes more efficient, reducing unwanted side product, and removing impurities and pollutants. With our scalable catalyst testing system, Flowrence®, we help our customers reach their sustainability, profit and growth targets. Moreover, our expertise in catalysis benefits our own technology development and improves efficiencies.

Specialisms	
	R&D services R&D systems (Flowrence®, Batchington) Refinery Catalyst Testing

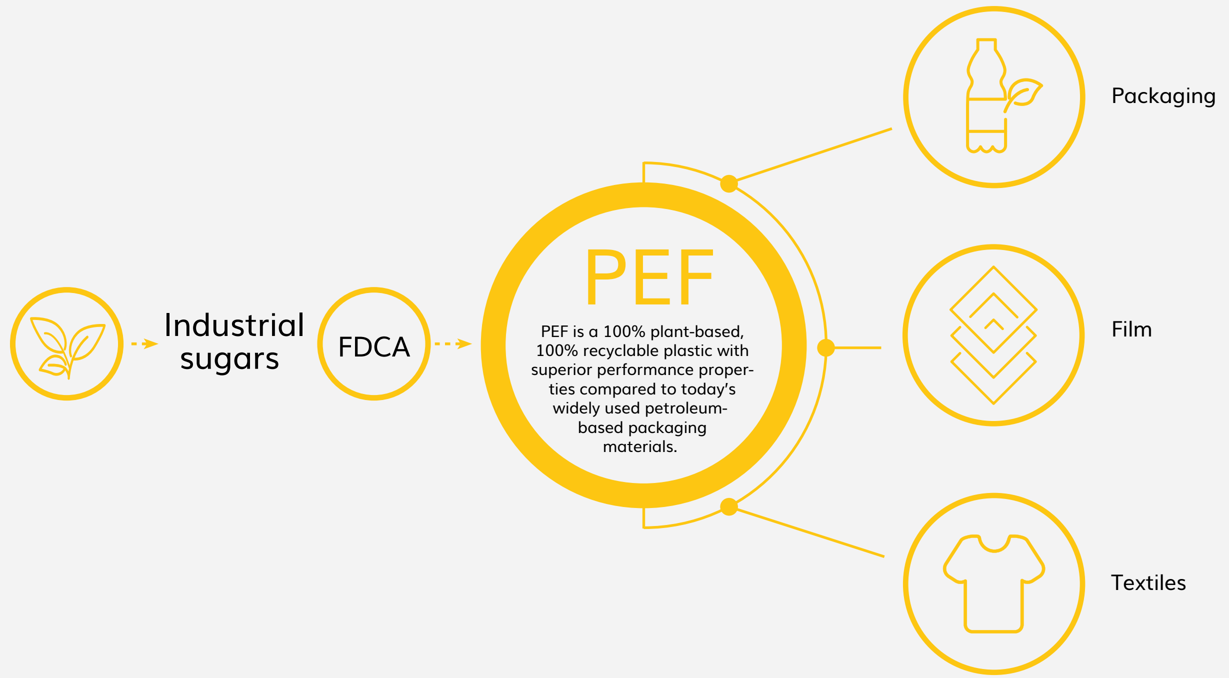
Our Technologies

YXY® Technology

We are very excited about our proprietary YXY Technology, which converts industrial sugars into FDCA. Why is this important? Because FDCA is a key building block of PEF, a 100% fossil-free, recyclable, degradable polymer which outperforms today's packaging materials, such as plastic, glass and aluminium. PEF made from our FDCA has superior barrier properties (meaning a longer shelf life for food and beverages), higher mechanical strength (giving thinner packaging that uses fewer resources), higher heat resistance and a lower processing temperature (needing less energy to produce it).

Designed to fit perfectly into a circular economy, PEF is 100% recyclable on its own and, importantly, it enables the recyclability of polyethylene terephthalate (PET) in mixed polymer applications. Furthermore, initial studies suggest that PEF degrades in the natural environment many times faster than PET - it starts to break down in natural conditions within a single year instead of hundreds of years.

We are focused on commercialising our YXY Technology as we believe PEF is the next-generation plastic the world needs. PEF has huge potential in the packaging, film and textile sectors, which are growing markets worth over US$200 billion. We currently aim to open, dependent on a positive Final Investment Decision (FID), our flagship plant for FDCA and PEF in 2023.



Our Lead Product: FDCA

Furandicarboxylic acid (FDCA) is a central ingredient for making the polymer known as polyethylene furanoate (PEF). Historically, there was no economically viable way to manufacture FDCA - but that has all changed with the arrival of Avantium's YXY Technology. We believe we can now finally unlock the full potential of this 'sleeping giant' of the chemicals industry.

In 2011, we were the first company to build a pilot plant for FDCA. One decade on, and many challenges later, we are now ready to scale up the technology with the goal of building a flagship plant capable of producing 5 kilotonnes of FDCA per year - created sustainably from plant sugars.

As a monomer, FDCA can realise exciting opportunities to create a wide range of useful and sustainable polymers, from polyesters, polyamides and polyurethanes to coating resins, plasticisers and other chemical products.

Ray Technology™

Ray Technology turns industrial sugars into glycols, producing cost-effective, plant-based mono-ethylene glycol (MEG) in a single step. MEG is the other core component of PEF and PET making it integral to the production of fully green and circular plastic materials and textiles. MEG is a commodity chemical projected to grow in use from 35 million tonnes in 2017 to 50 million tonnes by 2035[1], with more than 99% of it currently made from fossil sources. At Avantium, we can change this.

Our calculations estimate that using Ray Technology to produce plantMEG generates around 70% less CO_2 than traditional fossil production methods - just one production plant would give the same CO_2 reductions as taking a half a million cars off the roads per year. This makes Avantium's plantMEG a far more sustainable alternative than fossil-derived MEG. Ray Technology can use both first-generation industrial sugars from beet or corn and second-generation feedstock from forestry or agricultural residues.

Our glycols demonstration plant opened in November 2019 and was successfully commissioned and became fully operational in 2020, with an annual production capacity of 10 tonnes of plantMEG. We can now produce plantMEG for validation in all relevant applications, thereby acting as a catalyst for a multitude of commercial development programmes. In addition, the demonstration plant will also produce several tonnes of plant-based mono-propylene glycol (plantMPG™) as a co-product. PlantMPG is non-toxic and is used for aeroplane de-icing as well as in unsaturated polyester resins used in modern windmill blades and as heat transfer fluid in solar panels.

Avantium aims to scale up Ray Technology to a commercial facility in 2024/25 (please revert to Innovation Funnel on p. 23). The strategy of Avantium is to implement a technology licensing business model for Ray Technology.

[1] Nexant Petrochemical Market Dynamics, Polyester & Intermediates, 2017

A Key Piece of the Puzzle: PlantMEG™

With Ray Technology, Avantium has found a way to produce mono-ethylene glycol (MEG) from plant-based feedstocks rather than fossil sources.
We call this plantMEG, and we see it as having a vital role to play in the transition to a greener materials industry.

Currently, MEG is widely used as an important chemical building block for plastic bottles and packaging, textiles for clothing and household items like upholstery and drapery, de-icing products and coolants. The vast - and ever-growing - market for MEG, however, poses a threat to the environment.

At Avantium, we see plantMEG as the answer. Using plantMEG with plant-based FDCA is the only way to produce a 100% plant-based plastic bottle, made from PEF - the plastic of the future. PlantMEG gives brands the option of a sustainable, recyclable and innovative ingredient that will attract environmentally conscious consumers.

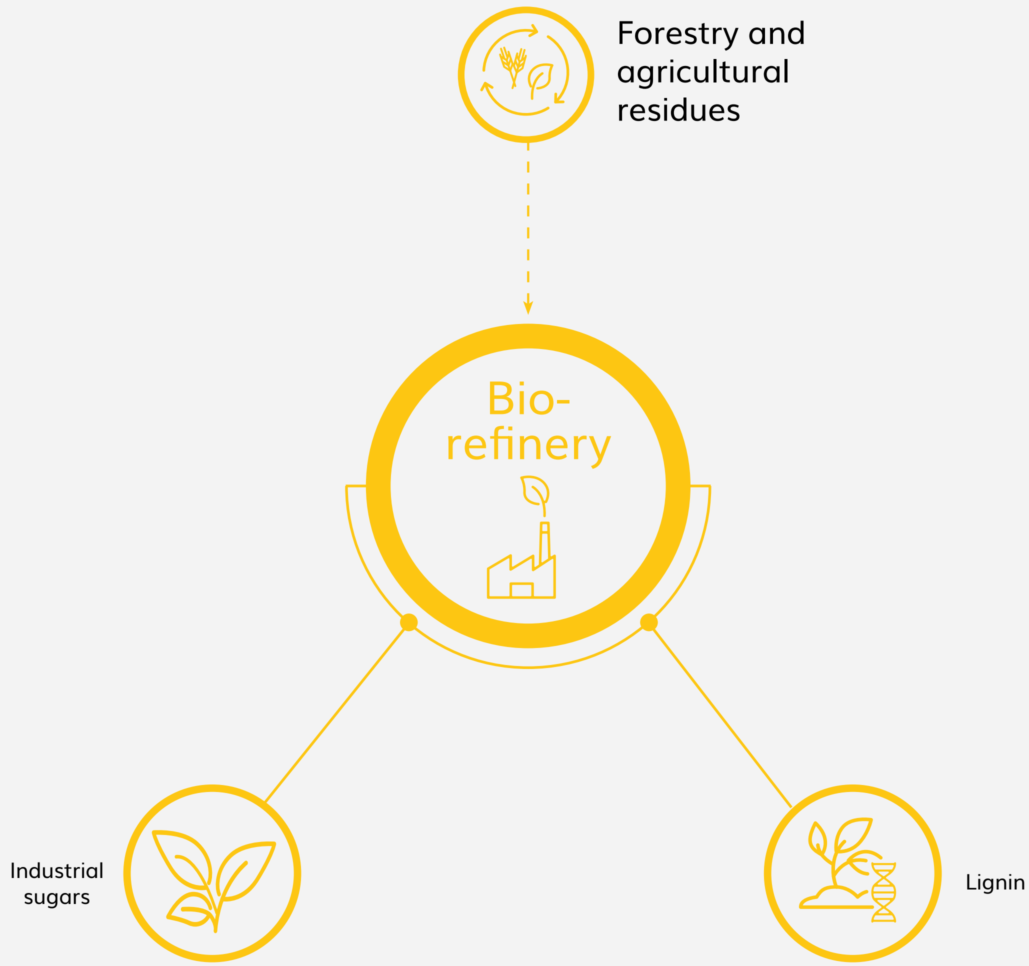
How does our plantMEG compare with fossil-based MEG? The technology's single-step catalytic process means plantMEG is cost competitive with the petroleum-based incumbent.
Our high-quality plantMEG is identical to fossil-based MEG in quality and performance. But the advantage is clear: the process of making plantMEG results in significantly lower CO_2 emissions – around a 70% reduction. This makes it a real game-changer for our collective green future.

Dawn Technology™

An innovation in biorefinery processes, Avantium's Dawn Technology converts non-food, plant-based feedstock into industrial sugars (like those used in our YXY Technology and Ray Technology) and lignin (an energy-dense material remaining after the sugars have been extracted). Industrial sugars are excellent raw materials for chemical and industrial processes, and can be used in place of petroleum as the starting material for any product. As an alternative carbon source to petroleum, these sugars are essential in the transition to a bio-based economy.

Dawn Technology is based on a 100-year-old technology to produce sugars from waste streams. However, Avantium has radically improved and modernised the process through our proprietary inventions. The global demand for feedstock streams and conversion technologies is on the rise and our Dawn Technology has received interest from potential partners around the world.

Avantium's pilot refinery, which opened in 2018, has continued to run with a focus on operational excellence. We see industrial sugars from Dawn Technology as imperative for a successful future bioeconomy. When the chemical industry begins to shift to plant-based feedstock, non-food sources of carbon will be required to meet global product demands.

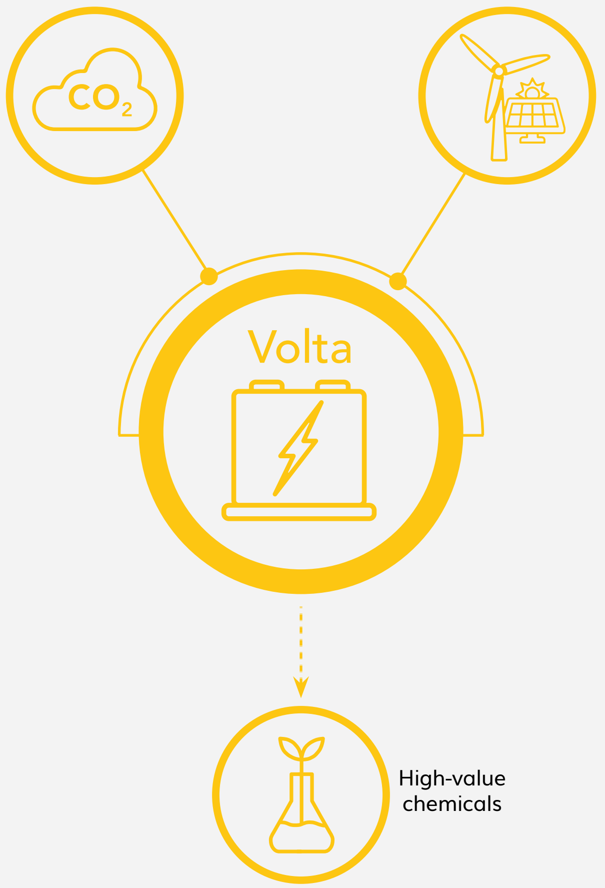


Volta Technology

Our Volta Technology takes a different approach in our quest for a circular economy. Where our other technologies use plant sources as their raw materials, Volta Technology uses CO_2, viewed as air-based carbon, turning waste into feedstock. Avantium's cutting-edge electrocatalytic platform converts CO_2 into a broad range of products, from cosmetic ingredients to fuels.

Our technology platform offers multiple advantages: first, Volta Technology unlocks CO_2 as a new carbon source for the chemical industry; second, it enables cleaner chemical processes due to its use of electrons as reagents; and third, it allows industrial parties to reduce CO_2 emissions, the world's largest contributor to global warming. Volta Technology not only uses CO_2 that would otherwise be released into the atmosphere but also makes products that replace plastics and chemicals traditionally made from fossil sources - a double win for the environment.

We are currently working on scaling up our Volta Technology in pre-pilot units that will be demonstrated at industrial sites in 2021. This will be a step towards a potential revolutionary change for the industry. By using electrochemistry to harness the power of CO_2, we can set our sights on a circular future sooner.



High-Value Chemicals:
Glyoxylic Acid and Glycolic Acid

Volta's first target products are glyoxylic acid and glycolic acid, ingredients used in many consumer products, from skincare and cosmetics to personal care and household cleaning products.

These ingredients are a prime example of how Avantium's Volta Technology can boost sustainability in high-value markets worldwide.

Value Creation Model

Avantium creates value by focusing on developing and scaling up technologies that will enable a fossil-free world. We manage risk and strive to transform our capital resources to create value for the environment, society and our investors.

Our capital lies in the talent and expertise of our employees, our intellectual property (IP) portfolio and innovative processes, our feedstocks and sources, our laboratories and plants, our partnerships with industry leaders and our cash position, grants and investments.

Our value creation model shows how our vision, mission and actions create a positive impact on our direct value chain and beyond.

The impact of our technologies will create value for society as a whole

Value creation

Input

Human capital
229 employees

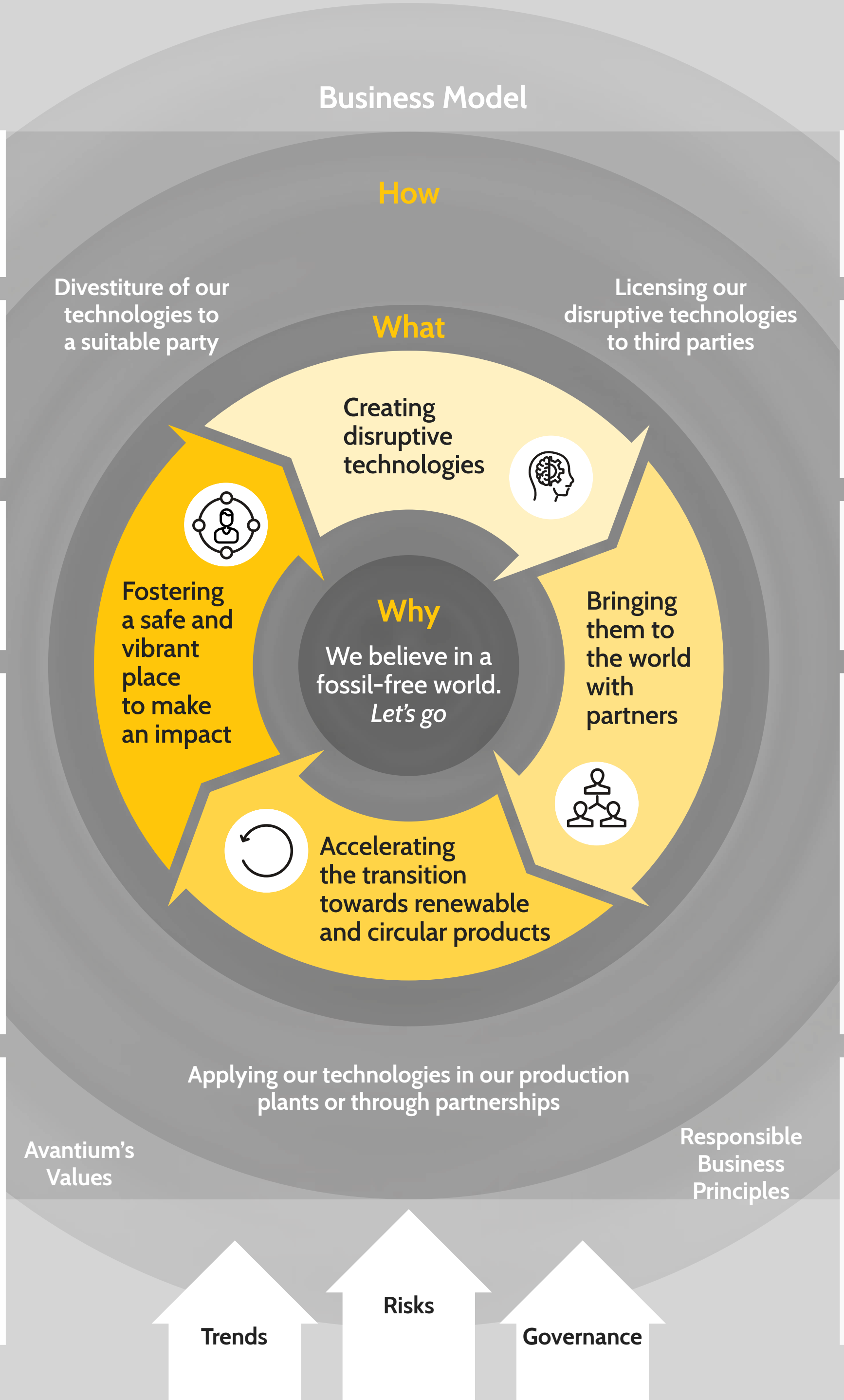
Intellectual capital
137 patent families

Natural capital
- Volume of renewable feedstock
- Origin of feedstock

Social & relationship capital
- Engagement with our stakeholders
- Partnerships (contributions of partners)

Financial capital 2020
- € 3.5 million in investments
- € 8.4 million of grant recognition
- € 26.6 million cash position at 31 December

Business Model



Output

Human impact
- Safety & health
- Diversity & inclusion
- Employee satisfaction

Technological/intellectual return
- Product innovation
- 12 newly filed patent applications in 2020
- 18 newly granted patents in 2020
- 3 technologies piloted

Ecological impact
- Reduction of CO_2 emissions
- Life cycle assessments
- Circularity

Social return
- Stakeholder engagement
- Compliance laws and regulations
- Collaborations with schools and universities

Commercial return
- Corporate partnerships and customers
- Customer satisfaction
- New applications
- New markets / geographies

Financial/investor return
- € 18.3 million in consolidated revenues and other income
- € -14.9 million in EBITDA
- Future licensing deals

Societal Outcome and Impact

Environmental impact
- We enable sustainable products (packaging, film, textiles)
- We improve efficiency in the broader (petro) chemical industry using our catalysis platform
- We enable the circular economy
- Our technologies enable the reduction of CO_2

Social impact
Attractive, safe and inspiring workplace for talent from all over the world

Investors
Economic value for our shareholders

While striving for a fossil-free world, we contribute to the UN Sustainable Development Goals.

Management Board Report

The World Around Us

Climate change is one of the most pressing issues of our generation. In 2020, the upheaval caused by the pandemic prompted much reflection on environmental practices, among individuals and businesses alike.

COVID-19

Optimism for a new decade was quickly countered by the emergence and rapid spread of COVID-19 in the early weeks of 2020. People all over the world found their way of life significantly affected, with schools, workplaces, amenities and industries shut down to prevent the spread of the pandemic.

At Avantium, we responded quickly to the pandemic, implementing even more stringent hygiene and safety measures in our offices, laboratories and plants. Our critical operations continued to run smoothly on site under new protocols, while the majority of our office-based teams worked from home for most of 2020.

The pandemic had an impact on our Renewable Polymers business as virtual negotiations with financial, commercial and other strategic partners are taking more time than we had foreseen. Travel restrictions also affected our Catalysis business compromising our ability to maintain and install our systems at customers' sites. Our Renewable Chemistries business unit, however, was able to seamlessly commission the new demonstration plant despite the pandemic.

From an economic standpoint, the pandemic has resulted in a volatile business environment and, in particular, turmoil in the petroleum industry. These realities impacted Avantium's revenues. To best manage our finances, we limited our capital expenditure and operating costs, ensuring that we can continue working towards our scale-up and commercialisation plans. Avantium continues to conduct scenario analyses to monitor the pandemic situation, anticipate its impact and plan our potential future responses.

The Plastic Problem

The pandemic has led to growing demands for a green economic recovery plan that takes into account the challenges we faced long before COVID-19 emerged. One of the most important is the way we produce, use and discard plastics: society's current 'make-take-dispose' attitude continues to drive the depletion and destruction of natural resources. In recent years, public concern has grown around the damaging levels of greenhouse gas (GHG) emissions from plastic production and the large quantities of plastic waste polluting our oceans. Most plastic has a short useful life but creates significant and long-lasting harm for our planet, both during manufacture and after disposal.

Nevertheless, plastic is an important and ubiquitous material because of its functional characteristics: it is reliable, strong, lightweight and relatively cheap to produce. Indeed, while there is growing concern around the impact of plastic on the environment, demand is still forecast to rise exponentially to >1 billion tonnes per year by 2050. As a society, we therefore need to radically and urgently transform how we produce, (re)use and recycle plastics.

In contrast, the pandemic has caused an increased need for disposable hygiene equipment in 2020 and there is a real danger of undoing recent years of progress on sustainable plastic use. An increase in home deliveries to consumers has also had an impact on packaging use. Moreover, several countries delayed measures intended to cut down on single-use plastics due to fears over the safety of more sustainable options: England's ban on single-use plastic straws and stirrers, for example, was postponed in April, although it eventually came into effect in October.

As the world deals with the question of how to build back better, industry is coming to a crossroads. We need to take the opportunity to fundamentally transform how we create and use plastics, minimising waste and maximising value creation.

Towards a Circular Economy

One trend of 2020 was the growing recognition of the importance of a circular economy. The global business community increasingly understands that environmental stewardship helps rather than hinders prosperity. A circular economy is designed to reduce waste and allow the environment to regenerate, mirroring nature's own use and reuse of resources.
Product design is especially key to maintaining the highest possible value for the longest possible time, while limiting natural resource depletion within a closed material cycle.

At Avantium, we want to accelerate the development of a circular bioeconomy and create new circular business models with our partners. By achieving our sustainability target of becoming a circular business by 2030, we can forge a path for others in industry to follow.

The world was only 8.6% circular in 2020. It will take time and effort for society to move away from the linear economic model favoured since the beginnings of mass production, but as awareness of a circular alternative grows, so will the number of organisations seeking to make the change.

Renewable Sources

According to Nova Institute, there is a general global consensus on the need to move to a 100% renewable – and decarbonised – energy sector, for example by using solar, wind or hydropower sources. However, there is not yet an equivalent strategy for the materials sector, where carbon is essential. This is especially true for the chemical and plastic industries, where progress away from fossil carbon sources towards above-ground carbon sources has been slow. In 2018, it was reported that the chemical industry is responsible for 8% of global human-derived GHG emissions, along with the warning that this could rise to 15% by 2030 and 25% by 2050[1].

Under a renewable carbon strategy for the chemical industry, manufacturers would need to stop using fossil (geosphere) sources and instead use the renewable carbon that circulates among the atmosphere, biosphere and technosphere. Avantium's innovative proprietary technologies allow for the sustainable and responsible use of carbon and we are well placed to help our customers in the transition.

Responsible Products

When it comes to solving the plastic problem, production is just the start. Looking at the other end of the plastic lifecycle, 2020 has seen new forecasts emerge about the impact of plastic pollution, particularly in our oceans. Furthermore, end-of-life concerns about plastic are also highly relevant to the economy. The Ellen MacArthur Foundation reports that 95% of the aggregate value of the plastic packaging produced today is lost to the economy after a single use cycle. In addition, most of this plastic ends its life in markets where it is neither collected nor recycled.

Discarded plastic threatens our environment and the biodiversity of our planet. Forecasts warn that if today's practices continue unchecked, current annual levels of plastic flowing into the world's seas could nearly triple by 2040. Yet the projections also suggest that if we fully invest in and commit to all available means of plastic reduction, recycling and substitution, by 2040 we could instead see an 80% drop in the amount of plastic-to-ocean pollution. For Avantium, this call to action is compelling. Our recyclable product PEF is designed to improve the circularity of plastics and help tackle the problems of waste and pollution. We are ready to bring it to commercial markets and we know we can avoid the worst-case scenarios if the industry acts decisively and collectively.

Regulatory Landscape

Laws, regulations and restrictions on climate-related topics are highly relevant to our work and our mission at Avantium. As such, we consider regulatory requirements to be embedded within our operations and our sustainability framework.

We have seen that regulatory bodies are increasingly focusing on the issues of waste and over-consumption. In March 2020, the European Commission adopted a new Circular Economy Action Plan within Europe's agenda for sustainable growth. It presents new measures for concrete actions in a number of areas, including several that are highly relevant to Avantium, such as packaging, plastics and textiles. These industries use large quantities of finite resources in a linear fashion, yet we know they have strong potential for transitioning to circularity. In July, the European Union (EU) announced plans for a levy on non-recycled plastic packaging waste to come into effect at the start of 2021, as part of its COVID-19 economic recovery programme.

Through its Green Deal, the EU leads the way on actions for a sustainable economy – with aggressive targets not only for carbon, but also for plastics.

With regulatory authorities making new demands on the chemical industry and forcing companies to make important adjustments to their environmental impact, we believe Avantium's technologies and products are a key part of the solution to many of today's environmental problems.

Avantium in the News

Avantium made headlines in 2020 with our plans to work with commercial partners on plant-based bottles for drinks. The worldwide coverage, which included top-tier international news outlets as well as industry specialists, highlighted several key advantages of PEF, the 100% plant-based, fully recyclable polymer that begins to degrade within a year in natural conditions.

The attention for our products reflects the growing consumer aversion towards traditional single-use plastic packaging as well as the rising demand for sustainable alternatives. The degradation angle was particularly strongly emphasised in the media, indicating the importance of this attribute for end markets at a time when plastic pollution is one of the most visible and tangible threats to our environment. It also reflects the mounting calls for circularity. We recognise that our partnerships and our public profile are crucial to keeping up awareness and making PEF a commercial success.

[1] Nova Institute presentation, March 2020; https://www.globalefficiencyintel.com/

On Our Doorstep

Two of Avantium's pilot plants are located in Delfzijl, part of the Chemport Europe ecosystem in the north of the Netherlands. This is also where we intend to build our FDCA flagship plant. Chemport Europe is renowned for being a green chemistry leader, as well as a frontrunner in reducing CO_2 emissions. In 2020, by actively improving production processes, the Chemport companies cut emissions by 44%. In October, Chemport Europe also produced a roadmap for developing the use of saccharides, a source of renewable carbon and key building blocks for many bio-based chemicals. Avantium is proud to be a signatory to this Saccharide Agenda.

Elsewhere in the Netherlands, the SER, an advisory board to the Dutch government, issued a report in July with its findings on a long-running debate over how best to use the Netherlands' limited supply of biomass. The report stated that burning biomass to generate electricity or fuel is wasteful and should be phased out. Instead, it should be used as a raw material in the chemical industry – in line with the technologies and strategy pursued by Avantium.

The world around us faced acute and unforeseen challenges in 2020. Nevertheless, long-term environmental problems, consumer consciousness and industry pressures continued to grow. At Avantium, we believe that innovative and sustainable products like our plant-based plastics are still the solution for many of these issues. We are well positioned to offer technologies and products to meet the needs of consumers and industries, which will in turn provide substantial benefits for our environment.

Our technologies will provide substantial benefits for our environment

Our Strategy

Avantium's overarching strategy is founded on the four pillars of our mission: creating disruptive technologies, bringing them to the world with partners, accelerating the transition to renewable and circular products and providing a safe and vibrant place to make an impact.

Our goal is to be a world leader in renewable and sustainable chemistry technology solutions and to commercialise them through partnerships and licensing.

Avantium's strategy centres on our extensive portfolio of renewable technologies with a focus on sustainable polyesters. Our development activities use a stringent stage-gate process to manage the innovation funnel from ideation to business launch as outlined below. Our strategic aim is to advance our technologies to the point of manufacturing, product sales and licensing.

An integral part of Avantium's strategy and our commercialisation roadmap is close collaboration with strong partners throughout the entire value chain. We work with companies who share our values and want to build a better world for future generations. This helps us develop innovative solutions that deliver sustainability benefits to customers and beyond.

We have multiple strategic routes for monetising our innovative technologies. These include (i) licensing them to third parties; (ii) applying them in our production plants, partnerships or joint ventures; and (iii) divesting them to third parties. Licensing is especially important: aside from being the most capital-efficient way to commercialise our technologies, we believe it is also the fastest way to bring our sustainable solutions to market.

Our management processes allow us to manage risk and increase shareholder value. We know we must manage, plan and allocate our resources in the way that best serves all Avantium's stakeholders while enabling us to fulfil our objectives.

Our Business Model

Our Business Units

Avantium Renewable Polymers

In Avantium Renewable Polymers, we currently aim to have the flagship plant for our YXY Technology operational in 2023, allowing us to produce FDCA and sell both FDCA and PEF to third parties. Thereafter, we plan to sell technology licences to third parties. We are focused on securing funding for the engineering, construction and start-up of our flagship plant.

The Avantium Renewable Polymers strategy can be broken down into four parts: (i) to continue developing the market for FDCA and PEF by working with partners to generate global demand, (ii) to prove the technology at commercial scale at the flagship plant, (iii) to ensure global availability of both products via technology licences, and (iv) to maintain our technology leadership in FDCA and PEF through ongoing research and key partner collaborations.

Avantium Renewable Chemistries

In Avantium Renewable Chemistries, we aim to bring projects from ideation through the proof-of-principle phase to a fully developed business case that will attract partners and funding. The strategy for commercialising the technology will be determined case by case. At each stage, we will assess the most appropriate approach for each project. For example, we might continue to develop the programme independently, create partnerships or sell the technology.

Avantium Renewable Chemistries' Ray Technology is of strategic significance in that it produces glycols and specifically plantMEG. MEG and FDCA from Avantium are the two core components for making the fully plant-based polymer PEF. Therefore, we prioritise our YXY and Ray Technologies through our resource allocation, with other innovation programmes funded through grants and collaborations.

Avantium Catalysis

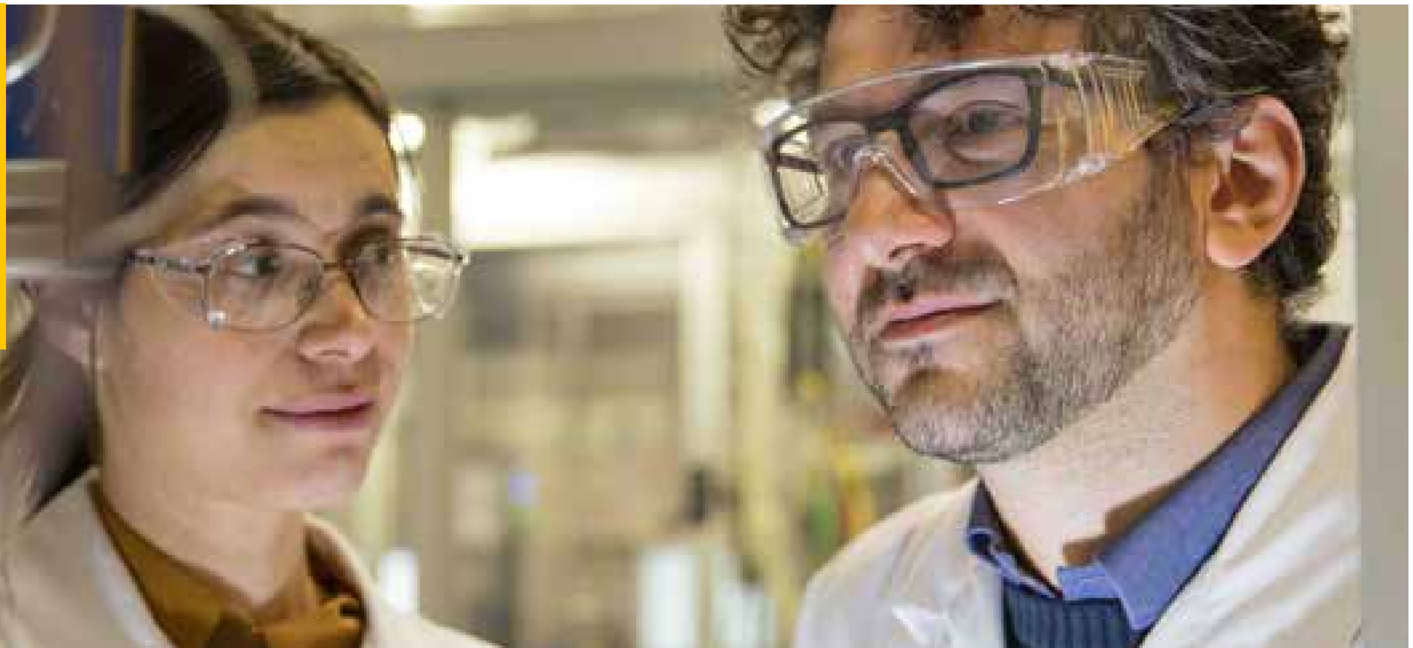
Avantium Catalysis is home to our advanced catalysis research and development and is our revenue-generating business. We aim to maintain our technological leadership in this field as well as improving cash flows. We have two strategic initiatives to achieve this.

First, we will continue to grow revenue by improving our customer value proposition, broadening our market reach and introducing new products and services. We will focus on major segments of the chemical industry – looking beyond (petro-) chemical and refinery catalysis to environmental and fine chemical catalysis – as we expand our systems and services. Our recent work to develop the Batchington system (see p. 34) is one example of this.

Second, we will continue to improve efficiencies and the quality and reliability of our products, all of which are expected to contribute to increased margins. We will further improve operational excellence, increasing the standardisation of our system modules, as well as enhancing project and risk management while maintaining the degree of customisation that our customers need.

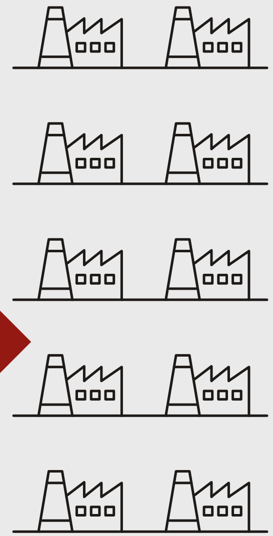
Our Catalysis business also enables customers to develop new catalysts. This not only contributes to sustainability but also provides the R&D methodologies and technologies to support our proprietary programmes.

Our goal is to be a world leader in renewable and sustainable chemistry technology solutions



Innovation Funnel

Avantium's innovation funnel is used to assess and decide on the ideas to pursue as well as to enable the appropriate allocations of resources towards projects at the various phases of development. It consists of six stages.



1 Ideation

In the ideation stage, our chemists and engineers share new developments in a safe and stimulating environment. We use 19 criteria to assess the likelihood of technical and commercial success and we evaluate the strategic fit of the idea for Avantium.

2 Feasibility

The highest-scoring ideas progress to the feasibility stage, where we conduct 'proof of concept' laboratory experiments. We write 'invention disclosures' to accurately and methodically record ideas for further development. We also perform a pre-market analysis and seek external validation.

3 Development

The most promising projects will progress to the development stage. Here, we prepare a preliminary business case as well as a budget and operational plan for the new technology. We also identify partners with whom we could take the technology further. Based on a comprehensive project plan, resources are allocated and the plan is executed. Significant stage gates are held with the management team, which decides if the new technology will advance to the pilot stage or if other options are more appropriate.

4 Pilot Plant

In the pilot stage, we develop a pilot plant design. When we have secured financial investment, our Supervisory Board reviews the management team's recommendation to build the pilot plant. Once it is approved, the new proprietary technology is then tested and demonstrated at the pilot plant. The objective is to scale up the novel technology from laboratory to demonstration size, to further optimise the technology and validate applications.

5 Flagship Plant

Once successful, we proceed - on a stand-alone basis or in partnership - to the flagship plant stage, where we begin production at commercial scale. First, we embark on the engineering phase, with the concept development (process design package) followed by the front-end-engineering and design (FEED) stage of the flagship plant. Construction starts once a Final Investment Decision (FID) is taken, based on three pillars: (i) technology readiness including engineering, (ii) commercial coverage, and (iii) financing.

6 Industrial Take-Off

Once the flagship plant is operational and the technology validated, Avantium can license its technology to industrial partners for broader scale deployment and market adoption.

Intellectual Capital

Throughout the innovation process, we record inventions, write invention disclosures and register patents to secure and protect our IP rights – a critical factor in Avantium's success. To safeguard our proprietary technologies and products, we have developed, and continue to maintain and strengthen, an extensive IP position. We consider a patent family fully granted if it is granted in both Europe and the USA. The table gives an overview of our current patents and patent applications, including invention disclosures.

In 2020, Avantium took steps to improve, secure and defend our IP portfolio. For example, we assigned the patent rights registered under the name of Synvina, our former joint venture, to Furanix Technologies, meaning that all the primary IP rights for the making and use of FDCA and PEF are held by a single legal entity. We also successfully defended our patents against third-party observations and oppositions in both Europe and Japan.

Patents and Patent Applications in 2020

Business unit	IP portfolio	Current number of patent families (incl. newly filed patent applications)[1]	Newly filed patent applications in 2020[2]	Newly granted patents in Europe (EPO) or the USA in 2020[3]	Newly reported inventions in 2020[3]
Renewable Polymers	YXY Technology	59	5	10	3
Renewable Chemistries	Ray Technology	15	5	1	10
Renewable Chemistries	Dawn Technology	13	0	2	1
Renewable Chemistries	Volta Technology[4]	36	2	3	6
Catalysis	Catalysis	9	0	2	16
Corporate Technology	Early Stage	5	0	0	5
	Total	**137**	**12**	**18**	**41**

[1] A patent family is a collection of several national and/or regional patents and/or patent applications covering the same invention.
[2] A patent application is a request pending at a patent office for the grant of a patent for an invention. Once the patent application complies with the laws of the country or region concerned, a patent may be granted for the invention.
[3] Newly reported inventions may mature into a publication or patent application or may be kept as a trade secret.
[4] Including former Liquid Light patent families.

Stakeholders and Materiality

We define our stakeholders as those individuals, groups or organisations that can affect or can be affected by our business. We recognise five stakeholder groups: employees, partners and customers, shareholders, suppliers and contractors, and society. We create value for our stakeholders by working towards our mission to transition the chemical industry to renewable feedstock and to secure a sustainable future for all.

Our Stakeholder Groups

Employees

Our employees, their talents and their motivation are our biggest competitive advantage. We provide a safe and vibrant workplace where everyone can thrive and contribute to our goals. We aim to be a magnet for the best people from a diverse array of backgrounds. Safety is always our number one priority, we strive for an injury and accident free environment.

Partners and Customers

An integral part of Avantium's strategy and commercialisation roadmap is our collaboration with partners throughout the entire value chain. We bring our technologies to market in collaboration with like-minded companies who complement our skills and knowledge and increase our chances of success. We bring innovative solutions that benefit our customers and help them achieve their sustainability goals. With a customer base that includes industry leaders around the world, we are well placed to provide tailored services and meaningful results.

Shareholders

By monetising our innovative technologies and bringing our game-changing products to market, we create value for our shareholders, for example through partnerships and licensing. We also develop and capitalise on our extensive IP portfolio. Our Catalysis business unit generates revenue and profits by providing extensive service projects and highly advanced catalyst testing systems.

Suppliers and Contractors

Our suppliers and contractors are integral as partners in the efficient and seamless scale up of our technologies and delivering on our customer commitments. We are committed to a responsible and sustainable supply chain.

Society

We align our business strategy and sustainability goals with the needs of broader society, looking beyond our direct value chain. We also engage with students at schools and universities, sharing our expertise and exciting the next generation about sustainable and renewable chemistry. We have an active dialogue with local communities, governments and authorities, industry associations, media and non-governmental organisations (NGOs).

Our Dialogue with Stakeholders

Continuous stakeholder engagement, in which we embrace open dialogue and knowledge-sharing, is important in an innovation-driven industry and helps us to identify areas for improvement. We communicate with our stakeholders through various channels and at a variety of levels. The methods of engagement vary depending on the stakeholders, the issues of concern and the purpose of engagement. The tables hereafter provide an overview of our main stakeholder groups, the way we communicate with them and the topics most relevant to them.

We communicate with our stakeholders through various channels and at a variety of levels

Stakeholder	Form and frequency of dialogue	Topics discussed	Effect of dialogue on Avantium
Employees	▪ Social intranet, business unit Townhall meetings, lunch (daily) ▪ Company Meetings with all employees (every 2 months or when appropriate) ▪ Leadership Team Meetings (every 2 months or when appropriate) ▪ Performance Reviews (twice a year) ▪ Training and development programmes (when appropriate) ▪ Works Council (at least every 2 months or when appropriate) ▪ Onboarding programme for new employees (when appropriate)	▪ Strategy ▪ Business highlights and performance ▪ Health and safety ▪ Vitality ▪ Sustainability ▪ Diversity and inclusion ▪ Training and development	We believe employee engagement is key to Avantium's business; our success is built on the commitment, ambition and expertise of our people. At Avantium we strive to foster an inspiring and supportive workplace. We aim to help people embrace our values and familiarise themselves with our strategy and our mission.
Partners and customers	▪ Business meetings and site visits (when appropriate) ▪ Phone and video calls, email exchanges and virtual tours by commercial or technical teams (daily) ▪ Conferences, symposia and special events (when appropriate)	▪ Technologies, lead products and services ▪ Innovation ▪ Customer support and quality ▪ Environmental, social and governance (ESG) targets, e.g. circular business models, carbon footprint	An integral part of Avantium's strategy and our commercialisation roadmap is close collaboration with strong partners and customers throughout the entire value chain. We work with companies who share our values and want to build a better world for future generations. This helps us develop innovative solutions that deliver sustainability benefits to customers and beyond.
Shareholders	▪ Direct interaction with the Investor Relations team, CEO or CFO in calls, email exchange, site visits office (daily) ▪ Annual General Meeting (annually) ▪ Extraordinary General Meeting (when appropriate) ▪ Capital Markets Day (Technology & Markets Day)/ Retail Investors Day) (annually or when appropriate) ▪ Annual or half-year results presentation and press release (bi-annually) ▪ Investor conferences and roadshows (when appropriate)	▪ Financial results ▪ Funding options ▪ Market outlook ▪ Company roadmap and technology portfolio ▪ Lead products and end-market ▪ Board composition and remuneration	This group consist of current shareholders, potential investors and financial analysts. We aim to help them understand the (long-term) investment opportunities Avantium offers. With shareholders, we discuss our funding strategies and opportunities, financial performance and outlook, as well as our sustainable solutions.

Stakeholder	Form of Dialogue and Frequency	Topics Discussed	Effect of Dialogue on Avantium
Suppliers and contractors	▪ Direct interaction via supplier account teams/procurement in calls, email exchange, virtual meetings (daily) ▪ Site visit - at Avantium and/or at the suppliers' office (when appropriate)	▪ Products and technology ▪ Innovation ▪ Supply chain ▪ Supplier performance and risk management ▪ IP / information security ▪ Business continuity ▪ Health and safety ▪ Circular economy	We rely heavily on our supplier network. Our suppliers and contractors are integral as partners in the efficient and seamless scale up of our technologies and delivering on our customer commitments. We are committed to a responsible and sustainable supply chain.
Society	**Industry associations** ▪ Member conferences, regular meetings, round tables of relevant industry associations (when appropriate) **Governments and authorities** ▪ (Pro)active dialogue with government, authorities and municipalities (when appropriate) ▪ Safety and compliance reporting (when appropriate) **Community, universities, media, NGOs, and other** ▪ www.avantium.com (continuously) ▪ Avantium's social media channels (continuously/when appropriate) ▪ Press releases, interviews, engagement calls/meetings (when appropriate) ▪ Collaboration with University of Amsterdam (continuously) ▪ Community engagement programmes (when appropriate) ▪ Company visits (when appropriate)	▪ Our technologies and lead products ▪ Our innovations: strengthening innovation in the industry, society and where we operate ▪ Circular economy ▪ Community engagement ▪ Our people ▪ Exciting the next generation about renewable chemistry ▪ Local developments	We align our business strategy and sustainability goals with the needs of our wider society, beyond our direct value chain. We also engage with students at schools and universities, sharing our expertise and exciting the next generation about sustainable and renewable chemistry.

Business Materiality

In March 2020, with the support of external consultants and the management team, we completed our first materiality assessment. This mapped societal interest topics with the business impact to Avantium. We identified 34 material topics of which 10 were deemed to be of Very High Priority to the company when considered alongside societal interest. The remaining are of High and Moderate Priority of which an additional 4 are of significant impact to Avantium as a company. In addition to identifying the priority level, we have categorised each topic in accordance with the four pillars of our Sustainability Plan (Chain Reaction 2030).

We report on the 10 Very High Priority topics as well as the 4 High Priority topics of significance to Avantium at least once a year in our Annual Report. These topics are captured in a materiality matrix that plots Societal Interest with our Business Impact. The referenced location for each topic can be found in the graph.

Definitions of Very High Priority Material Topics

Product Sustainability & Environmental Impact of Chemicals
Sustainable products and chemicals are ones that have a positive environmental impact over their entire life cycle from the extraction of raw materials to end-of-life or final disposal. Avantium's technologies produce sustainable alternatives to fossil-based chemicals and materials. Our future licensees will be able to harness the environmental benefits of our novel technologies.

Circularity
We believe in a circular bio-economy and the need to create new and innovative business models that benefit not only us but our partners and society at large.

Climate Advocacy
We are focused on transforming the chemical industry to become circular and fossil-free. We are advocating for changes that support the transition to circular chemicals and materials. The scale of the challenge demands that we engage and work through partnerships and collaborations with a broad range of stakeholders.

Responsible Licensing
As a sustainable technology developer, we are committed to ensure that our future licensees will operate under certified credentials.

Hazardous Materials Management
As a company operating in the chemical industry, we generate both hazardous and non-hazardous waste. We focus first on reducing all waste that we generate and specifically for hazardous waste, we aim to recycle residues.

Stakeholder Engagement
We are structured for the most transparent engagement with a broad range of stakeholders maintaining accurate and up-to-date records. We actively engage with stakeholders to build our company and tackle the most pressing issues related to climate. We recognise that our success and the transition to a more sustainability world is dependent on engaging others in an open and transparent manner.

Climate-Related Regulations
We advocate for laws, regulations and restrictions that help address climate-related topics and ensure a level playing field for new sustainable technologies. We believe in reducing (plastic) waste, reducing our reliance on fossil materials and transitioning to a circular, sustainable bio-based economy.

Life Cycle Assessments (LCAs) of Products
LCAs are fundamental to demonstrating the environmental footprint of the products made by Avantium's technologies. They provide the third-party verification of the benefits relative to their fossil-based incumbents.

OHS (Occupational Health & Safety)
Health, safety and the well-being of our employees is our highest priority in everything that we do. All Avantium employees are committed to our 'Golden Safety Rules'. They are a daily reminder that safety is to be taken seriously both on the job and in one's private life.

Greenhouse Gas Emissions & Emissions to Air
A key part of our strategy includes setting emissions reduction targets in line with climate science to future-proof our growth. This includes our licensing business that enable our future licensees to contribute to emissions reduction through the deployment of our technologies.

Definitions of High Priority Material Topics

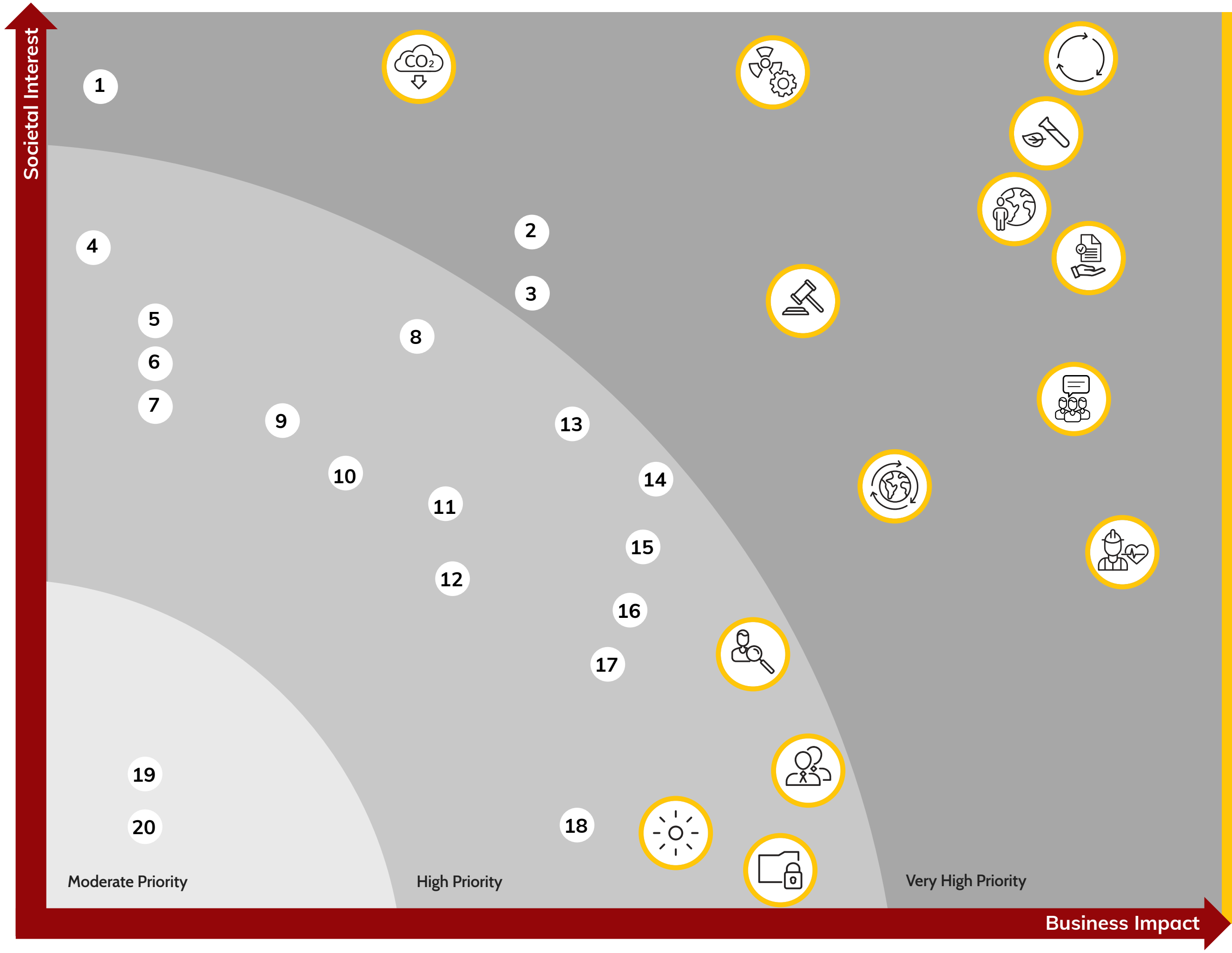
Talent Attraction, Retention & Development
Talent attraction and retention are fundamental to Avantium. We attract talent from all over the world and create a workplace where people are inspired and inspire others to develop and implement new technologies for tomorrow's circular economy.

Commercial Partnerships
Collaboration is fundamental to our strategy. The commercialisation roadmap includes working together with like-minded companies who share similar values to build a better world for future generations.

Product Innovation
Avantium's innovation process consists of well-defined stages. Avantium systematically assesses commercialization options for an innovation and decides among multiple strategic paths to monetise the technologies.

IP & Data Protection
We actively maintain, protect and expand our IP portfolio in line with our strategy. We monitor the external IP landscape for relevant developments. We review and decide on appropriate systems to secure data protection within the company.

Avantium Materiality Assessment



Avantium Key Material Topics

- Greenhouse Gas Emissions & Emissions to Air
- Hazardous Materials Management
- Product Sustainability & Environmental Impact of Chemicals
- Circularity
- Climate Advocacy
- Responsible Licensing
- Climate-Related Regulation
- Stakeholder Engagement
- Life Cycle Assessment (LCA) of Products
- Occupational Health & Safety (OHS)
- Talent Attraction, Retention & Development
- Commercial Partnerships
- Product Innovation
- IP & Data Protection

See page 28 for the definitions of the key material topics.

Other Material Topics

1. Human Rights
2. Transparency
3. Governance
4. Impact of Chemicals on Human Health
5. Waste
6. Biodiversity
7. Land Use
8. Community Development & Impact
9. Waste Water
10. Water Use Efficiency
11. Emergency Preparedness
12. Travel
13. Supply Chain Management
14. Inspiring the Next Generation of Scientists
15. Gender Equality & Diversity
16. Health & Wellbeing
17. Energy Efficiency
18. Regulatory Restrictions
19. Product Transport
20. Anti-Competitive Practices

Value We Created in 2020

Despite the restrictions and challenges presented by the COVID-19 pandemic, 2020 was a year of notable progress for Avantium. Our three business units all recorded successes and made advances in line with our overall strategy.

Our value creation model (p. 16) illustrates how we act to realise our vision and mission. Through our actions, we have a positive impact on our various stakeholders: from employees and investors to partners and customers. Our overarching approach is to commercialise and license our technologies and thus maximise shareholder value creation.

Avantium's promotion to the Euronext Amsterdam SmallCap Index in March 2020 was a significant step forward. Our share price increased by 104% during 2020, signifying the trust our shareholders place in us and our ambitions. Indeed, our community of investors is vital to the future of our company.

Among our three business units – Avantium Renewable Polymers, Avantium Renewable Chemistries and Avantium Catalysis - some of our anticipated external progress was affected by the emergence and spread of COVID-19. Nevertheless, our in-house development and improvement programmes continued to flourish in 2020.

Avantium Renewable Polymers

Avantium Renewable Polymers is home to Avantium's YXY Technology, our most advanced technology and the focal point for our efforts in 2020. The year began with an important milestone along the road to commercialising PEF: the announcement of our decision to locate our flagship plant for FDCA at Chemie Park Delfzijl, in the north of the Netherlands. Related to this decision was a letter of intent relating to a conditional financing of € 30 million for the engineering and construction of the flagship plant from the Province of Groningen and other members of a Groningen consortium[1]. However, the effects of the pandemic meant that we were not able to meet all of our targets during the remainder of the year.

One such target was to make a FID on the construction of the FDCA flagship plant and formalise approval for the project by the end of 2020. We had identified three key conditions required to make a positive FID: (i) securing €150 million financing (excluding 20% contingency), (ii) obtaining offtake commitments for 50% of the capacity of the flagship plant, and (iii) finalising the engineering and establishing the supply chain.

On the financial side, we made progress on securing equity to invest in the project. In spite of challenging circumstances, we have formed partnerships to shape the value chain of PEF. Avantium signed a term sheet with leading engineering company Worley - already involved in the engineering of the FDCA flagship plant - to make a €10 million equity investment in Avantium Renewable Polymers. This term sheet is structured as an investment in kind and a risk-sharing mechanism over the engineering, procurement and construction (EPC) phase of the FDCA flagship plant. Furthermore, the Groningen consortium signed a term sheet for a €20 million equity investment in Avantium Renewable Polymers as part of the previously agreed conditional financing of €30 million for the construction of the FDCA flagship plant. The investments by Worley and the Groningen consortium are subject to multiple conditions including the fulfilment of the key conditions.

Additionally, the Groningen consortium intends to support Avantium Renewable Polymers with €2.5 million of subordinated (letter of intent). The National Programme Groningen - a partnership between the Dutch national government, the Province of Groningen and ten municipalities - awarded Avantium a €7.5 million grant to support the construction of the FDCA flagship plant, designating it an "icon project" for the region. The National Programme Groningen invests in projects that contribute to the future and prosperity of Groningen, focusing on economic development, the quality of the living environment, the energy transition and sustainability.

With the Groningen consortium and Worley term sheets signed, Avantium has now conditionally secured (i) the €20 million "PEFerence"-EU Horizon 2020 grant awarded by Bio-based Industries Joint Undertaking[2], (ii) Avantium's previously committed investment of €35 million (of which €24 million was invested by 19 March 2021), and (iii) the €40 million conditional financing from the Groningen consortium and Worley. Avantium Renewable Polymers is actively discussing debt and equity financing with banks and other parties to be able to secure the total funding needed.

[1] The Groningen consortium comprises the Province of Groningen, Groningen Seaports and regional investment funds NOM (Investment and Development Agency for the Northern Netherlands), Fonds Nieuwe Doen, Investeringsfonds Groningen and Groeifonds.
[2] Under grant agreement No 744409.

Commercially, we experienced some pandemic-related difficulties and delays, especially in interactions with partners and in application development trials, and this hampered our progress. In some cases, discussions were delayed or put on hold due to changes in other parties' business priorities. However, we were proud to announce the signing of our first two offtake agreements, representing approximately 20% of the flagship plant's FDCA annual production capacity. In 2021, Avantium has continued negotiating with potential partners to secure additional offtake commitments. To date, this has resulted in two additional offtake commitments, bringing the total now to four such contracts.

Our engineering and technology operations were more resistant to the impact from COVID-19, with the front-end engineering and design stage reaching its final stages in early 2021. Avantium and Worley agreed on the heads of terms of the EPC contract for the plant. Avantium Renewable Polymers and Worley also foresee collaboration on the execution phase of Avantium's licensing strategy. Avantium believes that the confidence in the project demonstrated by Worley and their substantial experience in scaling-up to industrial plants adds strength and credibility to Avantium's technology and licensing proposition.

Furthermore, Avantium has agreed on the principal terms for a multi-year commercial FDCA polymerisation contract with global specialty polyester supplier Selenis. Selenis successfully trialled the polymerisation of FDCA into PEF and will now set up a commercial batch polymerisation process for Avantium's FDCA.

Other progress made during 2020 in the Renewable Polymers business unit includes the licensing of Avantium's humin technology to Kebony, for use in their durable wood processes. This is an example of a strong collaboration effort that makes use of a by-product from our YXY Technology that would otherwise be wasted. We were also awarded a €5.4 million grant from the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland - RVO), designated for our FDCA pilot plant in Geleen. We intend to use this grant to set up new units exploring the recycling and polymerisation of PEF and PEF/PET, building a new pilot line in our pilot plant to further de-risk the operations of our FDCA flagship plant. The pilot plant expansion also allows us to develop new patented technologies and expand our IP portfolio.
The life cycle assessment (LCA) on our YXY Technology, conducted with Nova Institute, ran in 2020 and is currently undergoing ISO-certification. A cradle-to-grave LCA, it assesses the entire life cycle of products such as single-layer PEF and multi-layer PET/PEF bottles.

The importance of our work in Avantium Renewable Polymers has never been more apparent than it was in 2020. More than ever, people started to realise that it will take more than smart recycling to address the environmental problems we face, and that more disruptive interventions are needed to bring real change to the industry. We share this knowledge and ambition.

Avantium Renewable Chemistries

Our Renewable Chemistries business unit made key technological progress in its core technologies in 2020. These significant developments sets the stage for continued progress towards commercialisation.

Ray Technology™

Our Ray Technology demonstration plant has now celebrated its first full year of operations in Delfzijl. We commissioned and started up the plant early in 2020 and optimised its operations during the remainder of the year, refining the technology for making plantMEG and plantMPG. This is critical given the large (and growing) global demand for MEG - the annual market of 30 million tonnes is expected to grow at a 3% compound annual growth rate (CAGR) in the next 20 years. Given that the world's supply is nearly entirely fossil-based with a significant negative climate impact, it is imperative to accelerate the availability of renewable chemicals like plantMEG.

Fully plant-based glycols are an exciting prospect for our industry, and in 2021 we aim to validate the potential commercial uses for plantMEG - specifically textile applications in a broad range of products from clothing to upholstery, drapery and auto fittings. Moreover, we will continue to accelerate and optimise our processes, work to bring new partners on board and investigate licensing opportunities. We have also conducted preliminary engineering work to prepare for scale-up to a flagship plant slated for 2024/25. We expect further progress in 2021, using the momentum created in 2020.

The LCA of the long-term environmental impact of the Ray Technology is being conducted by German firm Thinkstep; now Sphera. The LCA utilises a cradle-to-gate methodology ensuring that the entire scope of the Ray production process is considered in determining the environmental impact.

Volta Technology

Our Volta Technology converts the carbon from CO_2 into high-value ingredients, commodity building blocks and even fuels. This technology shows great promise in its current pre-pilot phase. We improved our electrodes in 2020 while also honing in on the product potential of the platform. Our focus includes glyoxylic and glycolic acid for cosmetics, personal care products and polyesters.

The EU-funded Ocean project made progress in 2020 with pre-pilot containers entering the testing phase in in preparation for placement at industrial sites in 2021: an RWE power plan in Germany and a Titan cement factory in Greece. These containers will test the conversion of emitted CO_2 into valuable products. We increased the size of our electrode in 2020, enabling better efficiency and preparing for industrial-scale operations. We also investigated Volta Technology's potential significance for two other large markets: the cleaning industry and the cosmetics and personal care industry. Glycolic acid is a widely used ingredient in both, and Volta technology enables it to be a carbon negative product.

We saw notable interest in Volta Technology in 2020, and we are hopeful that this will translate into fruitful partnerships in the coming years. In 2021, Avantium will focus on finding industrial partners that are interested in scaling up the Volta Technology first to a pilot plant and then to commercialisation.

Dawn Technology™

Our Dawn Technology ran 40 campaigns on a variety of feedstocks in 2020. These feedstocks, whether for our own research or for interested partners, were assessed on their resulting industrial sugar yield and composition. We see Dawn Technology as the future of biorefining in a world that demands ever larger quantities of industrial sugars, and we will continue to work to improve efficiencies in 2021. By tracking the global shift from fossil resources, we will ensure that our technology can be adapted to local feedstock streams from forestry and agricultural residues. As with our other technologies in Avantium Renewable Chemistries, we focused on the functional applications of Dawn Technology during the year. Avantium was awarded a €500,000 grant for participating in the CHAPLIN XL project for the construction of a test road using lignin (a Dawn Technology product) instead of fossil-bitumen to make asphalt. Once in widespread use, this would significantly reduce the carbon footprint of road construction. Dawn Drive, as it has been named, will be built in the north of the Netherlands before undergoing testing to demonstrate that renewable lignin works effectively at scale.

Our central effort in Avantium Renewable Chemistries, therefore, was on scaling up our technologies. We ensured we maintained business continuity and ongoing operations at our laboratories and manufacturing plants despite the stringent COVID-19 protocols in place. Managing our supply chains, was a challenge at the height of the pandemic, and new partnerships were more difficult to establish virtually.

Our operations and engineering teams expanded in 2020 to reflect the progress made on RAY, Volta and Dawn Technologies.

It is imperative to accelerate the availability of renewable chemicals like plantMEG

Avantium Catalysis

The COVID-19 pandemic had a significant impact on Avantium Catalysis. A key part of the Catalysis business relies on our ability to supply our Flowrence machines to customers in their own laboratories. In 2020, these customer service operations were hampered by travel restrictions, which meant we were unable to complete the installation and validation phases of several projects. In addition, many customers closed or scaled back their laboratories in line with health measures against the pandemic.

Moreover, the majority of our customer base sits within the oil and petrochemical industry, which was hit particularly hard by the pandemic. Oil prices dropped significantly as consumption fell, and many customers were forced to minimise external costs, leading to a reduction in pipeline orders. Nevertheless, in June we announced an order for Flowrence systems worth more than €3 million from the KAUST Catalysis Center in Saudi Arabia, marking an exciting new step in our partnership with them.

To some extent, we saw a geographical split between the situation in Asia (where activities recovered more quickly and demand for our products and services rose again as the year went on) and that in Europe and the USA (where the severe economic impact of COVID-19 persisted throughout 2020). Nevertheless, the pandemic and its consequences had a significant impact on Avantium Catalysis.

In contrast, the picture in our own laboratories was brighter. We added stringent COVID-19 precautions to our existing health and safety practices and were able to maintain business continuity in our contract research - where we run catalysis experiments on behalf of customers - throughout 2020. There were no supply chain problems, and in April we communicated with customers to assure them we could keep our laboratories in Amsterdam running during the crisis and thus continue to support their needs. Indeed, even though we saw less demand for our refinery catalyst testing, which ran below maximum capacity during the year, our Catalysis unit's contract research as a whole generated €3.3 million of revenue in 2020, an increase of 6% compared to 2019 (€3.1 million).

World-Leading Catalyst Testing: Flowrence®

Avantium's proprietary catalysis testing platform, Flowrence, offers our customers scalable testing technology. The system provides fast, low-cost, high-throughput catalysis testing that is highly accurate, safe and easy to use.

Flowrence not only reduces the time our customers need to bring products to market but also enables substantial costs savings for both the development of new catalysts and the improvement of existing ones. We have four Flowrence systems, each of which is configured to specific R&D needs: XD, for the discovery stage; XR, for research; XP, for process development; and XC, for the commercialisation phase.

Our two new business lines, which are not based on our existing Flowrence systems, underwent continued successful development in 2020.

A New Approach: Batchington

Avantium's proprietary Batchington platform accelerates customers' research and development through screening and optimisation experiments. It consists of two reactor blocks, each containing 12 small-scale pressure vessels, meaning that 12 experiments can be run in parallel. It offers a new way of carrying out high-pressure chemo-catalytic testing, and will bring benefits to our customers in fields like petrochemicals, fine chemicals and renewables.

First, Batchington, our small-scale, multiple parallel batch-testing unit, offers customers an alternative to flow catalysis testing (where material streams flow through a catalyst bed) by instead mixing, heating and stirring all reactants together with the catalyst. The launch, scheduled for March, was delayed by the pandemic until June, when we were able to announce the system at the Laborama virtual exhibition, but no customer sales were possible in 2020 owing to travel restrictions.

The second new venture we worked on throughout 2020 was our adsorption initiative. The growth in sustainable chemistry and bio-based products requires more purification of, and separation of contaminants from, product streams. At Avantium Catalysis, we are developing high-throughput solutions for liquid, gas and respiratory adsorption. Under our IMPRESS subsidy, we are working with our Renewable Chemistries colleagues to find ways to serve their unit's testing needs for liquid and gas adsorption. We are also collaborating with IRCELYON in France to develop new respiratory adsorption systems. Despite the challenges that arose in 2020, all our adsorption projects ran to schedule and yielded good results.

Avantium Catalysis recorded revenues of €9.2 million in 2020, down 26% from 2019. This decline can be explained by the pandemic, which greatly delayed our on-site projects with customers and also had an impact on new orders. In 2021, if the public health situation allows, we will focus on redressing both of these areas, ensuring we complete existing projects and working hard to capitalise on the opportunities presented by the anticipated economic recovery. We will also pursue our strategic growth initiatives in the fields of batch testing and adsorption, improving our technologies and striving for improving profitability as the demand for sustainable chemistry increases.

At Avantium Catalysis, we are developing high-throughput solutions for liquid, gas and respiratory adsorption

Sustainability

Sustainability is built into our very purpose. It drives our employees, informs our technologies and excites our commercial partners. Every product we develop affirms our commitment to creating a fossil-free future for the planet.

The global climate breakdown demands an entirely new way of doing business, moving the world away from its dependence on fossil-based resources towards a more sustainable future. In March 2020, we launched our Sustainability Manifesto, which set out Avantium's pathway for tackling the global climate emergency.

This, however, was just the beginning. In the Manifesto, we pledged to create, with input from our stakeholders, a time-bound action plan containing a series of ambitious targets to be achieved by 2030. Committing to these targets will enable Avantium to play an active role in accelerating the transition to a fossil-free world.

Throughout 2020, we worked diligently to create our first ever sustainability plan, which we call Chain Reaction 2030. In it, we set out Avantium's ten concrete targets to be achieved in the next ten years. This gives our company a clear direction for the future, driven by targets whose impact can be monitored and measured. We worked with various stakeholders, subject matter experts and NGOs to prepare the plan, and we look forward to continued dialogues with these important partners over time.

Chain Reaction 2030 embodies a universal Avantium mindset that is shared by everyone in our organisation: a sense of urgency in our efforts to tackle the social and environmental issues that stand in the way of our vision for a world run on renewable resources. Concerns about human health were understandably the main focus in 2020, but the climate emergency and the need for transformational change have not disappeared. We owe it to the generations of the future to ensure we play our part, raise our voice and change our industry for good.

We are committed to a fossil-free world at the heart of everything we do

Avantium's Sustainability Commitment

The ten targets within Chain Reaction 2030 are wide ranging and ambitious. They fit within the pillars of our sustainability framework and we align them under four focus areas: Technologies, Operations, People and Leadership.

Chain Reaction 2030

Our Technologies

We will accelerate innovation to deliver products that use renewable carbon and support the circular economy.

Targets

- By 2030, our technologies will deliver 1.5 million tonnes of CO_2 savings across the chemical industry.
- By 2030, we will become a circular business.
- By 2030, 100% of our plant-based feedstock for Renewable Polymers and Renewable Chemistries will come from sustainable sources.

Our Leadership

We will be the leading advocate for greater action by the chemical industry to address the climate emergency.

Targets

- By 2030, 100% of our advocacy will focus on transforming the chemical industry to becoming circular and fossil free.

Our Operations

We will minimise the impact of our own operations and have net-zero carbon emissions.

Targets

- By 2030, our own operations will achieve net-zero carbon emissions.
- By 2025, we will send zero non-hazardous waste to incineration and landfill.
- By 2023, all our plants will achieve an ISO 45001 certification (healthy and safe working environment).

Our People

We will mobilise our colleagues and the next generation of scientists to help solve the climate's most pressing problems.

Targets

- By 2030, Avantium will be one of the 10 best companies to work for in the Netherlands.
- By 2030, we will have engaged 100,000 students about using chemistry to create a fossil-free world.
- By 2025, we will improve upon our baseline of being an inclusive and diverse company, ensuring that we are representative of the societies and communities we operate within.

Our Targets

Our 2030 targets are steps along the path to realising Avantium's bold vision of a fossil-free chemical industry by 2050. We are realistic about the challenge ahead and we know we cannot achieve this on our own. While we are the first company in the chemical industry to embrace this specific level of ambition, we hope others will join us. By actively seeking out and working with like-minded partners, we can accelerate progress towards these targets and together achieve a more sustainable industry.

We plan to measure and track all our 2030 targets in order to hold ourselves accountable. We have also put in place an internal Sustainability Advisory Board, in order to set up our structure for collecting, recording and reporting our progress. This body meets quarterly to monitor progress.

Moreover, where we face challenges in meeting our goals, we will not make excuses; instead, we will be transparent in our explanations. If some targets prove easier to fulfil than anticipated, we will not sit back and relax; rather, we will stretch our ambition still further.

The underlying sustainability ethos of the new plan has always been part of the DNA of our company. Nevertheless, Chain Reaction 2030 is a comprehensive, systematic and ambitious framework that will guide conversations, raise accountability and generate tangible results, ultimately benefiting all our stakeholders.

Responsible Business Principles

We pride ourselves on being a responsible business. Avantium has numerous principles and policies that guide our day-to-day work and underlie our Chemical Reaction 2030 sustainability plan.

Codes of Conduct

We have a Code of Good Business Conduct that covers a range of areas including (but not limited to) integrity at work, age discrimination, working conditions, equal opportunities, conflicts of interest, privacy, financial practices, discrimination, harassment and bullying and complaints procedures.

Golden Safety Rules

All our employees commit to Avantium's Golden Safety Rules as part of our drive to be an accident- and incident-free workplace.

Golden Sustainability Rules

Our Golden Sustainability Rules are a central part of our Sustainability Manifesto.

Values

Avantium's five core values are the foundation our company is built on, and they guide our work to achieve our vision. For more information on our values, see p.44.

Oversight and Accountability

We support progressive partnerships with companies, government agencies, NGOs and academia to develop consistent measurements and make continuous progress. We engage in regular and meaningful dialogue with our stakeholders. Furthermore, Avantium's Articles of Association, the Supervisory Board Terms of Reference and the regulations governing our various committees are among the documents available to view online.

Product Stewardship

We are currently developing guidelines on product stewardship and plan to publish them in 2021.

Transparency

We are transparent about our technologies, products and processes. Our Whistleblower Policy sets out the procedures under which employees can and must report relevant irregularities. Our Bilateral Contracts Policy covers contact and information-sharing with shareholders.

We use comprehensive LCAs to provide transparency about the impact of our products over their whole lifetime: we feel it is crucial for us to offer this type of transparency to our stakeholders, but we also believe that LCAs should be carried out as a matter of course throughout our industry.

Human Rights

We have a responsibility as a company to protect human rights. We believe that the basic human rights of all people should be understood, respected and promoted. We maintain dialogues with our employees and works council to enable this.

Supply Chain Responsibility

We are diligent about assessing the responsible business credentials of our supply chain and other partners. Avantium is proud to only partner with companies who meet our high standards. For example, we are committed to not licensing our products to companies who cannot guarantee to source all their raw materials sustainably. Because of our deep-rooted sustainability ethos, we tend to attract interest from like-minded companies who share or aspire to similar goals. We see this as a positive affirmation of our ambitions and ways of working.

Carbon Emissions

Cutting carbon emissions from our own operations to net zero is a target in our sustainability plan, Chain Reaction 2030, and a key part of our Operations focus area. When designing experiments, either at laboratory or pilot-plant scale, it is essential to consider the negative consequences for the environment, whether through emissions or other waste. This will be central to our plans as we scale up Avantium's technologies and build new plants and facilities.

We will report on our carbon emissions in the 2021 edition of our Annual Report.

Hazardous Waste

Our work unavoidably generates some hazardous waste materials that we are careful to handle safely and responsibly. Our goal is always to reduce the amount of hazardous waste we generate, and then to recycle residues wherever possible. The remainder is sent to be incinerated, as some of this waste can pose a threat to people and the environment. Our waste management providers are able to combine safe waste disposal with substantial energy recovery from thermal processing.

Sustainable Development Goals

Avantium is committed to making a positive impact by working towards the United Nations Sustainable Development Goals (SDGs). Across our four sustainability focus areas (Technologies, Operations, People and Leadership) we have identified ten particular SDGs where we believe our expertise and ambition can make a difference, and which we aim to uphold and support.

SDG 3: Good Health and Well-Being

Our Contribution

We embed our safety culture into everything we do, striving to be an accident- and incident-free workplace. We have robust safety procedures and systems in place, and obligatory safety training is provided to all new joiners. All Avantium employees are committed to our Golden Safety Rules.

As a company operating in the chemical industry, we generate both hazardous and non-hazardous waste. For hazardous waste we focus on reducing the amount that we generate and we recycling residues, wherever possible. The remainder is sent to be incinerated, as this waste can, in some cases, pose a threat to people and the environment. Our waste providers are able to combine safe disposal with substantial energy recovery from thermal processing.

Chain Reaction 2030 Targets

Our Operations

- In 2023, all our plants will achieve ISO45001 certification.

Our People

- By 2030, we will be one of the 10 best companies to work for in the Netherlands.
- By 2025, we will improve upon our baseline of being an inclusive and diverse company, ensuring that we are representative of the societies and communities we operate within.

Subtargets

3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

SDG 4: Quality Education

Our Contribution

Avantium has a well-established collaboration with the University of Amsterdam, accelerating product development using electrochemistry and linking the company to pioneering research. Several PhD students are working on their theses at Avantium, while contributing to the development of our technologies.

Given the scale of the climate emergency and the need to shift away from fossil sources, Avantium wants to inspire the next generation of scientists to embrace sustainable chemistry. For long-term success, we need an inspired and diverse workforce, and we therefore engage with students at key moments throughout their education. Our approach to inspire the next generation of scientists focuses on three actions:

- Supporting interventions that have proven to be effective in raising interest and preventing students dropping out of STEM education.
- Developing partnerships with STEM education providers so we can reach a critical mass of students. As part of this, we will invest in programmes that make STEM education accessible to everyone.
- Using our scientific expertise to excite the next generation of scientists about sustainability and the beauty of chemistry.

Avantium has hosted programmes and laboratory tours for children and high-school students, showcasing our work for a more sustainable future, including our products' role in the circular economy. Our 'Weekend of Science' for young students highlighted innovation and the need for a fossil-free world.

Chain Reaction 2030 Targets

Our People

- By 2030, 100,000 students will have been engaged by Avantium on using chemistry for a fossil-free world.

Subtargets

4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

SDG 5: Gender Equality

Our Contribution

We know that our differences unite us, and that diversity of thought has been shown to breed creativity and drive innovation. We have therefore made Avantium a place where everyone belongs: an international community with a universal goal: to create a fossil-free chemical industry.
Our differences strengthen us, lead to new ways of doing things and help us meet the needs of our partners and stakeholders. We cultivate inclusion, equality and diversity for all in our workplace.

As part of our diversity agenda, we believe in gender equality and will strive to achieve this at Avantium. At the end of 2020, 33% of our management team and 25% of their direct reports were women. We know there is still work to do and we have set ourselves a sub-target of achieving gender equality at management level by 2030. Changes to our Supervisory Board in 2020 mean that four out of five of its members are women.

Chain Reaction 2030 Targets

Our People

- By 2030, we will be one of the 10 best companies to work for in the Netherlands.
- By 2025, we will improve upon our baseline of being an inclusive and diverse company, ensuring that we are representative of the societies and communities we operate within.

Subtargets

5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.

SDG 7: Affordable and Clean Energy

Our Contribution

Our 2030 target states that Avantium will deliver net-zero carbon emissions from our own operations (scope 1 and 2) as well as conducting a baseline assessment of our scope 3 emissions and establishing a plan for reducing these emissions in line with climate science. To achieve this target, Avantium will switch to 100% renewable electricity.

Chain Reaction 2030 Targets

Our Operations

- By 2030, Avantium will deliver net-zero carbon emissions from our own operations.

Subtargets

7a: By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.

SDG 8: Decent Work and Economic Growth

Our Contribution

We promote inclusive and sustainable economic growth by working towards our mission to transition the chemical industry to renewable feedstock and to secure a sustainable future for all.

We strive to be a supportive employer where everyone feels they belong and have equal opportunities. We have an inclusive work environment and aim to ensure that our people have a good work-life balance. We also offer competitive primary and secondary benefits including healthcare, paid holiday time, meal plans and transportation programmes.

Chain Reaction 2030 Targets

Our Operations

- In 2023, all our plants will achieve ISO45001 certification.

Our People

- By 2030, we will be one of the 10 best companies to work for in the Netherlands.
- By 2030, 100,000 students will have been engaged by Avantium on using chemistry for a fossil-free world.
- By 2025, we will improve upon our baseline of being an inclusive and diverse company,
- ensuring that we are representative of the societies and communities we operate within.

Subtargets

8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors
8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

SDG 9: Industry, Innovation and Infrastructure

Our Contribution

The ground-breaking technologies Avantium develops are based on the use of renewable feedstocks, underpinning our commitment to being a circular business. By using Avantium technologies, it is possible to produce sustainable alternatives for fossil-based chemicals and materials including plastic bottles for drinks, films for food packaging and electronics and fibres for textiles, furniture and vehicles. Our strategy is to develop licensing models for our renewable and sustainable technologies, scaling up production and enabling economies of scale. This will allow Avantium to generate a more circular impact.

Avantium specialises in accelerated R&D, applying its scientific and research expertise to improve the efficiency of existing processes and invent new technologies for the chemical industry. Our Renewable Polymers, Renewable Chemistries and Catalysis business units all contribute to significant CO_2 savings either through increased efficiency or novel technologies that have an improved environmental impact over the fossil-based incumbent.

Chain Reaction 2030 Targets

Our Technologies

- By 2030, Avantium's technologies will deliver 1.5 million tonnes of CO_2m savings across the chemical industry.
- By 2030, Avantium will become a circular business.

Our Leadership

- 100% of our advocacy will focus on transforming the chemical industry to become circular and fossil-free.

Subtargets

9.4: By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
9.5: Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

SDG 12: Responsible consumption and production

Our Contribution

The ground-breaking technologies Avantium develops are based on the use of renewable (plant-based or air-based) feedstocks. Plant-based feedstocks come from nature – these can be agricultural crops, residues from agriculture or forestry or waste material that would otherwise be incinerated. Balancing productivity with the long-term needs of land, water and biodiversity is an essential element of sustainable technologies as well as the key to the future of using biomass as a major feedstock in the chemical industry.

When developing new materials and technologies, we see it as our responsibility to avoid creating waste and pollution before we introduce new products to the market. As a company operating in the chemical industry, we generate both hazardous and non-hazardous waste. For non-hazardous waste, our aim is to send zero waste to incineration and landfill by 2025.

Chain Reaction 2030 Targets

Our Technologies

- By 2030, Avantium's technologies will deliver 1.5 million tonnes of CO_2m savings across the chemical industry.
- By 2030, Avantium will become a circular business.

Our Operations

- By 2030, Avantium will deliver net-zero carbon emissions from our own operations.
- By 2025, Avantium will send zero non-hazardous waste to incineration and landfill.
- In 2023, all our plants will achieve ISO45001 certification.

Our Leadership

- 100% of our advocacy will focus on transforming the chemical industry to become circular and fossil-free.

Subtargets

12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment.
12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

SDG 13: Climate Action

Our Contribution

The global climate breakdown demands an entirely new way of doing business, moving the world away from its dependence on fossil-based resources towards a more sustainable future. Avantium is focused on accelerating that transition and we will help our customers and partners embrace the essential technologies and products of the future and transition to circular chemicals and materials. We want to lead by example, and we demand more from ourselves to step up to address the climate crisis. The scale of the challenge demands that we actively engage in partnerships and collaborations with a broad range of stakeholders.

Chain Reaction 2030 Targets

Our Technologies

- By 2030, Avantium will become a circular business.
- By 2030, 100% of our renewable polymers and chemistries plant-based feedstock will come from sustainable sources.

Our Leadership

- 100% of our advocacy will focus on transforming the chemical industry to become circular and fossil-free.

Subtargets

13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

SDG 15: Life on Land

Our Contribution

In order to ensure the integrity of our feedstocks, we aim to only partner with suppliers that actively engage in sustainable practices. We will strive to adopt independently certified sustainable standards of feedstock, but when these are not available or appropriate, we will create our own sustainability standards in consultation with subject matter experts and leading NGOs. Finally, we will incorporate sustainable sourcing requirements into the licence agreements of our renewable technologies. This will ensure that as our technologies are deployed, they will be a beacon not only for renewable chemistry but also for promoting sustainable sourcing of plant-based materials.

Chain Reaction 2030 Targets

Our Technologies

- By 2030, 100% of our renewable polymers and chemistries plant-based feedstock will come from sustainable sources.

Subtargets

15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

SDG 17: Partnerships for the Goals

Our Contribution

Our goal is to be a world leader in renewable and sustainable chemistry technology solutions, and to commercialise them through partnerships and licensing.

We aim to license our sustainable technologies: aside from being the most capital-efficient way to commercialise our technologies, we believe it is also the fastest way to bring our sustainable solutions to market.

The scale of the climate challenge demands that we actively engage in partnerships and collaborations with a broad range of stakeholders. We will:

- Build engagement among and educate the public on the impact of climate change, by using our voice and advocating for change in the chemical industry via events, media, blogs and digital platforms.
- Work with stakeholders across the plastic value chain to fundamentally change plastic material by 2030 and empower our partners to shift to renewable and circular solutions.
- Work with governments and industry associations to help inform the debate and help shape climate policy through positive lobbying.

Chain Reaction 2030 Targets

Our Technologies

- By 2030, Avantium will become a circular business.
- By 2030, 100% of our renewable polymers and chemistries plant-based feedstock will come from sustainable sources.

Our Leadership

- 100% of our advocacy will focus on transforming the chemical industry to become circular and fossil-free.

Subtargets

17.6: Enhance regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism.
17.7: Promote the development, transfer, dissemination and diffusion of environmentally sound technologies.
17.16: Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilise and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries.

Our People

Our success is built on the commitment, ambition and expertise of our people. We attract talented colleagues from diverse backgrounds and create an inspiring workplace where everyone can make an impact.
At Avantium, we have five core values that define what we stand for and how we work with customers and partners.

1. We make a lasting impact: We think big. We understand our customers through and through. We improve the world around us. We drive - and thrive on - change. We have an impact on the environmental footprint of the wider industry.
2. We are determined team players: We embrace challenges. We value complementary talents and diverse perspectives. We actively engage with partners. We work in teams to solve problems. We go the extra mile to deliver results.
3. We do the right things right: We behave ethically. We make bold choices. We take responsibility for our actions. We operate safely.
4. We are pragmatic idealists: We always find a way. We think outside the box, but never lose sight of reality. We keep our feet on the ground. We always sail towards our destination, adjusting course when necessary.
5. We have fun and the rest of the world is a little bit weird: We disrupt. We appreciate unconventional solutions. We celebrate success and learn from setbacks. We view things with a positive eye and an open mind.

Throughout Avantium, we share a common drive to make a lasting impact on the world, and we aim to do this through imagination, creativity and perseverance. We recognise that there will be highs and lows - this is a natural part both of innovation and of the processes required to bring our innovations to market - and we strive to be persistent, flexible and focused as we work towards our goals.

Avantium's Values

Our people enable our company to go further and aim higher

A Healthy and Safe Working Environment

We have robust safety procedures and systems in place, and obligatory safety training is provided to all new joiners. All Avantium employees are committed to our Golden Safety Rules.

We have a Safety Culture Team at Avantium, which publishes regular newsletters to keep everybody's knowledge up to date. The newsletter is called 'We take care of each other' and a new theme is chosen for each quarter, such as giving and accepting feedback, acknowledging and recognising unsafe situations, safety under pressure or housekeeping. All our company meetings also begin with an update on safety, discussing any incidents and measures to be taken to prevent future occurrences.

We have a no-blame culture at Avantium and we promote openness about unwanted events by encouraging employees to report accidents and incidents. In 2020, we recorded eight incidents and one accident. The table provides more information.

On-Site COVID-19 Safety Measures

Avantium responded quickly to the COVID-19 pandemic to protect the health of our employees and partners. In line with Dutch government directions, we deferred business travel outside Dutch borders and asked office-based employees to work from home as much as possible, while critical operations in our offices, laboratories and plants continued running on site throughout 2020. Accordingly, we increased our already strict safety and hygiene precautions by implementing stringent new protocols in our buildings.

We provided additional guidance on good hygiene practices, put in place one-way walking routes, supplied facilities for people to sanitise and wash their hands and increased the frequency of office cleaning. We also used careful planning to limit the numbers of people coming into work at any given time, thereby ensuring good physical distancing and minimising the risk of transmission. Our management-level COVID-19 crisis team was responsible for the day-to-day coordination of pandemic-related health and safety.

Type of event	Event category	Main cause	Injuries to people
Incident	Breakage and spillage	Cart not suitable for bottle transport	None
Incident	Spillage	Poor piping design	None
Incident	Unexpected CO alarm	Badly connected vent line	None
Incident	Spillage	Blockage within installation	One employee required an eye wash due to contact with drop of acid; no long-term damage
Incident	Spillage	Poor filter design	None
Incident	High pressure	Mistake during troubleshooting	
Incident	Nitrogen leakage	Poor maintenance	None
Incident	Unexpected CO alarm	Badly connected vent line	None
Accident	Physical overload	Moving to another location	One employee strained the back and required sick leave

Golden Safety Rules

- We are responsible of our own safety and that of others.
- We give and accept feedback; we ask when in doubt.
- We learn from our mistakes and those of others.
- We take the time to work in a safe way.
- We make sure our work area is clean and tidy.
- We use the right protective equipment.
- We assure immediate containment of unsafe situations.
- We report every unsafe situation.

Talent Attraction and Retention

Our people are at the heart of our achievements: they enable our company to go further and aim higher. We believe we provide our employees with enjoyable, stimulating and purposeful work at Avantium, which in turn drives their motivation and creativity to the benefit of all.

The competitive advantage we derive from our talented colleagues is central to making our goal of a fossil-free future a reality. We recognise that attracting and retaining the best people for our company is a key objective for Avantium, and it therefore forms part of our sustainability framework. This is not a 'soft' target for us: our ambitions, achievements and impact all start with our people.

At Avantium, we offer a number of benefits to our employees, such as company pension contributions and a reduction on health insurance costs. We also provide an NS Business chip card for public transport, as part of our Avantium Mobility Plan to encourage greener employee travel. The card can be used for all work and personal transport – whether by train, metro, tram, bus or OV bike – across the Netherlands. Avantium also has several electric vehicles which we lease out to the management team. There is a company-wide bicycle plan to encourage people to commute by bike, and in 2020, we opened a new bike shed large enough to keep all our employees' bikes secure.

Employee Engagement

At Avantium we strive to foster an inspiring and supportive workplace, and we have committed to further improvements in this regard in the People focus area of our sustainability plan. To this end, we will begin working with Great Place to Work in 2021, so we can ensure that Avantium truly provides a dynamic, welcoming, fulfilling and purposeful work environment for all employees. In 2020, Biofuels Digest readers voted Avantium the 25th best place in the world to work in the advanced bioeconomy.

We want everyone to be accessible to everyone. This concept is built into the very architecture of Avantium's headquarters: our atrium, at the centre of our offices, is designed to foster visibility and informal collaboration all across the company, whether through meetings, formal events (such as company meetings), informal occasions (such as our Christmas party) or lunch with colleagues. In 2020, we were able to hold our Retail Investor Day in the atrium in early February before distancing measures were put in place to curb the spread of COVID-19. For the rest of the year, similar opportunities for in-person collaboration and interaction were limited.

Well-Being and COVID-19

For most of 2020, our office-based employees worked from home in line with Dutch government guidelines to tackle the pandemic. We provided practical support by supplying people with ergonomic furniture and equipment from our offices, as well as offering virtual examinations of people's home working spaces, to ensure people had a healthy work environment away from the office. We also trained line managers on motivation and engagement for teams working remotely, sending out regular communications and hosting virtual knowledge-sharing sessions.

We also brought forward the planned launch of our new social intranet, Your Information Platform (YIP), to help keep people connected even when they were not able to meet in person. From the roll-out in April until the end of 2020, YIP saw a total of 268 active users, 72 active teams, 885 published posts and 1,279 comments.

Monitoring Our Connectivity and Resilience

At Avantium we recognise that 2020 was a challenging time for many people, and as such we launched a survey at the end of the year to gather information about our employees' well-being. We focused on people's physical and mental health while working from home, with topics including exercise, working posture, social support and emotional health.

The results of the survey showed that, regarding people's perception of their work during the pandemic, engagement was the area that scored most highly on average across the company (7.6 out of 10), while information was the lowest-scoring area (6.8). When it came to perceptions of their individual working situations, people were generally happy with their home atmosphere (8.1), but their ability to work from home was a greater area of concern (7.0). We also asked about people's emotions and well-being, with responses generally positive, although physical concerns such as sleep and exercise scored less highly than mental health areas like resilience and confidence in the future.

Overall, in all categories the average scores for each topic exceeded the 'sufficient' threshold (a mean score of 6 or more out of 10), apart from the above-mentioned ability to work from home (where for one business unit the mean score dropped to 5.5). Across Avantium, survey respondents also indicated that contact with colleagues was something they felt they were missing during the pandemic.

In response, we invited employees to arrange a 'virtual workplace investigation' with health and safety service Arbo Unie, to check people's posture while working from home. In addition, employees can talk to a mental health coach who specialises in questions like how to deal with tension at home, how to stay motivated while working remotely and how to 'switch off' from work. We recognise that physical health is a concern for many people at the moment, and Avantium has therefore also made a vitality consultant available to employees who want to discuss physical fitness or nutrition with an expert.

Case Study: Team for Green

Our Team for Green is a group of Avantium employees from across the company who drive 'bottom-up' environmental initiatives at our headquarters in Amsterdam. Recent initiatives include improved policies on waste, recycling and water use, as well as recommendations on the use of green energy to power the building and on better bicycle access. The team acts as the voice of employees on green issues, meeting with Avantium's CEO every two months to raise concerns and make suggestions. Made up of everyone from scientists and engineers to HR and business development staff, the Team for Green is committed to enhancing day-to-day sustainability implementation at Avantium.

In 2020, the team overcame the challenges posed by remote working and continued to raise awareness by sharing information and films on sustainability, hosting virtual pub quizzes and holding an online Sustainability Week in November, including a photo contest, updates and even a 'green borrel'.

Diversity and Inclusion

We aspire to be an inclusive and diverse company with an open and inspiring culture, where people feel safe to develop and share ideas. Our sustainability plan includes a target on equality which comprises several sub-targets that we aim to achieve by 2030 or earlier.

In 2020, Avantium's workforce was made up of 229 employees of 21 different nationalities. For the last four years, we have organised a National Integration Dinner, connecting people and celebrating our diversity by sharing food from our different backgrounds. Owing to COVID-19 restrictions, we held an alternative version as part of Sustainability Week in November 2020, with people sharing recipes (focusing on local produce and plant-based dishes) and inspiring colleagues to prepare them.

We pay close attention to our gender balance at management level. At the end of 2020, 33% of our management team and 25% of their direct reports in leadership team positions were women. We know there is still work to do and we have set ourselves a sub-target of achieving gender equality at management level by 2030. Changes to our Supervisory Board in 2020 mean that four out of five of its members are women has a flat organisational structure that encourages people to share ideas and information, no matter their background or position. We want all our people to feel valued and supported equally. In our sustainability plan, we have pledged to work towards improving upon our baseline of being an inclusive and diverse company, ensuring that we are representative of the societies and communities we operate within.

Site	Number of employees	Of which female	% Full-time contract		% Part-time contract	
			Male	Female	Male	Female
Delfzijl	30	-	93.3%	-	6.7%	-
Geleen	24	-	95.8%	-	4.2%	-
Science Park	12	25.0%	66.7%	100.0%	33.3%	0.0%
Zekeringstraat	163	32.5%	74.5%	43.3%	25.5%	56.6%
Total	**229**	**24.5%**	**80.7%**	**47.4%**	**19.3%**	**52.6%**

Training and Development

Our training agenda changes each year. In 2020, the focus was on project management and our leadership development programme. Over the summer, we ran an online 'Lead to Grow' course to nurture the habit of self-reflection among our leaders and to help further develop leadership skills. The programme consisted of group learning sessions, self-reflection sessions as well as four 'fireside chats' with management team members, who shared their knowledge, leadership journeys and personal stories with their colleagues.

We launched the Avantium Learning Lab in October 2020, as a new home for our top-down learning and development initiatives and knowledge-sharing sessions. An Avantium Academy page on YIP is also available to colleagues for sharing information about learning platforms. Through the site, people can follow online courses and lectures, attend webinars and read e-books. Moreover, we offer our employees access to GoodHabitz - an online training platform with more than 80 personal development courses available via phones, tablets and computers.

Case Study: Colloquium Team

Our Colloquium Team, made up of employees from all across the company, is responsible for planning and hosting Avantium's series of colloquia, where we share knowledge about specific topics. In 2020, the theme was well-being and burn-out, to reflect and alleviate new concerns that emerged during the COVID-19 outbreak. The colloquium, successfully held online, was run by a certified life coach and burn-out expert. Around 25 colleagues attended the session, which discussed the taboos that surround mental health conversations as well as explaining how to identify early symptoms of stress and burn-out and how to tackle them.

We improved our annual performance management process in 2020 to enable more engaging dialogues between employees and managers, moving away from a focus on short-term objectives and towards a greater emphasis on people's long-term career development. The simplified process, with more conversations and fewer forms to fill in, will result in more meaningful self-reflection for employees about their performance and their aspirations at Avantium.

The Next Generation of Scientists and Sustainability

At Avantium, we see it as part of our role to raise awareness about the importance of sustainability and renewable chemistry. Beyond that, we want to excite the next generation of potential scientists. This is a key part of the People focus area in our Chain Reaction 2030 sustainability plan. More precisely, we have set ourselves the target of engaging with 100,000 students about fossil-free chemistry by 2030.

In recent years the world has seen that young people are willing to step up and make their voices heard on climate change - a threat they have grown up hearing about, but which they have seen neglected by governments and industries. We aim to capitalise on the growing youth movement demanding change from the chemical industry. Avantium's technologies and products can help make the goal of a sustainable future a reality within their lifetimes.

We use our expertise to engage with the next generation of scientific minds and environmental supporters. COVID-19 restrictions limited our planned programme in 2020, but in recent years we have hosted high-school students and even opened our laboratories to students to showcase sustainable materials and demonstrate how we work to advance new technologies and products.

In 2020, Avantium collaborated with C3 (Centre for Youth Communication on Chemistry) to produce a digital lesson that high-school chemistry teachers can integrate into their classes, to acquaint students with renewable chemistries and with our research into biodegradable and biobased materials. We invite students to make a real contribution to Avantium's research by conducting experiments with biodegradation, the results of which they can send us via an online link.

At a higher level, we have several PhD students working on their theses at Avantium and simultaneously contributing to the development of our products and technologies. In October 2020, we organised an online workshop on commercialising technology and innovation for PhD students working in the field of industrial (electro-)catalysis.

We also have a fruitful relationship with the University of Amsterdam (where two of our colleagues are professors), meaning we can accelerate the development of new processes and keep up to date with the latest pioneering research. The University's Psychology Research Institute, for example, is investigating green consumer habits, such as people's willingness to pay more for greener packaging.

Avantium is committed to maintaining close ties with the wider scientific community so we can better serve our customers, our employees, our shareholders and the public. We are proud to engage with and mobilise a new generation of young people who share our vision for a brighter future.

Engaging the next generation of scientists is one of the People focus areas of our Chain Reaction 2030 plan

Financial Performance in 2020

Income Statement

Revenue

in millions of €	2020	2019	% change
Catalysis	9.2	12.5	-26%
Renewable Chemistries	0.4	1.2	-66%
Renewable Polymers	0.3	0.2	68%
Total revenue	**9.9**	**13.8**	-28%

During 2020, with COVID-19 spreading around the globe, travel restrictions were imposed in most countries. This had a direct impact on Avantium Catalysis in particular, as the restrictions prevented us from carrying out installations, maintenance and upgrades of Flowrence systems at customers' sites. As a result, Avantium's consolidated revenues showed a decline of 29% from €13.8 million in 2019 to €9.9 million in 2020.

Other Income: Government Grants

Income from government grants stood at €8.4 million in 2020, an increase of 99% compared with 2019 (€4.2 million). This higher grant recognition is predominantly due to four recently awarded grant programmes (PEFerence, IMPRESS, CHAPLIN XL and European Regional Development Fund). Despite measures taken to curb COVID-19, Avantium was able to make progress on the individual grant programmes it participates in.

EBITDA

in millions of €	2020	2019	% change
Catalysis	2.6	3.7	-30%
Renewable Chemistries	-1.6	-3.0	-47%
Renewable Polymers	-7.3	-7.9	-8%
Company overheads/other	-8.6	-9.8	-12%
EBITDA of business segments	**(14.9)**	**(17.0)**	-12%

In Avantium Catalysis, there was a reduction in EBITDA as a result of the unit's lower revenues; this was partially compensated by strict cost control and higher income from government grants. In Avantium Renewable Chemistries, the EBITDA increased because of higher income from several government grants as well as measures implemented to maintain costs at the same level as the previous year. The higher EBITDA of Avantium Renewable Polymers was mainly due to increased income from government grants and was partly offset by accelerated spending on pre-FID activities. For further information on the EBITDA of Avantium's business segments, please refer to note 21 in the Financial statements 2020.

Total EBITDA for the group increased from €-17.0 million in 2019 to €-14.9 million in 2020. The EBITDA for 2019 and 2020 where both influenced by a one-off onerous lease provision of €0.5 million. This lease provision was initially raised in 2019 and subsequently reversed in 2020, which explains most of the EBITDA decrease and increase in the respective years.

Operating Expenses

in millions of €	2020	2019	% change
Raw materials and contract costs	(2.3)	(3.7)	-38%
Employee benefit expenses	(19.3)	(19.7)	-2%
Office and housing expenses	(2.0)	(1.8)	11%
Patent, licence, legal and advisory expenses	(4.2)	(3.2)	31%
Laboratory expenses	(3.7)	(3.6)	3%
Advertising and representation expenses	(0.7)	(1.4)	-50%
Expense due for onerous contract	0.5	(0.7)	-171%
Other operating expenses	(1.5)	(0.9)	67%
Net operating expenses	**(33.2)**	**(35.1)**	-5%

Net operating expenses amounted to €33.2 million in 2020, a decrease of €1.9 million compared to 2019 (€35.1 million). This decrease is primarily due to the one-off reversal of the onerous lease provision and a lower spend on raw material and contract costs, owing to lower revenues in 2020. Additionally, advertising and representation expenses fell substantially, with travel restrictions in place for most of the year. The lower net expense is partially offset by an increase in other operating expenses and patent, licence, legal and advisory expenses in preparation for the Final Investment Decision in Avantium Renewable Polymers.

Balance Sheet and Financial Position

Avantium's cash position (including restricted cash) was €26.6 million as at 31 December 2020 (31 December 2019: €45.4 million).

The balance sheet total assets decreased to €70.0 million (2019: €96.5 million). Total net equity decreased to €46.2 million (2019: €68.2 million). The company has no debt or borrowings.

Financial lease obligations decreased from €10.8 million in 2019 to €9.7 million in 2020, and primarily consists of lease agreements on offices and lab facilities.

Non-current assets decreased from €38.1 million in 2019 to €34.8 million in 2020, which is primarily as a result of the depreciation throughout the year and limited new investments in 2020.

Cash Outflow

in millions of €	**2020**	**2019**	**% change**
EBITDA	(14.9)	(17.0)	-12%
One-off settlement for full ownership of Avantium Renewable Polymers	-	(17.4)	-100%
Lease payments	(1.9)	(2.0)	-5%
Working capital movement	1.2	6.0	-80%
Capital expenditures	(3.5)	(8.5)	-59%
Other[1]	0.2	1.1	-82%
Net cash outflow	**(18.8)**	**(37.8)**	-50%

[1] Other includes non-cash movements, such as share-based payments and onerous contract expenses.

Net cash outflow for the year was €18.8 million, versus €37.8 million in 2019. While Avantium's cash outflow therefore improved by €19.0 million compared with the prior year, this was mainly due to the one-off settlement of €17.4 million paid by Avantium in January 2019 for full ownership of Avantium Renewable Polymers. Furthermore, Avantium invested €3.5 million in capital expenditures during 2020, an amount considerably less than in 2019 (€8.5 million), which primarily related to the construction of the Ray Technology plant in Delfzijl.

Working Capital

Avantium's changes in working capital in 2020 amounted to a net positive movement of €1.2 million, compared with €6.0 million in 2019. The 2020 positive working capital is the result of €4.3 million lower receivables and €0.2 million lower inventory, partly compensated by €3.2 million lower trade and other payables.

Going Concern

The financial statements have been prepared on a going concern basis.

Avantium N.V. ("Avantium")

Avantium is a leading technology company in renewable chemistry, dedicated to developing and commercialising breakthrough technologies for the production of chemicals from renewable sources and circular plastic materials.

Avantium consists of the three business segments Avantium Catalysis, Avantium Renewable Polymers and Avantium Renewable Chemistries:

- **Avantium Catalysis:** Our revenue generating Catalysis Services & Systems business unit serves the R&D catalysis needs of international blue-chip players.
- **Avantium Renewable Polymers** develops FDCA (furandicarboxylic acid), which is a key ingredient for PEF (polyethylene furanoate). PEF is a novel 100% plant-based and fully recyclable polymer which outperforms today's packaging materials, such as plastic, glass and aluminium. PEF has huge potential in the packaging, film and textile sectors, which are large and growing markets. We currently aim to open, dependent on a positive Final Investment Decision (FID), our flagship plant for FDCA and PEF in 2023.
- **Avantium Renewable Chemistries** develops, among other technologies, plantMEG™ (mono-ethylene glycol), which is a plant-based and cost-competitive alternative for fossil-based MEG – an important chemical building block for PET and PEF resin, both of which are used in bottles and packaging; fibres for clothing, furniture and the automotive industry; and solvents and coolants. Avantium Renewable Chemistries opened a demonstration plant in Delfzijl in 2019, which was successfully commissioned and became fully operational in 2020. Avantium aims to scale up the plantMEG™ technology to a commercial facility in 2024/25. The strategy of Avantium is to implement a technology licensing business model for Ray Technology.

Our businesses were impacted by the COVID-19 pandemic and resulting measures as follows:

- **Avantium Catalysis:** Travel restrictions affected our Catalysis business, compromising our ability to maintain and install our systems at customers' sites.
- **Avantium Renewable Polymers:** COVID-19 impacted our Renewable Polymers business through several aspects: development work with partners and the engineering process was impacted as international travel and collaboration was restricted and negotiations with financial, commercial and other strategic partners are taking more time than foreseen given they all need to occur virtual.
- **Avantium Renewable Chemistries:** Our Renewable Chemistries business unit, however, was able to seamlessly commission the new plantMEG™ demonstration plant despite the pandemic.

Funding Avantium

Due to its nature as a technology development company with significant R&D expenses and negative cash flows, Avantium is dependent on external funding and regularly needs new financing sources. Given Avantium's cash balance at 31 December 2020 of €26.6 million and a negative forecasted cash flow over 2021 (cash spend during 2020 was €18.8 million), Avantium has to obtain new external funding to finance the ongoing operations and further development of its technologies such as the FDCA flagship plant. Failure to timely achieve new funding will result in the company being unable to fulfill short term obligations and to fund working capital, both of which are necessary to execute our strategy, contract partners, retain key employees and meet our payment obligations. Without timely funding, the company's going concern is at risk.

In light of the above, management has assessed the going concern assumption on the basis of which Avantium's financial statements for 2020 have been prepared. Fundamental to Avantium's continuity is the realisation of a fully funded business plan for the FDCA flagship plant and to obtain financing for the other technologies of Avantium.

FDCA Flagship Plant Business Plan Avantium Renewable Polymers

On 31 December 2020, management had not yet taken a Final Investment Decision (FID) to construct the FDCA flagship plant. Finalisation of negotiations with financial, commercial and other strategic partners have taken longer than anticipated. There is a demand in the market for FDCA, however virtual negotiations with these parties are taking more time than foreseen. In order for management to take a positive FID a fully funded business plan needs to be realised for which three key conditions must be satisfied. These conditions are: (i) obtaining offtake commit-ments for 50% of the capacity of the flagship plant (ii) finalising the engineering and establishing the supply chain, and (iii) securing €150 million financing (excluding 20% contingency). As at the date of these financial statements the conditions have not been realised, however progress has been made.

(i) Offtake Agreements

As per 23 March 2021, Avantium Renewable Polymers has secured offtake agreements with customers for 30% of the capacity of the FDCA flagship plant. Avantium Renewable Polymers needs to obtain offtake agreements for at least 50% of the flagship plant capacity.

(ii) Engineering and Supply Chain

The front-end engineering and design (FEED) phase of the flagship plant has reached its final stages. With the signing of the term sheet with the global engineering company Worley and the multi-year polymerisation agreement with the global specialty polyester supplier Selenis, Avantium Renewable Polymers has made considerable progress on the engineering and establishment of the supply chain. Avantium Renewable Polymers and Worley agreed on the heads of terms of the engineering, procurement and construction (EPC) contract for the plant, structured to include a risk-sharing mechanism over the EPC phase of the FDCA flagship plant. Avantium Renewable Polymers and Worley also foresee collaboration on the execu-tion phase of Avantium's licensing strategy. Avantium believes that the confidence in the project demonstrated by Worley and its substantial engineering experience in scaling-up to industrial plants adds strength and credibility to Avantium's technology and licensing proposition. Parties are working out these term sheets to final contracts.

(iii) Financing Avantium Renewable Polymers

Previously, Avantium has communicated that it estimated to require a total funding package of approximately €150 million (excluding 20% contingency) for a fully funded business plan. This €150 million includes capex, operational expenditures, startup costs and working capital financing. Of this €150 million, Avantium has conditionally secured (subject to multiple conditions, including the fulfilment of the key conditions for the FID) €20 million in equity from the Groningen consortium, €10 million in equity from Worley as investment in kind, and €20 million "PEFerence"-EU Horizon 2020 grant awarded by Bio-based Industries Joint Undertaking. Additionally, the Groningen consortium intends to support Avantium Renewable Polymers with €2.5 million of subordinated debt (letter of intent) and in December 2020, the National Programme Groningen awarded Avantium a €7.5 million grant to support the construction of the FDCA flagship plant. €35 million will be funded by Avantium of which €24 million has already been provided as per 19 March 2021, the remaining €11 million needs to be funded at the level of Avantium. All financing elements, including the investments by Worley and the Groningen consortium, are subject to multiple conditions, including the fulfilment of the key conditions for the FID. Avantium Renewable Polymers is in continued discussions with a number of debt providers on funding the debt portion, including funding of the 20% contingency.

Financing Avantium

Management prepared several business scenarios for 2021, including the worst-case scenario in which it is assumed that the FDCA flagship plant business plan will not be fully funded and no financing will be obtained by Avantium. A detailed cash flow forecast based on a worst-case scenario, assuming COVID-19 travel restrictions will be eased mid-2021, supports the conclusion of management that the company has sufficient cash to fund its ongoing operations for at least 12 months as per the date of this Annual Report after which Avantium needs financing which currently is not secured yet.

Avantium is exploring multiple options to strengthen its financial position and provide the company with strategic choices. Avantium is working on attracting additional sources of financing, consisting of a combination of equity, government grants and/or debt to provide funding for the company's medium term (>12 months) operations. At the 2020 Annual General Meeting, Avantium obtained approval to issue new share capital up to 20% of its existing capital. At this moment no additional financing has been obtained by Avantium.

These events indicate the existence of a material uncertainty that may cast significant doubt on Avantium's ability to continue as a going concern and therefore, that it may be unable to realise its assets and discharge its liabilities in the normal course of businesses.

Avantium is taking action to ensure sufficient funding and to continue as a going concern:

- The management works on obtaining sufficient offtake agreements, finalising the engineering and establishing the supply chain, and obtaining financing to ensure a fully funded FDCA flagship plant business plan for Avantium Renewable Polymers. We plan to take a FID in the course of 2021. We are convinced of our groundbreaking technology and foresee a bright future by applying this technology in many applications. Sustainability is gaining more and more momentum and we expect that consumers and thus brand owners will demand sustainable packaging solutions.
- The management is working on attracting additional sources of financing. Avantium obtained approval from the shareholders to issue new share capital up to 20% of its existing capital. Management is regularly engaging with existing and potential new investors. There is a clear trend towards investments in ESG driven companies such as Avantium.

The situation around the current COVID-19 pandemic seems to be developing positively. However, we cannot exclude the possibility of new and unknown developments later this year that might impact Avantium's ability to raise funds.

Based on the analysis and assessment of management's actions and although a material uncertainty remains on the company's going concern, manage-ment believes it is appropriate to prepare Avantium's financial statements using the going concern assumption.

Investor Relations and Share Performance

Investor Relations

Avantium is committed to communicating in a proactive and transparent manner with its shareholders and the broader investment community. This communication policy is an integral part of Avantium's active investor relations strategy. To ensure we maintain an open and continuous dialogue with the financial community, we engage with investors extensively through (virtual) roadshows, investor meetings and conferences. We also accommodate meeting requests from investors wherever feasible and in adherence with all applicable regulatory and confidentiality obligations.

Our policy is to have at least two representatives of Avantium present at each conversation with shareholders and investors, where possible. Bilateral meetings and conference calls with analysts, investors and shareholders are not held during 'closed periods', which normally start one month prior to the publication of Avantium's annual or half-yearly results. Our policy of holding bilateral meetings with shareholders is set out in the Bilateral Contact Policy that can be found in the corporate governance section of our website.

We are committed to providing high-quality, easy-to-understand and timely information to all stakeholders, while ensuring that the entire public market also has access to this information (including price-sensitive data).

Dialogue with the Investment Community

We aim to maintain an active and open dialogue with shareholders, investors, research analysts and the rest of the financial community. When we publish our annual and half-yearly results, our CEO and CFO host a conference call for research analysts to discuss our recent business and financial performance. We release transcripts of these calls on our website immediately thereafter. We also use events to inform both retail and institutional investors about our business and strategy. Our Retail Investor Day was held at Avantium's head office in Amsterdam in February 2020. Senior management members presented Avantium's innovative technologies and their commercial potential to the attendees. This event was combined with a live webcast that can be found, together with the presentations, on our website. In September 2020, our CEO, Tom van Aken, gave a keynote presentation on Avantium's investment highlights to numerous Belgian retail investors at the VFB Happening, an online event for retail investors organised by the Flemish Federation of Investors (VFB).

Our Atrium is a multi-purpose space for employees, events and investor days

For institutional investors, Avantium organised a Virtual Management Roadshow in September and October 2020 to provide insights into our strategy for PEF and plantMEG. During the event, our CEO, CFO and Director of Investor Relations met digitally with more than 60 UK, US, Benelux and European investors.

General Meetings of Shareholders

On 14 May 2020, our Annual General Meeting of Shareholders (AGM) took place virtually. More information about the meeting, including the minutes, key decisions and attendance, can be found in the corporate governance section of our website.

On 30 September 2020, we held an Extraordinary General Meeting of Shareholders (EGM) on the nomination of two new Supervisory Board members. More information on this EGM can also be found on our website.

Listing and Indices

Avantium's shares are listed and traded on both Euronext Amsterdam and Euronext Brussels, under the ticker symbol AVTX. On 23 March 2020, Avantium was promoted to the Euronext Amsterdam SmallCap Index (AScX), following Euronext's quarterly review. The AScX consists of the 25 listed companies ranked 51–75 (in terms of size) on Euronext Amsterdam, the Dutch stock exchange.

Share Capital and Voting Rights

At the end of 2020, the number of issued and outstanding ordinary shares amounted to 25,912,170. The ordinary shares issued and outstanding have equal voting rights (one share = one vote).

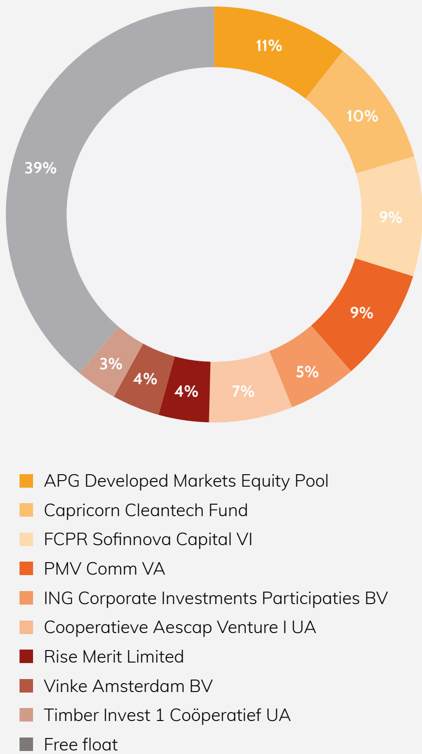
Indicative Free Float

Avantium's free float amounts to approximately 40%.

Major Shareholders

The Dutch Financial Markets Supervision Act requires Avantium's investors who holds a (potential) capital and/or voting interest of 3% or more to disclose this to the Nether-

Major Shareholders in 2020



Source: AFM Register substantial holdings and gross short positions.

lands Authority for the Financial Markets (AFM). The AFM publishes these major shareholding disclosures in its publicly available register, which can be found at www.afm.nl.

On 27 May 2020, Belgian Federal Holding and Investment Company FPIM notified the AFM that it had lowered its shareholding in Avantium to 2.10% (from 4.30%). On 5 June 2020, Sofinnova Partners notified the AFM that it had decreased its shareholding in Avantium to 9.34% (from 11.3%).

Liquidity

The total number of Avantium shares traded rose substantially in 2020 to circa 25.7 million shares (6.3 million shares in 2019). Velocity (the total number of shares traded divided by the average number of shares issued) was significantly higher, at 99.7% compared to 24.5% in 2019.

In May and June 2020, we witnessed significant trading volumes of over 100,000 shares traded daily, in response to the publication of an interview with CEO Tom van Aken in The Guardian (16 May 2020) and the strong media attention during the weeks that followed.

Dividend Policy

Avantium has not paid dividends since being listed and we do not expect to pay dividends in the foreseeable future.

Share Performance

Share Price Development

Avantium's share price ended the year 2020 at €6.42, well above the 2019 closing price of €3.15.

Analyst Recommendations

Four equity analysts currently have research coverage on Avantium (versus three analysts in 2019): ING, KBC, Kepler Cheuvreux and Degroof Petercam.

The research recommendations at the end of 2020 were as follows:

Bank	Target price	Recommendation
ING	€13.44	Buy
Degroof Petercam	€8.00	Buy
Kepler Cheuvreux	€5.00	Reduce
KBC	€1.75	Reduce

Risk and Opportunity Management

Framework

Risk management is one of the key responsibilities of Avantium's management team and Supervisory Board. Avantium's principal risks and uncertainties - whether under our control or not - are highly dynamic and our assessment of and responses to them are critical to the company's future business and prospects. Avantium's approach to risk management is framed by the ongoing challenge of understanding the risks that the company is exposed to, the assessment of the company's risk appetite and how these risks change over time.

This section provides an overview of Avantium's Risk and Control Framework and its effectiveness, in order to substantiate the Risk and Control Statement.

Risk Appetite

The management team assesses and approves Avantium's risk appetite, monitors Avantium's risk exposure and sets the group-wide targets, which are reviewed on an ongoing basis. This process is supported and supervised by the Supervisory Board. Avantium manages its risks and opportunities through the boundaries defined by the risk appetite. In general, the more that risks can be managed and reduced internally, the lower the risk appetite. Our risk appetite is broken down into the following risk areas:

Risk areas	Description of risk areas	Appetite
Strategy and Technology	Avantium develops new technologies through R&D projects, which are 'industry disruptive'. In doing so, Avantium seeks to protect its proprietary technology. We aim to demonstrate scale-up of these technologies from laboratory scale via a pilot plant to a flagship plant, and subsequently to sell technology licences.	High
Operations	Avantium's operational risk is related to managing its laboratories, starting up and operating its pilot plants and building, owning and operating a flagship plant.	Low
Finance and Reporting	Avantium has a conservative financial strategy and strives to ensure that there are no reporting errors.	Low
Legal and Compliance	Avantium strives to avoid non-compliance with laws and regulations, which include health and safety, competition law and environmental laws, and aims to limit any liability risk.	Low

Control Environment

The control environment relates to our standards, processes, culture and structures.

At the top of Avantium, the management team sets the tone on the importance of internal risk control by demonstrating its commitment to integrity and ethical values. Avantium's Code of Good Business Conduct supports this open culture.

Avantium is committed to adequate business controls and disciplined processes. Business controls are incorporated into our automated systems as far as possible. The focus of financial reporting is on cash management and bottom-up cash forecasting.

Avantium regularly reviews our insurable risk and our insurance policy together with our insurance broker to determine whether we have sufficient coverage.

Assessments and Audits

The audit function supports Avantium in accomplishing its objectives by providing an independent and professional view on its processes and controls.

The Management Board has decided, in consultation with the Audit Committee, that the company is too small to install its own dedicated internal audit function. Senior staff members in the company's Finance department are partially dedicated to risk and control management. The CFO oversees risk management tasks. An update on risk management activities, findings, conclusions and actions are provided to the Audit Committee, where priorities are set and guidance is provided to follow up on identified areas of concern and to further enhance risk and control management. This internal audit function is further supported by the relevant subject matter experts throughout the company.

The Technology Board is established and appointed by the Management Board to act in an advisory capacity. The Technology Board provides advice and recommendations to the Management Board regarding technology aspects of major investment decisions, as well as technology strategies the company is pursuing or plans to implement, including risks and risk mitigation strategies.

In January 2021, the Industrialisation Committee of Avantium was established and appointed by the Supervisory Board to serve as its advisory and risk review forum of (i) the company's technology strategy, (ii) its industrialisation roadmaps and (iii) its technology portfolio, all as determined, formulated and executed by the company's Management Board and management team. Professional external operational auditing is brought in on a case-by-case basis.

For example, in 2020, external operational auditing was contracted for information and communications technology (ICT) security and for the scale-up process of our YXY Technology.

Risk Assessment

The management team, the business units and the functional department heads are responsible for their respective risk management; they perform a risk assessment at least once a year. These assessments are supported and prepared by senior staff members of the Finance department. These risk assessments identify risks, taking into account the likelihood of risks occurring and the impact on the company, both reputational and financial. Mitigating actions are subsequently defined and monitored. Material conclusions of these assessments are shared with and analysed by the Audit Committee.

Key Risks in 2020

The key risks identified are those that threaten the achievement of Avantium's objectives.

Below is an overview of the key risk factors and mitigating actions. These risk factors are viewed by Avantium's management team as being the most relevant. The company has put in place mitigating actions to counter the identified risks, which are categorized as follows: Strategy and Technology; Operations; Finance and Reporting; and Legal and Compliance.

Strategy and Technology

Risks	Mitigating factors
Financing ▪ Avantium may continue to incur financial losses for the foreseeable future and may never achieve or sustain profitability. At closing of the 2020 accounts, Avantium's cash position was €26.6 million. Avantium's cash spending in 2020 was €18.8 million. ▪ Avantium may fail to obtain timely funding, thereby preventing the company from continuing as a going concern, as well as preventing the company from executing its strategy, delivering on its commitments and obligations towards partners and in grant programmes, retaining key employees and meeting payment obligations; and/or funding may only be available under unfavourable conditions for the company and its stakeholders. ▪ Although capital markets today are positive and liquid, it is possible that capital markets will be in a negative state when Avantium wants to engage with them. ▪ Should Avantium not be able to take a positive Final Investment Decision (FID), access to financing will become difficult. ▪ Current funding of Avantium is dependent on grant income which is not a sustainable funding source.	▪ Ensuring that commercial and business milestones are achieved, thereby resulting in commercial and technical validation, and that partners are attracted in order to de-risk the technology scale-up. ▪ Attracting additional and timely sources of funding, consisting of a combination of equity, subsidies and/or debt. In the Annual General Meeting on 14 May 2020, Avantium received approval to issue new share capital up to 20% of its existing capital. ▪ Actively managing relationships with all relevant stakeholders, including shareholders and potential investors. ▪ Actively monitoring commitments and compliance under grant programmes. ▪ Preparing and considering portfolio decisions to prioritise resources and/or divest parts of the business or technologies. ▪ Managing cash prudently, without jeopardising strategic progress or compromising the safety of employees and the company's technologies and freedom to operate. ▪ Constantly monitoring the national/international grant landscape for new opportunities.
Final Investment Decision ▪ Avantium may not be able to take a timely and positive FID on the construction of the FDCA flagship plant. Such positive FID is based on the fulfilment of three key conditions: (i) securing €150 million financing (excluding 20% contingency), (ii) obtaining offtake commitments of 50% of the capacity of the flagship plant, and (iii) finalising the engineering and establishing the supply chain. Avantium may subsequently not be able to build, start-up and operate a flagship plant for the production of FDCA in full, on time and within budget.	▪ Actively managing a sales funnel process targeting and engaging potential and future customers. ▪ Actively discussing debt financing, additional grants and additional equity financing. ▪ Finalising the engineering with the company's engineering partner and with other parties in the supply chain to access raw material feed stock, sale of by-products and access to polymerisation capacity.
Commercial validation of YXY Technology ▪ Avantium Renewable Polymers may not be able to commercialise its YXY Technology through the production and sale of its products FDCA and PEF and may not be able to subsequently execute its licensing strategy.	▪ Implementing a market entrance strategy based on its value propositions in different applications and market segments. In time, when volumes increase and cost-price decreases, different segments become accessible. ▪ Selling licences for larger, industrial scale plants, once the flagship plant of Avantium Renewable Polymers is operating solidly. Due to economies of scale, operational excellence and continuous technology development, cost price will decrease further. ▪ Developing a detailed marketing plan for licensing the technology.

Strategy and Technology (continued)

Risks	Mitigating factors
Commercialise Ray Technology ▪ Avantium Renewable Chemistries may not be able to commercialise its Ray Technology through the production, sale and licensing of plantMEG at the right specifications, quality, yields, cost-price and volumes.	▪ Optimising and stabilising Avantium's Ray Technology and the production of plantMEG in the operating pilot plant in Delfzijl, the Netherlands. These activities assist in narrowing down the required capital expenditures. ▪ Continuing to apply a strict portfolio management and stage-gate approach, to bring projects from ideation, via proof-of-principle, to a fully developed business case that forms the basis for finding like-minded partners and attracting funding. ▪ Monitoring competitors' technologies and market entrance strategies for Ray Technology. ▪ Maintaining Avantium's strong connections with partners in the plantMEG value chain to de-risk the sourcing of feedstock, operations, financing and commercialisation of plantMEG.
Competition ▪ The technologies Avantium is developing may not be competitive with other new emerging technologies and systems, which provide similar functions, lower cost or better solutions for potential customers. Avantium may not have full oversight of the technologies developed by competitors.	▪ Keeping up continuous technology development to maintain competitiveness. ▪ Maintaining solid industry and business partner relationships. ▪ Monitoring and analysing competitors through various sources (trade associations, universities, banks, employees etc.) and their IP filings. ▪ Actively maintaining, protecting and expanding our current IP portfolio.
COVID-19 ▪ Measures including travel restrictions increase the difficulty of closing commercial deals and providing technical services to customers. ▪ Potential customers delay decision-making or are less eager to close new deals due to uncertainty in their own business. This can result in further delays of the FID and financing opportunities. ▪ In the case of an outbreak of COVID-19 in one of our facilities or plants, Avantium might need to temporarily but fully close down operations, with an impact on technical progress and grant programme milestones. ▪ The safety, well-being and productivity of employees decreases.	▪ Implementing all instructions from, and best practices provided by, government agencies and health officials to reduce COVID-19 infection risks. ▪ Implementing cost-saving measures to compensate for lower top line revenues. ▪ Coordination, at management team level, all relevant aspects of health, safety, well-being and operations. ▪ Organising frequent management team town hall and functional meetings via video-conferencing, to keep in close contact with the teams of each business unit. ▪ Ensuring that employees who work from home are supported by appropriate ergonomic tools and infrastructure. ▪ Making the HR department and the company doctor available to employees with concerns about physical and mental well-being. ▪ Working from home, with only those who are strictly necessary present in laboratories and offices. A management-level team monitors the numbers of employees on Avantium premises on a daily basis.

Operations

Risks	Mitigating factors
Scale-up of flagship ▪ Due to operational, environmental and/or technical reasons, Avantium Renewable Polymers may not be able to build, start up and operate a flagship plant for the production of FDCA.	▪ Ensuring strict project management; supervision, risk and cost control; adequate resources including staffing; and quality of the engineering, procurement and construction (EPC) contract. Risk sharing is an important element, as foreseen in the EPC contract. ▪ Ensuring, through project management, that the flagship plant operates robustly after commissioning, covering all disciplines including staffing, systems, safety, logistics, regulations and finance. ▪ Identifying and mapping key permits. Relationships with the relevant authorities are established with ongoing discussions about permitted values and technical solutions. ▪ Establishing an appropriate risk register and managing construction and operation risks diligently as per risk identification and its influence on Capex/Opex. ▪ Taking into consideration the Technology Board's advice and recommendations and monitoring and reporting on implementation. ▪ Including waste management as part of Avantium's environmental permit applications.
Retain, develop and engage employees ▪ Avantium may not be able to recruit and/or retain the highly skilled and engaged employees it needs, which will have a direct negative impact on reaching its strategic objectives and may result in business interruptions.	▪ Offering employees competitive compensation, direct business impact, autonomy, an inspiring culture and colleagues and a multitude of development opportunities. ▪ Providing opportunities for interns and (PhD) students to experience working at Avantium. This supports talent management and grows a talent pool. Avantium participates in events in order to generate exposure to new talent, ideally jointly with universities and other educational institutes. ▪ Using Avantium's sustainability plan, titled Chain Reaction 2030, as a communication instrument for engaging new and existing talents. ▪ Initiating learning workshops where people can share knowledge on a variety of topics to promote development. We invest in skill development courses, management trainings and leadership programmes to enable the personal and professional growth of all our employees.
Intellectual property (IP) protection ▪ Avantium may not be able to adequately protect its proprietary technology, products and processes, information, trade secrets and know-how.	▪ Actively maintaining, protecting and expanding Avantium's IP portfolio in line with our IP strategy. ▪ Actively monitoring and analysing worldwide trends and technology developments, especially with respect to the patent landscape. ▪ Discussing with technical teams about proactively publishing or seeking patent protection. ▪ Using IP assignment agreements for employees (and – if applicable – consultants, interns and secondees). ▪ Maintaining adequate ICT and HR security controls.
Freedom to operate ▪ Avantium may not be able to ensure and maintain its required freedom to operate, and/or Avantium may inadvertently infringe the IP rights of third parties in its commercial operations. ▪ Litigation or third-party claims of alleged IP infringement could require substantial time and money to resolve even if proven unfounded. Unfavourable outcomes in these proceedings could limit Avantium in commercialising its lead technologies.	▪ Actively maintaining, protecting and expanding our current IP portfolio if required for cross-licensing. ▪ Continuing discussions with technical teams about proactively publishing or seeking patent protection. ▪ Actively monitoring and analysing the patent landscape, reviewing competitors' patent portfolios, lodging oppositions and filing third-party observations where appropriate.

Operations (continued)

Risks	Mitigating factors
Food safety ▪ Food safety is an important qualifier for many of our future customers. Inability to adhere to food contact materials regulations will negatively affect the company's ultimate ability to sell products for the desired applications and to sell subsequent licences under the company's licensing strategy. Avantium may not be able to obtain the required food contact approvals.	▪ Cooperating closely with potential customers in securing product application testing when applying for food contact approvals. When possible, and according to agreements with customers to define the regions of interest, the company aims to obtain initial food contact approval with the material produced at pilot plant phase. ▪ Retaining reputable consultants to support the food contact approval submission process in different regions. ▪ Following strict manufacturing protocols and quality assurance procedures in future operations to ensure that our products are fully in line with specifications according to existing regulations and customer needs. ▪ Where possible, including liability caps in customer contracts. ▪ Implementing product liability insurance to cover part of the risk. ▪ Registering Avantium products in accordance with applicable regulations allowing the manufacture, distribution and use of these products.
Cyber security ▪ ICT security risks are changing rapidly. The ICT infrastructure, systems, procedures and user awareness may result in security risks, business interruptions, information loss or leakage and reporting omissions.	▪ Implementing recommendations of the 2020 external audit on Avantium's ICT infrastructure. ▪ Creating and updating ICT security and data governance policies. Actively managing compliance with these through preventive, monitoring and detection controls. ▪ Working actively to train employees and build their awareness on cyber security. ▪ Making daily backups of our critical systems/servers and conducting regular restore tests. ▪ Keeping hardware, software and firewall solutions and accessibility up-to-date. ▪ Upgrading the enterprise resource planning system to a new version (planned as part of the scale-up of Avantium Renewable Polymers and the flagship plant project).
Permits and regulations ▪ Environmental risks such as (i) new or changing regulations, (ii) non-compliance with Avantium's current permits and/or environmental regulations for an Avantium location or (iii) unwanted (unintentional) emissions and/or wastewater release.	▪ Regularly engaging with the relevant regulatory bodies and other stakeholders. ▪ Implementing observations made during inspections by line management, staff and relevant regulatory parties. ▪ Implementing a management system complying with ISO 14001, for all Avantium sites. For the pilot plants, this will result in improved process technologies and people skills, as well as formalised procedures, checklists, training and instructions.
Hazardous waste ▪ Handling hazardous substances within laboratories and pilot plants brings a risk of spills (environmental damage) and exposure (health damage). Inherent health and safety hazards in our operations and insufficient awareness of unsafe plant conditions can lead to injuries or casualties and, potentially, a (temporary) plant shutdown.	▪ Preceding all activities with thorough assessments in which failure situations are reasoned, risks are weighed and necessary preventive measures are implemented. ▪ Giving every employee (and student, intern, contractor and consultant on location) adequate safety training at the start of their engagement as well as a list of all standard operating policies that apply to the relevant activities and locations (laboratory/office/pilot plant). ▪ Creating awareness through procedures, safety systems, internal memos, instructions and company meetings.

Finance and Reporting

Risks	Mitigating factors
Safeguarding Avantium's cash ▪ The banks and/or financial institutions where Avantium deposits its cash may experience disruptions or defaults, leading to a situation where cash is no longer accessible to Avantium.	▪ Regularly checking the risk profiles of the financial institutions where we have deposited cash. ▪ In 2020, reducing Avantium's exposure to one bank, a decision based on an external credit analysis.
IFRS compliance ▪ Non-compliance with International Financial Reporting Standards (IFRS). Not informing our shareholders and other stakeholders in conformity with IFRS might lead to a loss of trust, reputational damage, a declining share price and, possibly, legal claims.	▪ Maintaining corporate accounting policies and making them available across the company. Our control framework includes financial reporting controls that warrant compliance with IFRS. ▪ Using external expert advice if necessary.

Legal and Compliance

Risks	Mitigating factors
New laws and regulations ▪ New government laws, regulations or measures, including increased regulations on the production and use of sustainable versus oil-based products, may have a major impact on our business and financial position, and can lead to a threat to our activities.	▪ Monitoring and adapting to relevant (changes in) rules and regulations. ▪ Maintaining a dialogue with authorities, where possible.
Sanction regulation compliance ▪ Avantium may unknowingly or unwilfully have partners, customers, agents, consultants or other company contacts in breach of sanctions regulations which could adversely affect our business.	▪ Continuing to do our utmost to adhere to (sanctions) laws and regulations, with Avantium's policies, procedures and ethics codes prohibiting us from entering into business with sanctioned parties. ▪ Using up-to date sanctions-screening software tools for business relationships the company enters into.
Bribery and corruption ▪ Avantium may be exposed to bribery and corruption.	▪ Managing a stringent approach to bribery and corruption with internal controls, coordinated by the Finance and Legal teams. ▪ Retaining an external, independent organisation to assist, where necessary, in monitoring interactions with suppliers, agents and distributors. ▪ Including clauses on anti-bribery, corruption and appropriate remedial actions in many different agreements the company enters into.

Legal and Compliance (continued)

Risks	Mitigating factors
Fraud ▪ Avantium may be subject to fraudulent activities.	▪ Implementing internal control activities. ▪ Encouraging employees to report any suspicion of non-compliance with our ethics code. Following a report, any potential violation will be investigated. The outcome may lead to disciplinary action, the severity of which is determined by the nature and circumstances of the incident. Impacts may include termination of employment. If necessary, the company takes additional action to prevent similar incidents in the future. ▪ Using the processes described in the Whistleblower and Confidant policies. ▪ Including clauses on fraud and appropriate remedial actions in many different agreements the company enters into.
Confidential information ▪ An employee or former employee of Avantium or a third party may, intentionally or otherwise, disclose unauthorised confidential information belonging to Avantium, or confidential information received from a customer or business partner.	▪ Entering into a non-disclosure agreement (NDA) with each employee and where necessary with any third party (such as business partners, customers, suppliers and consultants), to cover the protection of the company's confidential information. In most cases the company NDA template is used (governed by Dutch law). ▪ Creating awareness and ensuring that employees understand their confidentiality obligations. Employees are educated during in-house training sessions on the handling of Avantium's confidential information. ▪ Making employees aware that it is important to strictly limit the disclosure of Avantium's confidential information only to the particular third parties concerned. ▪ Using the standard operating procedure policy stipulating how to handle confidential information (belonging either to Avantium or to a third party).
Compliance with market abuse regulation ▪ Avantium, or a (former) employee of Avantium, may fail to comply with market abuse regulations, and may misuse and/or disclose Avantium's inside information (intentionally or unintentionally).	▪ Creating employee awareness around adherence to Avantium's insider trading policy and legislation through training programmes and communication. ▪ Establishing timely log files on classified information that will likely develop to become inside information. ▪ Establishing and maintaining insider lists of Avantium employees who have access to and knowledge of insider information. ▪ Having an appropriate meeting schedule (in terms of frequency) for the Disclosure Committee, which reports to the Management Board and Supervisory Board. ▪ If applicable, notifying insiders, in a timely manner, about their obligations, creating explicit status acceptance. ▪ Disclosing inside information to the market when appropriate.

In-Control Statement

Avantium's assessment is that there are no major failings in its internal risk management and control systems in the reporting year.

It should be noted that the above does not imply that our systems and procedures provide certainty as to the realisation of strategic, operational, compliance and reporting objectives, nor that they can prevent all misstatements, inaccuracies, errors, fraud and non-compliance with laws and regulations.

On this basis, Avantium's Management Board states that to the best of its knowledge:
- the Annual Report provides sufficient insight into the effectiveness of Avantium's internal risk management and control systems;
- the aforementioned risk management and control systems provide reasonable assurance that the financial reporting does not contain any material inaccuracies; and
- based on the current state of affairs, financial reporting on a going-concern basis is justified (refer to p. 99. for going concern note).

In accordance with provision 1.4.3. of the Dutch Corporate Governance Code and Article 5:25c of the Financial Supervision Act, the Management Board declares that, to the best of its knowledge:
- the sections in the Report of the Management Board as included in this report provide sufficient insights into any deficiencies in the effectiveness of Avantium's internal risk management and control systems.
- the financial reporting systems provide reasonable assurance that Avantium's financial reporting does not contain any material errors.
- based on Avantium's current state of affairs, it is justified that the financial reporting is prepared on a going concern basis.
- the sections in the Report of the Management Board list those material risks and uncertainties relevant to expectations regarding Avantium's continuity for the period of twelve months after the preparation of the Report of the Management Board;
- the financial statements as included in this report provide a true and fair view of the assets, liabilities, financial position and results for the financial year of both Avantium and the group companies included in the consolidation; and
- the sections in the Report of the Management Board provide a true and fair view of the situation on the balance sheet date and the business development during the financial year of Avantium and of our affiliated group companies included in the financial statements.

Amsterdam, 23 March 2021

Tom van Aken
Chief Executive Officer

Bart Welten
Chief FInancial Officer

Governance

Management Team

Tom van Aken
(1970, Dutch)

Chief Executive Officer (CEO) and member of the Management Board

- Joined Avantium in 2002
- Appointed CEO of Avantium in 2005
- Current term of appointment 2005 - 2021

Before his appointment as CEO in 2005, Tom van Aken was Avantium's Vice President of Business Development (2002 – 2004) and Vice President of Global Marketing and Sales (2004 - 2005.
Prior to joining Avantium, he was Business Development Director at DSM Fine Chemicals, Inc. He earned a master's degree in Chemistry from the University of Utrecht, the Netherlands.

Bart Welten
(1960, Dutch)

Chief Financial Officer (CFO) and member of the Management Board

- Joined Avantium in 2020
- Appointed CFO of Avantium in 2020
- Current term of appointment 2020 - 2024

Before joining Avantium, Bart Welten served as the CFO of Centrient Pharmaceuticals (formerly a joint venture of DSM and Sinochem) in Singapore. Before leaving Centrient, he oversaw the sale of the company to Bain Capital. Prior to this, he was CFO of DSM Resins and DSM Anti-Infectives. He holds a law degree from Leiden University (the Netherlands) and an MBA from Boston College (USA).

Gert-Jan Gruter
(1963, Dutch)

Chief Technology Officer (CTO)

- Joined Avantium in 2000
- Appointed CTO of Avantium in 2004

Gert-Jan Gruter has been Avantium's CTO since 2004. Before this, he was responsible for setting up the Chemicals Service Business (2000 - 2004) and was a Group Leader in New Catalyst Research at DSM (1993 - 2000). He is also Professor of Industrial Sustainable Chemistry at the University of Amsterdam, the Netherlands. He holds a master's degree in Organic Chemistry and a PhD in Organometallic Chemistry & Catalysis from the Vrije Universiteit in Amsterdam, the Netherlands. He is the inventor on more than 100 patents and was elected European CTO of 2014.

Carmen Portocarero
(1967, Dutch)

General Counsel

- Joined Avantium in 2012
- Appointed General Counsel in 2012

Prior to joining Avantium in 2012, Carmen Portocarero held various corporate legal positions, including more than 17 years at US telecommunications company AT&T.

She holds a master's degree in Law from the Catholic University of Nijmegen in the Netherlands and obtained her US qualifications after completing various law programmes at Harvard University.

Zanna McFerson
(1965, Finnish)

Managing Director Avantium Renewable Chemistries

- Joined Avantium in 2017
- Appointed Managing Director of Avantium Renewable Chemistries in 2017

Zanna McFerson held various director and vice president positions at Cargill (1990-2013) in trading, commercial and executive roles. She held senior executive positions in the biotechnology industry before joining Avantium in 2017. She earned her Economics degree from the University of Illinois, USA and an MBA from the University of Iowa, USA.

Steven Oliver
(1964, Dutch)

Managing Director Avantium Catalysis

- Joined Avantium in 2015
- Appointed Managing Director of Avantium Catalysis in 2015

Before joining Avantium, Steven Olivier worked at Albemarle (2005 – 2014) and at AkzoNobel (1994 - 2004) in a range of senior executive and commercial roles in the catalyst industry. From 2011 - 2013, he was a representative director of Nippon Ketjen (Japan). He holds a master's degree in Chemistry from Leiden University in the Netherlands.

Supervisory Board

Edwin Moses
(1954, British)

Chair of the Supervisory Board

- Member of the Supervisory Board since 2019
- Current term of appointment 2019 - 2023

Background
Edwin Moses is a serial entrepreneur and value creator in European life science companies. He has expertise in high-value service provision to the pharmaceutical industry and in drug discovery and development. His primary focus is on high growth businesses and change management, with 25 years of Board-level experience in more than fifteen companies, mostly as Chair.

Responsibilities
Edwin Moses is Chair of the Supervisory Board, Chair of the Nomination Committee, Chair of the Remuneration Committee and a member of the Audit Committee.

Cynthia Arnold
(1957, American)

- Member of the Supervisory Board since 2020
- Current term of appointment 2020 - 2024

Background
Cynthia Arnold served as Senior Vice President and CTO at The Valspar Corporation and was also CTO at Sun Chemical Corporation. Prior to this, she worked for nine years at General Electric Plastics, including three years at GE Plastics Europe in the Netherlands. She holds a Ph.D. from the Virginia Polytechnic Institute & State University in Blacksburg (USA), as well as both an MBA and a BS in Chemical Engineering from the University of California in Berkeley (USA).

Responsibilities
Cynthia Arnold is a member of the Nomination Committee and of the Remuneration Committee.

Michelle Jou
(1969, Taiwanese)

- Member of the Supervisory Board since 2020
- Current term of appointment 2020 - 2024

Background
In 2003, Michelle Jou joined Covestro (formerly Bayer MaterialScience) in the company's central departments in Shanghai. She later took on the role of Vice President of the Polycarbonates Business Unit in China and Hong Kong. In 2012, she was named Senior Vice President of Commercial Operations in the Asia region before becoming President of Covestro's global Polycarbonates Segment (Shanghai). She holds a BA in French from Fu-Jen University (Taiwan) and an MBA from the EMLYON Business School (France).

Responsibilities
Michelle Jou is a member of the Nomination Committee and of the Remuneration Committee.

Margret Kleinsman
(1963, Dutch)

- Member of the Supervisory Board since 2017
- Current term of appointment 2017 - 2021

Background
Margret Kleinsman, CFO of Agrifirm, graduated from the University of Twente and completed her post- doctoral research at the Vrije Universiteit in Amsterdam (both in the Netherlands). She was CFO of Holland Colours N.V. from 2014 until 2020. Before this, she worked for AkzoNobel, with particular responsibilities in the areas of chemicals, fibres and coatings, and including two longer-term assignments in the USA.

Responsibilities
Margret Kleinsman is Chair of the Audit Committee.

Trudy Schoolenberg
(1958, Dutch)

- Member of the Supervisory Board since 2020
- Current term of appointment 2020 - 2024

Background
Trudy Schoolenberg has served in various senior management positions at Shell, Wärtsilä and AkzoNobel in research, operations and strategy. She has a PhD in Technical Sciences from the Delft University of Technology (the Netherlands) and an MSc in Industrial Engineering. She is certified as a Non-Executive Director at ESAA, Erasmus University Rotterdam.

Responsibilities
Trudy Schoolenberg is a member of the Audit Committee.

Report of the Supervisory Board

Introduction

This report explains how Avantium's Supervisory Board fulfilled its responsibilities in 2020. The Report of the Supervisory Board should be read in conjunction with the Corporate Governance section (p. 87 - 90), which provides information on the company's corporate governance structure.

Composition, Diversity and Independence

The Supervisory Board currently consists of five members: Edwin Moses (Chair), Cynthia Arnold, Michelle Jou, Margret Kleinsman and Trudy Schoolenberg. The biographies of the Supervisory Board members are available on p. 65 - 66 and on the Avantium website.

There were a number of changes to the composition of the Supervisory Board during 2020. At the Annual General Meeting of Shareholders (General Meeting) on 14 May 2020, Michelle Jou was appointed as a Supervisory Board member for a term of four years. At the end of an Extra-ordinary General Meeting of Shareholders (EGM) on 30 September 2020, Denis Lucquin retired as a member of the Supervisory Board, after serving on it for almost a decade. The Supervisory Board is profoundly grateful to Denis Lucquin for his contribution. At the same EGM, Cynthia Arnold and Trudy Schoolenberg were appointed as Supervisory Board members for a term of four years.

As described on p. 47 in this Annual Report, Avantium aspires to be an inclusive and diverse company with an open and inspiring culture. This also applies to the composition of the Supervisory Board. The Supervisory Board seeks to promote diversity among its members in terms of age, gender, nationality, experience within the industry, background, skills, knowledge and insights. As far as possible, we aim to create a balance among the Supervisory Board's members where this diversity is represented. The objective is to comply with the Supervisory Board Profile that can be found on Avantium's website. The percentage of women on the Supervisory Board is 80%, outperforming the target of 30% prescribed by Dutch legislation in terms of gender balance.

Diversity Profile

Name	Year of birth	Nationality	Expertise and experience	Gender
E. Moses	1954	British	▪ Scaling up innovative companies ▪ Executive and non-executive experience ▪ International experience	Male
C.A. Arnold	1957	American	▪ Chemicals and plastics industry ▪ International industry experience	Female
M.B.B. Jou	1969	Taiwanese	▪ International executive experience, especially Asian region ▪ Commercial experience from chemicals and plastics industries	Female
M.G. Kleinsman	1963	Dutch	▪ Financial expertise in chemicals and plastics industries ▪ International experience	Female
G.E. Schoolenberg	1958	Dutch	▪ Operational and engineering expertise in chemical industry ▪ International industry experience	Female

Retirement and Re-Election Schedule

Name	Appointment date	Year of possible re-election	End of final term
E. Moses	20 December 2019	2023	2031
C.A. Arnold	30 September 2020	2024	2032
M.B.B. Jou	14 May 2020	2024	2032
M.G. Kleinsman	14 June 2017	2021	2029
G.E. Schoolenberg	30 September 2020	2024	2032

All members of the Supervisory Board are deemed independent. In the Supervisory Board's opinion, the composition of the Supervisory Board is such that the members can act critically and independently from one other and from the Management Board, as stipulated in the Dutch Corporate Governance Code. This means that the tasks of the Supervisory Board as laid down in Avantium's Articles of Association can be fulfilled, including providing the Management Board with solicited and unsolicited advice and support.

Education and Self-Evaluation

Ongoing education is an important part of good governance. Members of the Supervisory Board regularly visit Avantium's offices to meet with senior management and to develop deeper knowledge of operations, opportunities and challenges. Direct, one-on-one contact between Supervisory Board members and management team members generally follows naturally from discussions in the meetings of the Supervisory Board. These discussions draw on the expertise of individual Supervisory Board members, whose advice is sought on a wide range of specialist topics as required. As of early March 2020, due to the COVID-19 pandemic, all contact and dialogue occurred electronically by means of audio and video conferencing.

In 2020, the new members of the Supervisory Board all attended onboarding sessions at which they were informed about the financial, reporting, risk and audit, human resources, communications and investor relations, legal and governance affairs of the company.

The composition of the Supervisory Board was discussed at length in 2020, leading to the nomination and appointment of three new members in 2020. In view of these recent changes in the composition of the Supervisory Board and the travel restrictions in place to counter the COVID-19 pandemic, it was decided to postpone the self-assessment of the Supervisory Board to early 2021.

Supervisory Board Meetings in 2020

Meetings and Attendance

Supervisory Board meetings are held regularly to discuss the company's achievements and plans, the functioning and composition of the Supervisory Board and the performance of the Management Board. In its oversight capacity, Avantium's Supervisory Board has frequent communications with the Management Board, both in and between Supervisory Board meetings. The Supervisory Board met six times and had eleven additional update calls in 2020. All meetings were also attended by the full Management Board, apart from the closed sessions of the Supervisory Board under the agenda item 'Supervisory Board only'. Additionally, the Supervisory Board organised one informal dinner prior to the COVID-19 lockdown measures and related restrictions being imposed in the Netherlands.

The individual attendance per meeting can be found in the table below.

Name	Supervisory Board meeting	Audit Committee meeting	Nomination Committee meeting	Remuneration Committee meeting
E. Moses	17/17	6/6	2/2	2/2
C.A. Arnold[1]	9/17	n/a	1/2	1/2
M.B.B. Jou[2]	17/17	n/a	1/2	1/2
D.J. Lucquin[3]	9/17	n/a	1/2	1/2
M.G. Kleinsman	16/17	6/6	n/a	n/a
G.E. Schoolenberg[4]	9/17	2/6	n/a	n/a

1 Ms Arnold was appointed as member of the Supervisory Board as per 30 September 2020; meetings during her tenure are taken into account, as well at those that she attended as an observer.
2 Ms Jou was appointed as member of the Supervisory Board as per 14 May 2020; meetings during her tenure are taken into account, as well at those that she attended as an observer.
3 Mr Lucquin stepped down from his position as per 30 September 2020; only meetings during his tenure are taken into account.
4 Ms Schoolenberg was appointed as member of the Supervisory Board as per 30 September 2020; meetings during her tenure are taken into account, as well at those that she attended as an observer.

Topics Discussed in 2020

The Supervisory Board meets at least five times a year and always prior to the publication of Avantium's annual and half-year results, which are discussed with the Management Board along with related documents, such as the draft press release and the independent auditor's report on procedures performed. These results and related documents are discussed by the Audit Committee prior to the Supervisory Board meeting. The external auditor was present for the discussion of the 2020 annual report and accounts.

In addition to the standard agenda items for meetings, such as the development of financials and the business performance throughout the year, the Supervisory Board discussed (with the Management Board) the following topics in 2020:

- detailed progress reports on individual business unit's results and progress on strategic milestones;
- financial planning and financing;
- new technology developments;
- reports on any matters related to material risks and control and compliance issues;
- Avantium's value creation and capital allocation strategy;
- the preparation, evaluation and follow-up of the General Meeting;
- topics related to safety;
- topics related to sustainability;
- the views of analysts and investors, as well as changes in the shareholder structure and base;
- initiatives related to public relations and thought leadership;
- senior leadership performance, organisational changes and senior management appointments;
- the budget for 2021.

The following topics in particular were discussed extensively by the Supervisory Board.

Commercialisation Strategy YXY Technology

The planned construction of the FDCA flagship plant and the progress towards a Final Investment Decision (FID) thereon was discussed at length in the Supervisory Board meetings. The Board closely monitored, discussed and mandated the negotiations with strategic equity partners and financial institutions, the key terms of the Conditional Offtake Agreements with commercial parties and the engineering of the FDCA flagship plant, including the approval of the heads of terms for the engineering, procurement and construction phase of the FDCA flagship plant with engineering firm Worley.

Funding Options

Connected with the FID, the Supervisory Board and the management team held regular, in-depth discussions on Avantium's funding options and scenarios. The Supervisory Board and management also discussed funding options and funding scenarios based on short and medium term operational cashflow forecasts and required minimum cash balances. Moving into 2021, the Supervisory Board discussed with management material uncertainty on going concern of the company.

COVID-19 Pandemic and Its Impact on Avantium

Throughout 2020, the world faced unprecedented challenges caused by the COVID-19 outbreak. The Supervisory Board spent significant time discussing the resulting uncertainties and volatility as well as the consequences. It continuously monitored the risks and developments in terms of strategy and scenario planning in relation to the COVID-19 crisis. This included the financial performance of the company and its ability to attract funding and partnerships for commercialising the technologies in the Renewable Polymers and Renewable Chemistries business units, as well as the ability of Avantium Catalysis to close certain sales transactions.

Avantium Renewable Chemistries Technologies

The Supervisory Board also engaged in important discussions with the Management Board about the overall technology portfolio within Avantium Renewable Chemistries and the strategic choices for each technology. The Supervisory Board closely monitored developments regarding Ray Technology, Dawn Technology and Volta Technology, including the start-up and commissioning of a demonstration plant in Delfzijl to produce plantMEG.

Stakeholder Management

The Supervisory Board takes an active interest in understanding Avantium's stakeholders, their perceptions and their positions on various topics related to the company's areas of business. The Supervisory Board was informed of stakeholders' positions by the Management Board, and also collected such information through its own network.

Supervisory Board Committee Activities in 2020

The Supervisory Board divides its tasks among three committees: the Audit Committee, the Remuneration Committee and the Nomination Committee. These Committees are responsible for preparing specific topics on which decisions are made in the plenary meetings of the Supervisory Board.

At the end of 2020, the composition of the Supervisory Board Committees was as follows:

Audit Committee	Remuneration Committee	Nomination Committee
Margret Kleinsman (Chair)	Edwin Moses (Chair)	Edwin Moses (Chair)
Edwin Moses	Michelle Jou	Michelle Jou
Trudy Schoolenberg	Cynthia Arnold	Cynthia Arnold

Denis Lucquin was member of the Remuneration Committee and the Nomination Committee until his retirement in September 2020.

In the fourth quarter of 2020, the Supervisory Board identified the need for the addition of a new committee of the Supervisory board- the Industrialisation Committee, which was formally established in January 2021. The Industrialisation Committee serves as the Supervisory Board's advisory and risk review forum in providing oversight of (i) the company's technology strategy; (ii) industrialisation roadmaps; and (iii) technology portfolio, all as determined, formulated, and executed by the company's Management Board and senior management.

Report of the Audit Committee

The Audit Committee supports the Supervisory Board in its responsibility to oversee Avantium's financing, financial reporting process and financial statements, and its internal control, risk management and audit systems. In 2020, the Audit Committee met four times and held two calls to approve the annual and half-year results. The meetings were also attended by the CEO, the CFO, the Head of Accounting and Reporting and the external independent auditor. Minutes of all meetings were submitted to the Supervisory Board. At each meeting, the Audit Committee discussed relevant financial reporting and accounting topics, including the impact of the emerging COVID-19 pandemic on the 2020 financials and operations of Avantium. The Audit Committee also discussed Risk Management targets and findings of internal and external risk assessments. Moreover, the Audit Committee monitored the company's progress on the implementation of risk mitigation actions.

Report of the Remuneration Committee

The Remuneration Committee is responsible for advising the Supervisory Board on remuneration. One of its standard duties is to assess whether the Management Board's performance targets have been achieved. The Remuneration Committee met two times in 2020 to discuss and formulate proposals for the remuneration of the individual members of the Management Board.
The Remuneration Committee presented its findings and proposals to the Supervisory Board, which then finalised the performance appraisals and related remuneration of the individual Management Board members.

Report of the Nomination Committee

The Nomination Committee's standard duties include assessing the composition of the Supervisory Board and the Management Board, evaluating the functioning of individual members, succession planning and monitoring corporate governance. The meetings of the Nomination Committee are attended by the CEO, except when issues relating to his performance and remuneration are discussed. The Nomination Committee met two times in 2020.

Report of the Annual General Meeting of Shareholders

At the General Meeting held on 14 May 2020, the CEO and CFO reported on the overall state of affairs at Avantium as well as its financial performance and remuneration in 2019. The General Meeting adopted the 2019 financial statements. The members of the Management Board were granted discharge of liability for their management in 2019, and the members of the Supervisory Board for their supervision thereof. Bart Welten was appointed as a statutory member of the Management Board, while Michelle Jou was appointed to the Supervisory Board. The General Meeting approved the remuneration policy of the Management Board and the remuneration policy of the Supervisory Board.

The General Meeting also approved the proposal to authorise the Management Board to: (i) issue 20% ordinary shares and to exclude pre-emptive rights for a period of 18 months from the date of the General Meeting (i.e. up to and including 14 November 2021), (ii) issue up to 5% ordinary shares in connection with the company's long-term incentive and share-based compensation plans and to exclude pre-emptive rights and (iii) repurchase ordinary shares limited to a maximum of 10% of the ordinary issued share capital for a period of 18 months.

PricewaterhouseCoopers Accountants N.V. (PwC) in the Netherlands was appointed external auditor for the financial year 2020. As in previous years, the Chair of the Audit Committee elaborated on the work of the Audit Committee in 2019, on the company's collaboration with PwC and on other items relevant in the past year. The lead partner of PwC was given the floor to elaborate on the audit procedure and the auditor's report on 2019.

Following the Dutch government's Temporary Act COVID-19 Justice and Safety (the 'Emergency Act'), Avantium decided to make the General Meeting on 14 May 2020 accessible to shareholders only via electronic means, namely a live webcast hosted on Avantium's website. Shareholders could therefore attend the General Meeting online but were not granted physical access; however, Avantium provided shareholders with the opportunity to participate interactively and to exercise their shareholders' rights in line with the Emergency Act.

Financial Statements 2020 and Profit Appropriation

The financial statements for the financial year 2020 were prepared by the Management Board in compliance with Articles 20 and 21 of the Articles of Association. Attached to these statements was the unqualified report from the independent auditor PwC, with an emphasis of matter regarding a material uncertainty related to going concern. The financial statements and the outcome of the external audit were discussed by the Supervisory Board with the Management Board in the presence of the external independent auditor.

The 2020 financial statements were endorsed by all Management Board and Supervisory Board members and are, together with the PwC's independent auditor's report, included in this Annual Report. The Management Board will present the 2020 financial statements at the General Meeting on 19 May 2021.

Gratitude

The Supervisory Board wishes to thank all Avantium employees for their dedication, creativity and perseverance, especially in a year characterised by challenges and unpredictability. The Supervisory Board is very grateful to the Management Board and senior management of Avantium for their leadership and for their constructive and transparent dialogue with the Supervisory Board.

Amsterdam, 23 March 2021

On behalf of the Supervisory Board,

Edwin Moses, Chair
Cynthia Arnold
Michelle Jou
Margret Kleinsman
Trudy Schoolenberg

Remuneration Report 2020

Letter from the Chair of the Remuneration Committee

On behalf of the Remuneration Committee, I am pleased to report on the Committee's activities in 2020. Below, I will reflect briefly on the year, our remuneration policy, the reasons for not amending our remuneration policy in 2021 and the key motivations behind our decisions with regard to rewards and targets.

2020 was an unprecedented year, with the COVID-19 pandemic affecting every aspect of our daily lives and business. It triggered an unforeseen impact on the company's activities and those of our business partners.

When the pandemic hit, Avantium responded swiftly and appropriately, initiating stringent protocols to increase already strict hygiene and safety precautions in our offices, laboratories and pilot plants, in order to protect the health and well-being of our employees and partners. Day-to-day office work was moved online overnight, with employees staying in remote daily contact within their teams and across the company. Operations continued to run safely at our plants and laboratories throughout 2020.

While Avantium made significant progress in the execution of its business plan, not all strategic targets were met in 2020. The Renewable Polymers business unit focused on reaching a positive FID for the FDCA flagship plant. Avantium had set high ambitions for 2020 and the management team had anticipated that it would be in a position to take an investment decision by the end of 2020. However, the COVID-19 pandemic affected negotiations with financial, commercial and other strategic partners, with these discussions taking longer than previously foreseen. However, in spite of challenging circumstances, Avantium has formed partnerships to shape the value chain of PEF. Avantium has also conditionally secured €95 million[1] of the €150 million target (excluding 20% contingency) for the FDCA flagship plant.

Avantium Renewable Chemistries made good progress with the other lead technology programmes, such as Ray Technology, with the demonstration plant celebrating the first full year of operations in Delfzijl. The plant was successfully commissioned and started up in 2020.

The COVID-19 pandemic had a significant impact on Avantium Catalysis, leaving it unable to install and maintain its Flowrence systems at customers' sites. On the other hand, Avantium Catalysis was able to maintain business continuity in contract research – running catalysis experiments on behalf of customers throughout 2020.
During 2020, Avantium continued to manage its cash effectively. The cash position was €26.6 million as at 31 December 2020, with a net cash outflow of €18.8 million in 2020.

While Avantium recorded lower consolidated revenues in 2020 (€9.9 million), the company was able to make progress on the individual grant programmes it participates in. The income from government grants was €8.4 million. Furthermore, Avantium successfully secured additional grants in 2020, including a €7.5 million grant awarded by the National Programme Groningen for the construction of the FDCA flagship plant and a €5.4 million grant from the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland – RVO), designated for the FDCA pilot plant in Geleen.

Our remuneration policy for the Management Board supports the long-term development of the company in a highly dynamic environment, while aiming to fulfil all stakeholders' requirements and keeping an acceptable risk profile. To optimally balance all relevant interests, it takes account of Avantium's long-term strategic objectives, consistency with Avantium's company-wide remuneration policy and the interests of the various stakeholder groups.

Last year, the Supervisory Board conducted a comprehensive review and comparison of its remuneration policy for the members of the Management Board and the Supervisory Board in view of the new Dutch legislation resulting from Directive (EU) 2017/828 (Shareholder Rights Directive II (SRD II)). This led to the creation of a new remuneration policy, as adopted by the General Meeting on 14 May 2020, with an effective date of 1 January 2020.

The Remuneration Committee intended to propose, if necessary, a revision of this remuneration policy in 2021. After careful consideration, the Committee concluded not to endorse any revisions this year. Revisions would primarily comprise adjustments resulting from the recently conducted remuneration benchmark exercise designed to assess the level of competitiveness of the Management Board's and senior management's remuneration compared to industrial companies in our sector. However, for all the compensation elements, the Management Board remuneration falls within a competitive range of +/-20% around the median market levels payable within the reference groups, which is in line with our remuneration policy, and so no adjustments are proposed at this time.

[1] Subject to multiple conditions, including the fulfilment of the key conditions for the FID. Please see p. 30 for all financing elements related to the €95 million.

The Remuneration Committee has carefully weighed all aspects of this challenging year, and has taken particular care to ensure that the impact of the year's events were reflected in a fair application of the remuneration policy. The fact that Avantium made significant progress on the delivery of its business plan, but was unable to meet all strategic targets, albeit in an extraordinary year, is is reflected in the remuneration to be paid to the Management Board.

After careful consideration and following the proposal made by the Remuneration Committee, the Supervisory Board took the following decisions:

- After consultation with the Management Board, it was agreed that the benchmark exercise conducted in early 2021 would not lead to any proposed amendments to the remuneration policy at this time.
- In view of the only partial achievement of the company's strategic goals and the ongoing impact of COVID-19, to accept the Management Board's proposal to forfeit the short-term annual variable remuneration in cash (Bonus) and the long-term annual variable remuneration in the form of shares (LTIP) for 2020.

Based on feedback by shareholders on the remuneration policy and the Remuneration Report 2019, as discussed prior to and during the General Meeting of 2020, the Remuneration Committee reviewed Avantium's decision not to disclose the Management Board's exact actual targets in advance. However, it maintained its view that these qualify as strategically and commercially sensitive information, while confirming that the targets set are fully in line with the long-term strategy of Avantium to maximise the value of its technologies. The Remuneration Committee furthermore maintains its view on the one-off fixed award of share options to members of the Supervisory Board upon their appointment. The remuneration package for its Supervisory Board members should enable Avantium to attract and retain diverse members with a broad international background and the right balance of personal skills, competences and experience required to oversee Avantium's (execution of its) long-term strategy and performance. The one-off fixed award of share options contributes to Avantium's long-term value creation and serves as a long-term investment in Avantium, aiming to align the members' respective interests with those of the other shareholders.

The Remuneration Committee will continue to regularly assess Avantium's remuneration policy and advise the Supervisory Board on the further alignment of the interests of management with those of shareholders and other stakeholders. We remain committed to relevant and clear remuneration in line with remuneration practices and our policies.

I look forward to discussing the policy and actual remuneration practices in the 2021 General Meeting, and will be happy to answer any questions you may have.

Edwin Moses
Chair of the Remuneration Committee

Introduction

This Remuneration Report provides a summary of the remuneration policy of Avantium's Management Board and Supervisory Board, as well as an overview of the remuneration of the members of the Management Board and the Supervisory Board paid in the financial year 2020. This Remuneration Report is prepared in accordance with the relevant parts of Section 135, Book 2 of the Dutch Civil Code, in line with the EU guidelines based on the EU Shareholders' Rights Directive. The remuneration is furthermore determined in accordance with the remuneration policy adopted at the General Meeting on 14 May 2020, with an effective date of 1 January 2020. After approval by the Supervisory Board, the Remuneration Report will be submitted to the General Meeting on 19 May 2021 for an advisory vote of our shareholders, in line with Section 135b subsection 2, Book 2 of the Dutch Civil Code.

Remuneration Policy

Introduction and Governance of the Remuneration Policy

The last update of the remuneration policy was adopted by the General Meeting on 14 May 2020 and became effective as per 1 January 2020. In view of the new Dutch legislation resulting from Directive (EU) 2017/828 (Shareholder Rights Directive II), the Supervisory Board conducted a comprehensive review and comparison of its remuneration policy for the members of the Management Board and the Supervisory Board, which has led to the latest remuneration policy.

The remuneration policy supports the long-term development and strategy of the company, while aiming to fulfil all stakeholders' requirements and keeping an acceptable risk profile. The Supervisory Board ensures that the policy and its implementation are linked to Avantium's strategic goals and objectives. The policy is designed to encourage behaviour that is focused on long-term value creation for all stakeholders, while the highest standards of good corporate governance are adopted. The remuneration policy is aimed at motivating the accomplishment of outstanding achievements, using a combination of non-financial and financial performance measures.

The Remuneration Committee intended to propose, if necessary, a revision of its remuneration policy in 2021. After careful consideration, the Committee concluded that it would not endorse any revisions this year. Revisions would primarily have comprised adjustments resulting from the recently conducted remuneration benchmark exercise undertaken to assess the competitiveness of the Management Board's and senior management's remuneration compared to industrial companies in the same sector. However, for all the compensation elements, the Management Board remuneration falls within a competitive range of +/-20% around the median market levels payable within the reference groups, which is in line with our current remuneration policy. The Remuneration Committee therefore concluded that there was no need to change the policy at this time.

Based on feedback by shareholders on the remuneration policy and the Remuneration Report 2019, as discussed prior to and during the General Meeting of 2020, the Remuneration Committee reviewed Avantium's decision not to disclose the exact actual targets in advance. However, it maintained its view that these qualify as strategically and commercially sensitive information, while confirming that the targets set are fully in line with the long-term strategy of Avantium to maximise the value of its technologies. The Remuneration Committee furthermore maintains its existing view on the arguments to offer a one-off fixed award of share options to the members of the Supervisory Board upon their appointment.

The Supervisory Board is responsible for the execution of the remuneration policy. The Remuneration Committee will continue to regularly assess the remuneration policy and advise the Supervisory Board on the further alignment of the interests of management with those of shareholders and other stakeholders.

External Perspective: Reference Group and Market Positioning

As with the remuneration philosophy for all Avantium employees, the remuneration of the Management Board should be competitive compared with a relevant reference market.
To define this market, a reference group is created by the Supervisory Board, consisting of companies that are selected on criteria such as geography, governance framework, scope and type of industry. In principle, a benchmark is conducted at least once every four years. In the years without a benchmark, the Supervisory Board considers the appropriateness of any change of base salary based on the market environment as well as the salary adjustments for other Avantium employees.

As a guiding principle, the total direct remuneration of the Management Board is set at or around the median of the reference market.

In early 2021, in line with the remuneration policy, the Supervisory Board conducted a remuneration benchmark assessment of the market competitiveness of the current compensation package of the members of the Management Board. The Supervisory Board carefully reviewed the reference group for the benchmark assessment and amended it according to the above-mentioned criteria. Geographically, the amended reference group consists primarily of listed western European companies and, exceptionally, some non-European companies that are highly relevant from a talent market perspective or industry perspective. Furthermore, the weighting of UK and Swiss companies does not exceed 50% of the reference group. From a scope and type of industry point of view, the reference group includes companies of comparable size that are primarily active in the (specialty) chemicals and materials, and biotechnology industries.

The companies in the reference group for the Management Board remuneration benchmark assessment performed in 2021 are:
- Accsys Technologies PLC (UK)
- Amyris Inc (US)
- BRAIN Biotechnology Research and Information Network AG (DE)
- Carbios SA (FR)
- Evolva Holding SA (CH)
- Global Bioenergies SA (FR)
- Holland Colours NV (NL)
- IBU-tec advanced materials AG (DE)
- Iofina PLC (UK)
- Isagro SpA (IT)
- Metabolic Explorer SA (FR)
- Nabaltec AG (DE)
- SICIT Group SpA (IT)
- Treatt PLC (UK)
- Versarien PLC (UK)
- Zotefoams PLC (UK)

The remuneration benchmark assessment was performed on the following compensation elements:
- Base salary
- Target short-term incentive (STI)
- Total cash compensation (TCC) – base salary plus STI
- Annualised expected value of the long-term incentive (LTI)
- Total direct compensation (TDC) – TCC plus LTI

The outcome of the 2021 benchmark resulted in the conclusion that for all of the compensation elements, the Management Board remuneration falls within a competitive range of +/-20% around the median market levels payable within the reference group, which is in line with our remuneration policy. After careful consideration and following the proposal made by the Remuneration Committee, the Supervisory Board, in consultation with the Management Board, decided that, given that the conclusions of the 2021 benchmark would result only in minor adjustments and in the light of the overall performance in 2020, no changes will be proposed to the General Meeting for inclusion in and amendment of the remuneration policy in 2021.

Management Board Remuneration 2020

The remuneration paid to the members of the Management Board in 2020 was based on Avantium's remuneration policy and its governance process. In view of the incomplete achievement of the company's strategic goals, the short-term annual variable remuneration (in cash) and the long-term annual variable remuneration in the form of shares (LTIP) were forfeited by the Management Board and the management team.

The remuneration of the members of the Management Board consists of the following components:
i. fixed annual base salary;
ii. short-term annual variable remuneration (in cash);
iii. long-term annual variable remuneration in the form of shares (LITP) and options (employee stock option plan, or ESOP); and
iv. allowance for pension and fringe benefits.

Avantium does not grant any personal loans, guarantees or advance payments to members of the Management Board.
Bart Welten joined Avantium as CFO in January 2020 and was appointed as member of the Management Board on 14 May 2020.
Upon appointment, the key terms of his employment agreement are:
- An annual base salary of two hundred and thirty five thousand euro (€235,000);
- All other remuneration components are in line with the company's remuneration policy for the Management Board.

The agreement is for an indefinite period of time and does not contain severance payment provisions. A termination notice period of four (4) months applies for the company, and two (2) months for Bart Welten.

i) Fixed Annual Base Salary

The objective of the fixed annual base salary is to compensate for the performance of day-to-day activities. The fixed annual base salary of the members of the Management Board is based on the level of responsibility and performance and is set at or around the median of the remuneration levels payable within the reference group.
In line with the remuneration policy, in 2020 the base salary of CEO Tom van Aken increased by 2.7% to an annual base salary of €267,800. On 15 January 2020, Bart Welten was appointed CFO. The full year base salary for the CFO remained at €235,000.
In view of the COVID-19 pandemic and owing to the partial achievement of the company's strategic goals, at the request of the Management Board, any considered salary increases will not be implemented in 2021 .

ii) Short-Term Annual Variable Remuneration

The objective of the short -term annual variable short-term remuneration is to ensure that the members of the Management Board focus on realising their short-term operational objectives, leading to longer term value-creation.

The bonus refers to the annual performance-related cash and non-cash incentive that is applicable to the members of the Management Board and comprises (i) a cash component consisting of no more than 50% of the aggregate bonus, if any, and (ii) a non-cash component equivalent to the cash component which must be invested in Investment Shares (see under iii.a Long-Term Investment Plan in the form of Matching Shares).

The Supervisory Board has the discretionary power to adjust the incentive pay-out up- or downward if it feels that the outcome is unreasonable due to exceptional circumstances during the performance period, such as by taking into account the long-term interests and sustainability of the Company as a whole. Scenario analyses of the possible outcomes of the variable remuneration components and their effect on the remuneration of the Management Board are conducted. This power was not used in 2020, nor was any remuneration recovered from present or former Management Board members.

Performance Measures

The performance measures form a balanced mix of strategic, commercial and operational performance targets, which together ensure a focus on both the (financial) performance of the Company in the short term, as well as on the sustained Company future in reaching its long-term strategic objectives. For each of the performance measures, the Supervisory Board sets challenging, but realistic targets and target levels.

The performance targets are specific, measurable and are formulated and communicated at the beginning of each financial year (except for circumstances where the Supervisory Board considers semi-annual target-setting more appropriate), although the Supervisory Board may adjust the targets and their relative weighting if required by significantly changed strategic priorities in any given year. Following a presentation by the Management Board, the Supervisory Board sets the targets – based on strategic progress, commercial performance and operational performance. These targets are based on Avantium's strategy and long-term objectives, as set out in the remuneration policy (www.avantium.com/corporate-governance/#remuneration). When the performance criteria are set, the interests of all stakeholders are taken into account.

In order to achieve alignment in the remuneration structure of the Management Board and other Avantium employees, a subset of the bonus performance measures, target-setting and pay-out schemes as set out in the remuneration policy is applicable to Avantium employees.

The strategic progress targets are based on value creation for shareholders and realising strategic focus. The targets for commercial performance are based on securing strategic partnerships for the commercialisation of technology programmes and reaching the commercialisation phase of the different technology programmes (path from laboratory scale to demonstration scale and finally commercialisation scale). The operational performance targets are financial targets, consisting of budget cash runway components. Avantium does not disclose the exact actual targets, as these qualify as strategically and commercially sensitive information, and as such are share price and competition sensitive. The targets set are fully in line with the long-term strategy of Avantium to maximise the value of the company's technologies.

For the annual bonus 2020, the on target bonus, i.e. the bonus in case of on-target performance, is equal to 100% of (i) 70% of base salary for the CEO, and (ii) 50% of base salary for the CFO. The maximum bonus, i.e. the bonus in case of above-target performance, is equal to 150% of the on-target bonus. If performance is below a predefined threshold level, no bonus will be paid out. The members of the Management Board are, together with senior management, obligated to invest the total non-cash component of their (net) bonus in investment shares. The non-cash component percentage of the bonus is 50%. The cash component of the bonus may, at the discretion of the relevant member of the Management Board, also be invested in investment shares.

The bonus pay-out levels are prorated upon the level of achievement of the aforementioned performance targets.

For the annual bonus 2020, the performance targets and their relative weighting were set in early February 2020 as follows:

Name	Weight factor	Target
T.B. van Aken	40%	Strategic Differentiators
	25%	Commercial Performance
	35%	Operational Performance
B.J.J.V. Welten	40%	Strategic Differentiators
	25%	Commercial Performance
	35%	Operational Performance

As set out in the section 'Letter from the Chair of the Remuneration Committee' on p. 74 of this Remuneration Report, the year 2020 has been an exceptional year. Despite the restrictions and challenges presented by the COVID-19 pandemic, 2020 was a year of progress for Avantium. Our three business units all recorded successes and made advances in line with our overall strategy. The effects of the pandemic, however, meant that we were not able to meet all of our targets. One such target was to take a positive FID on the construction of the FDCA flagship plant and formalise approval for the project by the end of 2020. The COVID-19 pandemic affected negotiations with financial, commercial and other strategic partners, with these discussions taking longer than previously foreseen.

The current state of the company, both in light of aforementioned delays in delivering some of the business plans as well as the impact of COVID-19, requires prudence and careful cost control. In light thereof, the Management Board and the senior management decided to forfeit their annual cash bonus for 2020. This also results in the forfeiture of the non-cash bonus component. The Supervisory Board agreed with this decision and appreciated this response of management to the challenging circumstances.

iii) Long-Term Variable Remuneration in the Form of Shares (LTIP) and Options (ESOP)

On 5 October 2016, Avantium adopted the ESOP for all key employees, senior management and members of the Management Board and the LTIP for the members of the Management Board and the management team (collectively, the Incentive Plans). The Incentive Plans encourage a long-term focus and alignment with Avantium's strategy.

iii.a) Long-Term Investment Plan in the Form of Matching Shares

The members of the Management Board are obligated to invest the total non-cash component of their (net) bonus in shares to be delivered by the company (Investment Shares). The non-cash component percentage is 50%. The cash component of the bonus may, at the discretion of the relevant member of the Management Board, also be invested in Investment Shares. The Investment Shares will vest on an annual pro rata basis during a period of three years following the investment date and are subject to a retention period of five years following the investment date. After the end of the retention period, Avantium will match the Investment Shares in a 1:1 ratio (Matching Shares); that is, one Matching Share is granted for each Investment Share.

The objective of the plan is that Management Board members build an equity position in the company. As part of the decision to forfeit the "short-term annual variable remuneration in cash" component of the 2020 bonus, the long-term annual variable remuneration component of the bonus in the form of shares, including the associated future matching shares, was concurrently forfeited.

iii.b) Long-Term Variable Remuneration in the Form of Share Options (under the ESOP)

On an annual basis, share options under the ESOP (Options) may be conditionally awarded to members of the Management Board in accordance with the performance parameters pre-determined by the Supervisory Board. These parameters are consistent with the performance measures applied for the senior management and key employees of Avantium, to ensure optimal alignment with the employees of Avantium who receive options. Options are awarded within a pre-determined range, as stated in the remuneration policy (Section 4.6), where the actual annual award is set by the Supervisory Board.

The options will vest on a monthly pro rata basis during a period of three years as of the date of award, therefore fully vesting on the third anniversary following the date of the award. If the member of the Management Board is no longer employed by the Group at the date of vesting, the number of options will be decreased as provided for in the ESOP (depending on the employment termination date, on an annual pro rata basis during a period of three years). The exercise period of the options will be up to five years after the date of vesting.

iii.3) Adjustments to Variable Remuneration

In line with Dutch law, the variable remuneration of the members of the Management Board may be reduced, or Management Board members may be obliged to repay (part of) their remuneration to the company, if one of the circumstances as described in Section 5 (Management Board Remuneration: Adjustments to Variable Remuneration) of the remuneration policy apply. In 2020, no adjustments based upon this section of the remuneration policy were made.

iv) Allowance for Pension and Fringe Benefits

The members of the Management Board are allowed to participate in Avantium's pension plan, available to all Avantium employees, whereby Avantium carries the employer's contribution of the pension contributions. The pension plan is based on a defined contribution system. Legislation in 2015 reduced the maximum pension accrued to 1.875% (from 2.15%) of the full pensionable salary. The members of the Management Board can choose to build up the part of the pensionable salary above €110,111 (2020) in a separate defined contribution plan. There are no arrangements for early retirement.

The members of the Management Board are entitled to additional remuneration elements, such as company car costs, travel expenses, social security costs and a contribution to health and disability insurance, all in line with applicable Avantium policies, plans and arrangements. The table hereafter provides a breakdown of the remuneration of the members of the Management Board in 2020.

Employment Agreements and Severance Payments

The members of the Management Board continued their current employment agreements with Avantium Support B.V., a subsidiary of the company. These agreements are for an indefinite period of time and do not contain severance payment provisions. The intention is to replace these employment agreements with management agreements with Avantium N.V. during the financial year 2021, following the General Meeting of 19 May 2021; the agenda for the General Meeting includes the proposed reappointment of Tom van Aken as CEO.

The Supervisory Board may determine that a member of the Management Board is entitled to a severance payment for the loss of income resulting from a non-voluntary termination as Management Board member. In line with the Dutch Corporate Governance Code, any severance payment is limited to one year's base salary.

In 2020, Frank Roerink received a severance payment of €235,000, which related to his resignation effective 31 December 2019. He remained eligible for variable remuneration over the financial year 2019 and received this remuneration over 2019 (including the LTIP component) fully in cash, in January 2020.

Total Remuneration Received by Members of the Management Board

(In €1,000)	Fixed remuneration		Variable						
Management Board member	**Salary**	**Other benefits[2]**	**Short-term bonus[3]**	**Long-term award[4]**	**Severance payments**	**Post-employee benefits**	**Total remuneration**	**% of fixed remuneration**	**% of variable remuneration**
T.B. van Aken									
2020	268	26	-	127	-	19	440	71%	29%
2019	261	27	119	8	-	17	432	71%	29%
B.J.J.V. Welten									
2020	228	26	-	25	-	25	304	92%	8%
2019	-	-	-	-	-	-	-	0%	0%
F.C.H. Roerink (former CFO)									
2020	-	-	-	-	-	-	-	0%	0%
2019	235	32	92	6	235	17	616	46%	54%
Total - 2020	**495**	**52**	**-**	**152**	**-**	**44**	**744**	**80%**	**20%**
Total - 2019	**496**	**59**	**210**	**14**	**235**	**34**	**1,048**	**56%**	**44%**

[2] Other benefits mainly include contributions to social security plans and benefits in kind such as company cars, medical expenses and legal expenses.

[3] Including the cash and non-cash part of the awarded bonus for the specific performance year.

[4] Including the value of the various performance share-based plans that vested during the year. The value of the LTIP reward is calculated based on the number of matching shares that have vested and of the share price at the date of vesting. The value of the ESOP reward is calculated based on the number of share options that have vested during the year and the net of the share price at vesting date less the exercise price.

The total remuneration based on IFRS in 2020 for Tom van Aken amounted to €430,000 (2019: €540,000) due to the share-based payment expenses of €117,000 recognised during the year (2019: €117,000). The total remuneration based on IFRS in 2020 for Bart Welten amounted to €307,000 (2019: €nil) due to the share-based payment expenses of €29,000 recognised during the year (2019: €nil). The total remuneration based on IFRS in 2020 for Frank Roerink (former CFO) amounted to €nil (2019: €668,000) due to the share-based payment expenses of €nil recognised during the year (2019: €57,000).

Internal Pay Ratio

In setting the remuneration policy for the members of the Management Board, the Supervisory Board also takes into account the internal pay ratio. The internal pay ratio between the average pay of Avantium employees vis-à-vis the average pay of the CEO is calculated based on the average 2020 remuneration of all Avantium employees vis-à-vis the 2020 remuneration of the CEO.
For the year 2020, we included pension contributions and long-term incentive components. The 2020 pay ratio is 5:1 for the CEO. The pay ratio for 2019 would have been 6:1 with inclusion of pension contributions and long-term incentive components.

The following table provides an overview of the remuneration of the members of the Management Board compared with the average total remuneration of an Avantium employee (defined as gross wages, holiday allowance, other benefits, pension, Bonus and long-term awards) and company performance since the listing of the company's shares in 2017.

The table includes information on a three-year period as of 2017, the year Avantium became a publicly traded company.

It is noted that Frank Roerink's severance payment is included in his total remuneration for the year 2019.

(In Euro x 1,000)	2020	% change	2019	% change	2018	% change	2017
Management Board member							
T.B. van Aken	440	2%	432	41%	306	-17%	368
B.J.J.V. Welten	304	0%	-	0%	-	0%	-
F.C.H Roerink (former CFO)	-	-100%	616	120%	280	-13%	321
Average employee salary	**81**	15%	**70**	0%	**70**	7%	**66**

	2020[5]	% change	2019	% change	2018	% change	2017
Total company performance	**-%**	-100%	**65%**	122%	**29%**	-66%	**86%**
Strategic Differentiators	-%	-100%	67%	168%	25%	-63%	68%
Commercial Performance	-%	-100%	55%	175%	20%	-80%	100%
Operational Performance	-%	-100%	100%	11%	90%	-10%	100%

[5] The company's performance and achievement of the performance measures for 2020 have been set to zero percent herein; as the Management Board and senior management decided to forfeit their respective annual cash bonus, the company elects not to disclose the realised achievement of the 2020 performance targets.

Number of Investment Shares and Matching Shares Outstanding and Awarded to the Management Board

		The main conditions of share plans				Information regarding the reported financial year						
Management Board member	**Specification of plan**	**Performance period**	**Award date**	**Vesting date**	**End of retention period**	**Number of awards outstanding 1 January**	**Shares allocated during the year**	**Shares forfeited the year**	**Shares vested during the year**	**Value of matching shares vested during the year in EUR[6]**	**Matching shares unvested as at 31 December**	**Shares subject to retention period as at 31 December**
T.B. van Aken, CEO	LTIP- Investment shares	2017-2018	16/3/2018	16/3/2018	16/3/2023	7,441	-	-	-	-	-	7,441
		2019-2020	14/5/2020	14/5/2023	14/5/2025	-	15,365	-	-	-	-	15,365
	LTIP- Matching shares	n/a	16/3/2018	16/3/2021	16/3/2023	7,441	-	-	2,480	8,433	4,961	-
		n/a	14/5/2020	14/5/2023	14/5/2025	-	15,365	-	-	-	15,365	-
F.C.H Roerink, former CFO	LTIP- Investment shares	2017-2018	16/3/2018	16/3/2018	16/3/2023	5,789	-	-	-	-	-	5,789
	LTIP- Matching shares	n/a	16/3/2018	16/3/2021	16/3/2023	1,930	-	-	-	-	-	1,930
Total Management Board members						**14,882**	**30,730**	**-**	**2,480**	**8,433**	**20,326**	**22,806**
Total former Management Board members						**7,719**	**-**	**-**	**-**	**-**	**-**	**7,719**

[6] The value of matching shares vested during the year is expressed in EUR and is determined by the share price at vesting date.

Number of Options Outstanding and Awarded to the Management Board

		The main conditions of share option plans				Information regarding the reported financial year						
Management Board member	Specification of plan	Award date	Vesting date	Exercise period	Exercise price of the option in EUR	Number of options outstanding as at 1 January	Share options granted during the year	Share options forfeited during the year	Share options vested during year	Value of share options vested during the year[7]	Share options unvested as at 31 December	Share options vested as at 31 December
T.B. van Aken, CEO	ESOP	19/10/2006	19/10/2009	10 years	7.60	20,230	-	-	-	-	-	20,230
		1/10/2008	1/10/2011	10 years	0.10	20,657	-	-	-	-	-	20,657
		1/5/2009	1/5/2012	10 years	0.10	35,000	-	-	-	-	-	35,000
		1/5/2010	1/5/2013	10 years	0.10	29,770	-	-	-	-	-	29,770
		4/11/2010	4/11/2013	10 years	0.10	28,000	-	-	-	-	-	28,000
		30/11/2011	30/11/2014	10 years	0.10	135,000	-	-	-	-	-	135,000
		1/10/2015	15/3/2017	10 years	0.10	22,000	-	-	-	-	-	22,000
		1/10/2015	15/3/2017	10 years	9.80	7,500	-	-	-	-	-	7,500
		2/3/2017	15/3/2017	10 years	0.10	13,000	-	-	-	-	-	13,000
		2/3/2017	15/3/2017	10 years	9.80	18,000	-	-	-	-	-	18,000
		17/5/2017	17/5/2020	8 years	10.58	50,000	-	-	5,556	-	-	50,000
		28/3/2018	28/3/2021	8 years	5.34	50,000	-	-	16,667	153	2,778	47,222
		16/5/2019	16/5/2022	8 years	2.60	100,000	-	-	33,333	92,917	44,444	55,556
		14/5/2020	14/5/2023	8 years	3.59	-	50,000	-	11,111	25,403	38,889	11,111
B.J.J.V Welten, CFO	ESOP	14/5/2020	14/5/2023	8 years	3.59	-	50,000	-	11,111	25,403	38,889	11,111
Total Management Board members						**529,157**	**100,000**	**-**	**77,778**	**143,875**	**125,000**	**504,157**

[7] The value of share options vested during the year is expressed in EUR and is determined by the share price at vesting date less the exercise price.

In 2020, 100,000 additional share options were granted to the Management Board. The share-based payment expenses of the Management Board of €145,000 comprise the part of the share-based compensation (note 14) contributable to the share options granted in previous years.

On 20 December 2019, the Supervisory Board decided to award fifty thousand (50,000) share options to Bart Welten, in two tranches of twenty-five thousand (25,000) share options each: the first award at the end of his first business day of employment (15 January 2020) and the second, subject to his appointment as member of the Management Board by the General Meeting, at the end of the business day of the General Meeting in May 2020. The exercise price was determined on the date of the General Meeting (on or around 14 May 2020) and (iii) the rules of the company's ESOP, including the personal award agreement between the company and Bart Welten.

Number of Options Outstanding and Awarded to Former Management Board Member

		The main conditions of share option plans				Information regarding the reported financial year						
Management Board member	Specification of plan	Award date	Vesting date	Exercise period	Exercise price of the option in EUR	Number of options outstanding as at 1 January	Share options exercised during the year	Share options forfeited during the year	Share options vested during year	Value of share options exercised during the year[8]	Share options unvested as at 31 December	Share options vested as at 31 December
F.C.H. Roerink, former CFO	ESOP	1/10/2008	1/10/2011	10 years	0.10	14,098	(14,098)	-	-	82,547	-	-
		1/5/2009	1/5/2012	10 years	0.10	25,000	(25,000)	-	-	146,381	-	-
		1/5/2010	1/5/2013	10 years	0.10	22,432	(22,432)	-	-	131,345	-	-
		4/11/2010	4/11/2013	10 years	0.10	16,500	-	-	-	-	-	16,500
		30/11/2011	30/11/2014	10 years	0.10	90,000	-	-	-	-	-	90,000
		1/10/2015	15/3/2017	10 years	0.10	14,300	-	-	-	-	-	14,300
		2/3/2017	15/3/2017	10 years	0.10	13,000	-	-	-	-	-	13,000
		17/5/2017	17/5/2020	8 years	10.58	26,667	-	(26,667)	-	-	-	-
		28/3/2018	28/3/2021	8 years	5.34	18,333	-	-	-	-	-	18,333
		16/5/2019	16/5/2022	8 years	2.60	13,333	-	-	-	-	-	13,333
Total former Management Board members						**253,663**	**(61,530)**	**(26,667)**	**-**	**360,273**	**-**	**165,467**

[8] The value of share options exercised during the year is expressed in EUR and is determined by the share price at exercise date less the exercise price.

Supervisory Board Remuneration 2020

Remuneration Policy for the Supervisory Board

The remuneration of the members of the Supervisory Board consists of the following components:

i. annual fee;
ii. travel expenses and other expenses; and
iii. one-off fixed awards of Options (ESOP) related to the member's appointment.

i) Annual Fee

The remuneration policy determines the annual (gross) fees for each position of the Supervisory Board, separated into membership and chairpersonship of the Supervisory Board and membership and chairpersonship of a Committee.
In line with the remuneration policy, the members of the Supervisory Board received the following annual (gross) fees:

- Membership of the Supervisory Board: €40,000;
- Chairpersonship of the Supervisory Board: €35,000 (additional);
- Membership of a Committee of the Supervisory Board: €5,000 (per Committee); and
- Chairpersonship of the Audit Committee of the Supervisory Board: €5,000 (additional).

The table hereafter provides a breakdown of the Supervisory Board members' remuneration in 2020.

Avantium does not grant any personal loans, guarantees or advance payments to members of the Supervisory Board.

ii) Travel Expenses and Other Expenses

Supervisory Board members are reimbursed for all reasonable costs incurred in connection with their attendance of meetings. Travel costs are reimbursed in line with Avantium's travel policy. Any other expenses are only reimbursed, either in whole or in part, if incurred with the prior consent of the Chair of the Supervisory Board. Over the year 2020, physical attendance of meetings was reduced to a minimum in light of the COVID-19 pandemic. Travel costs were therefore limited.

iii) One-Off Fixed Awards of Options (ESOP) Related to the Member's Appointment

The members of the Supervisory Board may participate in the ESOP. Options are awarded under the ESOP upon a member's appointment, or as per date of adoption of the proposed remuneration policy for the current members of the Supervisory Board, whereby the Chair of the Supervisory Board is entitled to eighty-five thousand (85,000) Options, and the other members of the Supervisory Board are entitled to thirty thousand (30,000) Options. A member may choose not to receive the award.

The options will vest on monthly pro rata basis during a period of three years as of the date of award, therefore fully vesting on the third anniversary following the date of the award. If the member of the Supervisory Board is no longer employed by the Group at the date of vesting, the number of options will be decreased as provided for in the ESOP (depending on the appointment termination date, on an annual pro rata basis during a period of three years). The exercise period of the options will be up to five years after the date of vesting.

Total Overview of Supervisory Board Remuneration 2020

(In €1,000)	Fixed remuneration		Variable remuneration		
	Membership[9]	Committees	Other compensation[10]	Long-term award[11]	Total
E. Moses	75	15	-	43	**133**
M.B.B. Jou	25	6	1	15	**47**
C.A. Arnold	10	3	1	-	**14**
M.G. Kleinsman	40	10	-	-	**50**
G.E. Schoolenberg	10	3	-	-	**13**
D.J. Lucquin (member until 30 September 2020)	30	7	7	-	**44**
Total - 2020	**190**	**44**	**9**	**58**	**301**

9 The membership fee excludes the fee covering the onboarding period prior to the respective appointments, being equal to the prorated base membership fee (€40,000 on pro rate basis).
10 Other compensation include expenditures related to travel.
11 Long-term award includes the value of the ESOP plan. The value of the ESOP reward is calculated based on the number of share options that have vested during the year and the net of the share price at vesting date less the exercise price.

The following table provides detail on the total remuneration received by each Supervisory Board member in accordance with the period the company's shares are traded on Euronext:

(In €1,000)	2020	2019	2018	2017
E. Moses	133	3	-	-
M.G. Kleinsman	50	50	50	27
M.B.B. Jou (member since 14 May 2020)	47	-	-	-
C.A. Arnold (member since 30 September 2020)	14	-	-	-
G.E. Schoolenberg (member since 30 September 2020)	13	-	-	-
Total Supervisory Board members	**257**	**53**	**50**	**27**
D.J. Lucquin (member until 30 September 2020)	44	50	50	53
R.W. van Leen (member until 31 December 2019)	-	30	-	-
K. Verhaar (member until 20 December 2019)	-	90	80	6
G.E.A Rijnen (member until 15 May 2019)	-	21	55	50
J.S. Wolfson (member until 15 May 2019)	-	18	50	45
Total former Supervisory Board members	**44**	**209**	**235**	**154**
Total remuneration	**301**	**262**	**285**	**181**

Number of Options Supervisory Board

					The main conditions of share option plans
	Specification of plan	Award date	Vesting date	Exercise period	Exercise price of the option in EUR
E. Moses	ESOP	14/5/2020	14/5/2023	8 years	3.59
M.B.B. Jou	ESOP	14/5/2020	14/5/2023	8 years	3.59
C.A. Arnold	ESOP	30/9/2020	30/9/2023	8 years	5.78
G.E.A. Reijnen (former member)	ESOP	15/4/2015	15/4/2019	10 years	9.80
		2/3/2017	2/3/2020	10 years	9.80
J.S. Wolfson (former member)	ESOP	19/4/2013	19/4/2016	10 years	0.10
		2/3/2017	2/3/2020	10 years	0.10
		2/3/2017	2/3/2020	10 years	9.80
J.M. van der Eijk (former member)	ESOP	14/12/2012	14/12/2015	10 years	0.10
		2/3/2017	2/3/2020	10 years	0.10
		2/3/2017	2/3/2020	10 years	9.80

										Information regarding the reported financial year
	Specification of plan	Number of vested options outstanding 1 January	Share options granted during the year	Share options exercised during the year	Share options forfeited during the year	Share options vested during the year	Value of share options vested during the year[12]	Value of share options exercised during the year[13]	Share options unvested as at 31 December	Share options vested as at 31 December
E. Moses	ESOP	-	85,000	-	-	18,889	43,185	-	66,111	18,889
M.B.B. Jou	ESOP	-	30,000	-	-	6,667	15,242	-	23,333	6,667
C.A. Arnold	ESOP	-	30,000	-	-	3,333	-	-	26,667	3,333
G.E.A. Reijnen (former member)	ESOP	10,000	-	-	(10,000)	-	-	-	-	-
		4,000	-	-	(4,000)	-	-	-	-	-
J.S. Wolfson (former member)	ESOP	10,000	-	(10,000)	-	-	-	57,621	-	-
		1,000	-	(1,000)	-	-	-	5,762	-	-
		4,000	-		-	-	-		-	4,000
J.M. van der Eijk (former member)	ESOP	4,000	-	-	4,000	-	-	-	-	4,000
Total Supervisory Board members		**-**	**145,000**	**-**	**-**	**28,889**	**58,427**	**-**	**116,111**	**28,889**
Total former Supervisory Board members		**33,000**	**-**	**(11,000)**	**(10,000)**	**-**	**-**	**63,383**	**-**	**8,000**

12 The value of share options vested during the year is expressed in EUR and is determined by the share price at vesting date less the exercise price.
13 The value of share options exercised during the year is expressed in EUR and is determined by the share price at exercise date less the exercise price.

During the financial year 2020, after the approval of the remuneration policy in the General Meeting on 14 May 2020, and following their respective appointments, Edwin Moses, Michelle Jou and Cynthia Arnold accepted the one-off fixed Options award related to their appointment:

- Edwin Moses, Chair of the Supervisory Board: eighty-five thousand (85,000) options;
- Michelle Jou, member of the Supervisory Board: thirty thousand (30,000) options; and
- Cynthia Arnold, member of the Supervisory Board: thirty thousand (30,000) options.

Margret Kleinsman and Trudy Schoolenberg chose not to receive the award.

Deviation from the Dutch Corporate Governance Code Best Practice Provision 3.3.2

Best Practice Provision 3.3.2 states that Supervisory Board members may not be awarded remuneration in the form of shares and/or rights to shares. However, Avantium believes that the remuneration package for its Supervisory Board members should enable Avantium to attract and retain top talent – and the right balance of personal skills, competences and experience - in a competitive and global environment. This enables the Supervisory Board to focus on the creation of sustainable added value and to oversee Avantium's (execution of its) long-term strategy and performance. This one-off fixed award of share options contributes to the long-term value creation of Avantium and serves as a long-term investment in Avantium, aiming to align the members' respective interests with those of the other shareholders.

Corporate Governance

Overview

Avantium N.V. is a Dutch public limited company based and registered in Amsterdam, the Netherlands. It acts as the holding company for its Dutch operating companies: Avantium Renewable Polymers, Avantium Renewable Chemistries and Avantium Catalysis. Avantium's shares are listed on Euronext Amsterdam and Euronext Brussels (symbol: AVTX).

We have a two-tier governance structure consisting of the Management Board and the Supervisory Board. There is also a third governing body: the General Meeting. In the following sections, we provide information on these governing bodies and their responsibilities and duties.

Since the financial year 2017, Avantium has been subject to the Dutch Corporate Governance Code (the Dutch Code), as amended and published on 8 December 2016. The Dutch Code contains principles and best practice provisions for management boards, supervisory boards, shareholders, general meetings of shareholders and audit and financial reporting. Below, we give information on how Avantium applies the Dutch Code.

Avantium's corporate governance framework is based on the requirements of the Dutch Civil Code, the Dutch Code, the company's Articles of Association of 14 March 2017, the applicable securities laws and the regulations concerning the Management Board and the Supervisory Board. Our Articles of Association, which are published online, include most of the Dutch Code's principles and best practice provisions applicable to a two-tier governance structure.

Management Board

The Management Board is the statutory executive body. Together with the management team, it is responsible for the day-to-day management of Avantium. It formulates the company strategy and policies and takes responsibility for internal control systems. The Management Board's duties may be divided among its members.

The Management Board may take any actions necessary or useful for achieving Avantium's objectives, except those prohibited by or expressly attributed to the General Meeting or Supervisory Board by law or by the Articles of Association.

In performing its duties, the Management Board must consider the interests of Avantium's stakeholders (including shareholders, creditors, employees and clients) as well as the corporate social responsibility issues relevant to the business. The Management Board must submit certain important decisions to the Supervisory Board or the General Meeting for approval. The Management Board must, in a timely way, provide the Supervisory Board with all the information it needs to carry out its own duties.

At least once a year, the Management Board evaluates itself and its individual members. The performance of the Management Board and its individual members is also evaluated at every closed session of the Supervisory Board, and the findings are communicated by the Chairperson to the Management Board.

Supervisory Board

The Supervisory Board supervises and advises the Management Board and guides the general course of company affairs and business. In performing their duties, the Supervisory Board members act in accordance with the interests of the company, considering stakeholder interests as well as the relevant corporate social responsibility issues.

The Supervisory Board is responsible for nominating and supervising an external accountant who audits, reports on and issues a statement concerning the company's annual financial statements to the General Meeting.

The Supervisory Board consists of at least three members and is authorised to make binding nominations for the appointment of a Supervisory Board member. It appoints one of its members to be Chairperson.

Each member is appointed for no more than four years, with their appointment period ending immediately after the General Meeting held in the fourth calendar year after their initial appointment. The Supervisory Board member may then be reappointed for up to two further two-year periods. For an appointment to continue beyond eight years, justification should be given in the consultative Report of the Supervisory Board.

At least once a year, the Supervisory Board evaluates its own performance, that of its Committees and that of the Management Board, as well as all individual members thereof.

Supervisory Board Committees

The Supervisory Board's Audit Committee, Remuneration Committee and Nomination Committee advise the Supervisory Board and inform its decision-making, although the Supervisory Board remains collectively responsible for the fulfilment of the duties delegated to its Committees. The Committee Regulations are published on Avantium's website (www.avantium.com/corporate-governance/).

Audit Committee

The Audit Committee assists the Supervisory Board in overseeing the integrity and quality of the financial reporting and the effectiveness of the internal risk management and control systems, including supervising the enforcement of the relevant legislation and regulations, and supervising the effect of codes of conduct. The Audit Committee supervises the financing of the company. It assesses the external audit process and the scope and approach of the external auditor, and monitors progress and performance. The relationship with the external auditor is evaluated annually. Together with the Management Board, the Audit Committee reviews half-year and full-year financial statements, independent auditor's reports and the Management Letter. The Audit Committee supervises the company's policy on tax planning and the applications of information and communication technology (ICT), including risks relating to cyber security.

Remuneration Committee

The Remuneration Committee reviews and makes recommendations regarding the remuneration policy for the Management Board and the Supervisory Board, for adoption by the General Meeting. The approved policy then forms the basis for the fixed and variable remuneration of the Management Board.

Nomination Committee

The Nomination Committee is tasked with advising on candidates to fill vacancies in the Management Board and Supervisory Board, assessing the functioning of both Boards and their members, supervising the the policy of the Management Board on the selection criteria and appointment procedures for senior management, and ensuring long-term succession planning.

Industrialisation Committee

In the fourth quarter of 2020, the Supervisory Board initiated the incorporation of the Industrialisation Committee. Early 2021, the Industrialisation Committee is established to serve as the Supervisory Board's advisory and risk review forum in providing oversight of (i) the company's technology strategy;
(ii) industrialisation roadmaps; and (iii) technology portfolio, all as determined, formulated, and executed by the company's Management Board and senior management.

Technology Board

In 2020, the Management Board established and appointed the Technology Board to act in an advisory capacity to the Management Board and senior management concerning the company's technology strategy and innovation portfolio.
The Technology Board reviews and provides guidance on technology strategy and materially significant aspects of technology management, such as technology priorities and the execution of the Company's portfolio of its technology projects. The Technology Board comprises of independent experts with relevant expertise and experience. Technology Board members shall be considered subject matter experts in areas such as: innovation management, chemistry, chemical engineering, polymer development, (renewable) feedstocks, project and operations management, and/or have a relevant network in the chemical, polymer, renewables, engineering, manufacturing or related industries.

Board Compliance

Both the Management Board and the Supervisory Board, including the Committees of the Supervisory Board, have their own regulations, which set rules regarding duties and responsibilities, composition and working methods. These regulations are available on our website.

In line with the Supervisory Board Regulations, the Management Board Regulations and the Dutch Code, Board members must immediately report any real or potential conflict of interest to the Chair of the Supervisory Board and/or to the other members of the Management Board.

Diversity Policy

Avantium aspires to be an inclusive and diverse company with an open and inspiring culture, where people feel safe to develop and share ideas. Our sustainability plan includes a target on equality which comprises several sub-targets that we aim to achieve by 2030 or earlier. This also applies to the Management Board and the Supervisory Board. The Supervisory Board seeks to promote diversity among its members in terms of age, sex, nationality, experience within the industry, background, skills, knowledge and insights. As far as possible, we aim to create a balance among the Supervisory Board's members where this diversity is represented. The objective is to comply with the Supervisory Board Profile that can be found on Avantium's website. The percentage of women on the Supervisory Board is 80%, outperforming the target of 30% prescribed by Dutch legislation in terms of gender balance.

Management Board members are selected based on their wide-ranging experience within the industry, as well as their background, skills, knowledge and insight. Within this profile, the Management Board pays attention to gender diversity in accordance with article 2:166 of the Dutch Civil Code, although so far this has not resulted in increased gender diversity in the Management Board. At the end of 2020, 33% of our management team and 25% of their direct reports in management positions were women. We know there is still work to do and we have set ourselves a sub-target of achieving gender equality at management level by 2030.

Annual General Meetings of Shareholders

A General Meeting is held within six months of the end of every financial year. The general purpose is to discuss the Board report, to discuss and adopt the financial statements and to discharge the Management Board members and the Supervisory Board members of their respective management and supervision duties. Extraordinary General Meetings (EGMs) are held if the Management Board and Supervisory Board deem it necessary or at the request of one or more shareholders who, alone or jointly, represent at least one-tenth of Avantium's issued share capital.

A General Meeting is called by a convening notice sent by the Management Board or the Supervisory Board. Shareholders who, alone or jointly, represent at least 0.03% of the company's issued capital may ask for items to be added to the agenda. Every shareholder may attend, speak and vote at the General Meeting.

Unless Dutch law or the Articles of Association require a larger majority, resolutions of the General Meeting are adopted by a simple majority of votes cast. Certain resolutions require a qualified majority of two-thirds of the votes cast, if less than half of the issued share capital is represented at the General Meeting.

Corporate Governance Statement

Avantium acknowledges the importance of good corporate governance and agrees with the principles of the Dutch Code. We have taken, and will take, further appropriate steps to apply its principles and best practice provisions.

Compliance with the Dutch Code

Avantium is committed to applying the principles and best practice provisions of the Dutch Code. Below, we list the principles and best practice provisions where we deviate from the Dutch Code.

Principle 1.3: Internal Audit Function

The internal audit function assesses the design and operation of the internal risk management and control systems. The Management Board is responsible for the internal audit function; the Supervisory Board oversees this function and maintains regular contact with the people involved. In 2020, the duties and responsibilities of the internal audit function were allocated to various senior support staff functions within the company (e.g., Legal and Finance).

Best Practice Provision 3.3.2: Remuneration of Supervisory Board Members

This provision states that Supervisory Board members may not receive remuneration in the form of shares and/or rights to shares. To continue to attract and retain top talent in a competitive global environment, and to help the Supervisory Board create sustainable added value, Avantium introduced, in view of the initial public offering (IPO), a renewed Employee Share Option Plan (ESOP) in 2016 and granted some members of the Supervisory Board a certain number of options. Approval was given at the EGM on 10 February 2017, and this was confirmed by the adoption of the Remuneration Policy for the Supervisory Board at the General Meeting on 14 May 2020.

Supervisory Board members will be awarded options under the ESOP upon their appointment, or from 14 May 2020 for the current members of the Supervisory Board. The Chairperson is entitled to 85,000 options, and the other members are entitled to 30,000 options. A member may decline the award. Options may be re-awarded to a member upon their reappointment for a period of four years. Any Avantium options or shares held by the Supervisory Board members serve as a long-term investment in Avantium and align members' interests with those of other shareholders. The company does not grant loans to members of the Supervisory Board.

Best Practice Provision 4.3.3: Cancelling the Binding Nature of a Nomination or Dismissal

This provision states that general meetings of a company that does not have statutory two-tier status (structuurregime) may, by an absolute majority of the votes cast, cancel the binding nature of a nomination for the appointment of a Management Board or Supervisory Board member and/or of the dismissal of a Management Board or Supervisory Board member. It may be provided that this majority should represent a given proportion (maximum one-third) of the issued capital. If this proportion is not represented at the meeting, but an absolute majority of the votes cast is in favour of a resolution to cancel the binding nature of a nomination or dismissal, a new General Meeting may be convened where the resolution may be passed by an absolute majority of the votes cast, regardless of the proportion of the capital represented at the new meeting.

Avantium's Articles of Association allow the Supervisory Board to make binding nominations. If it makes a binding nomination for the appointment of a Management Board or Supervisory Board member, the nominee shall be appointed regardless of the majority of the votes cast in favour. The General Meeting may override the binding nature of such a nomination by a

majority of two-thirds of the votes cast, when these votes represent more than half of the issued share capital.
If the Supervisory Board has not made a binding nomination, the General Meeting can appoint a member of the Management Board or the Supervisory Board at its discretion by a simple majority representing at least one-third of the issued share capital.

In line with the company's Articles of Association, the General Meeting may at any time dismiss a member of the Management Board or the Supervisory Board. To pass, the resolution needs a two-thirds majority of the votes cast, representing more than half of the issued share capital. However, if the dismissal is proposed by the Supervisory Board, a simple majority is sufficient. Avantium deviates from the Dutch Code on this provision in order to safeguard the continuity of the company.

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Consolidated Statement of Financial Position

As at December 31

in Euro x 1,000	Notes	2020	2019
ASSETS			
Non-current assets			
Property, plant and equipment	5	25,198	27,677
Intangible assets	6	559	684
Right-of-use assets	7	9,042	9,732
Total non-current assets		**34,799**	**38,092**
Current assets			
Inventories	10	1,225	1,440
Trade and other receivables	11	7,333	11,541
Cash and cash equivalents	12	26,626	45,443
Total current assets		**35,184**	**58,425**
Total assets		**69,983**	**96,517**
EQUITY			
Equity attributable to owners of the parent			
Ordinary shares	13	2,591	2,583
Share premium		204,296	204,296
Other reserves	13	10,407	9,862
Accumulated losses		(171,057)	(148,527)
Total equity attributable to the owners of the parent		**46,238**	**68,215**
Total equity		**46,238**	**68,215**

in Euro x 1,000	Notes	2020	2019
LIABILITIES			
Non-current liabilities			
Lease liabilities	7	8,003	9,264
Total non-current liabilities		**8,003**	**9,264**
Current liabilities			
Lease liabilities	7	1,703	1,534
Trade and other payables	16	13,894	17,367
Provisions for other liabilities and charges	18	145	137
Total current liabilities		**15,742**	**19,038**
Total liabilities		**23,745**	**28,303**
Total equity and liabilities		**69,983**	**96,517**

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statement of Comprehensive Income

For the financial year ended December 31

in Euro x 1,000	Notes	2020	2019
Revenues	19	9,863	13,821
Other income	20	8,403	4,217
Total revenues and other income		**18,266**	**18,038**
Operating expenses			
Raw materials and contract costs	22	(2,339)	(3,666)
Employee benefit expenses	14	(19,262)	(19,747)
Office and housing expenses	22	(1,990)	(1,800)
Patent, license, legal and advisory expenses	22	(4,204)	(3,185)
Laboratory expenses	22	(3,664)	(3,606)
Advertising and representation expenses	22	(679)	(1,438)
Reversal / (Expense) due for onerous contract	7,9	492	(724)
Other operating expenses	22	(1,528)	(890)
Net operating expenses		**(33,173)**	**(35,056)**
EBITDA		**(14,907)**	**(17,018)**
Depreciation, amortisation and impairment charge	22	(7,597)	(5,948)
EBIT		**(22,504)**	**(22,966)**
Finance costs - net	24	(325)	(319)
Share in loss of joint ventures	8	-	(259)
Loss before income tax		**(22,830)**	**(23,544)**
Income tax expense	25	-	-
Loss for the period		**(22,830)**	**(23,544)**
Other comprehensive income		-	-
Total comprehensive expense for the year		**(22,830)**	**(23,544)**

in Euro x 1,000	Notes	2020	2019
Loss attributable to:			
Owners of the parent		(22,830)	(23,544)
		(22,830)	**(23,544)**
Total comprehensive expense attributable to:			
Owners of the parent		(22,830)	(23,544)
		(22,830)	**(23,544)**

in Euro	Note	2020	2019
Earnings per share for loss from continuing operations attributable to the ordinary equity holders of the company			
Basic earnings per share	15	(0.88)	(0.91)
Diluted earnings per share	15	(0.88)	(0.91)
Earnings per share for loss attributable to the ordinary equity holders of the company			
Basic earnings per share	15	(0.88)	(0.91)
Diluted earnings per share	15	(0.88)	(0.91)

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statement of Changes in Equity

For the year ended December 31

in Euro x 1,000	Attributable to equity holders of the company				
	Ordinary shares	Share premium	Other reserves	Accumulated losses	Total Equity
Balance at 1 January 2019	**2,583**	**204,296**	**9,331**	**(125,053)**	**91,157**
Comprehensive expense					
Result for the year	-	-	-	(23,544)	(23,544)
Other Comprehensive expense for the year	-	-	-	-	-
Total Comprehensive expense for the year	**-**	**-**	**-**	**(23,544)**	**(23,544)**
Transactions with owners					
▪ Employee share schemes - value of Employee services	-	-	574	-	574
▪ Employee share schemes- LTIP investment shares granted	-	-	25	-	25
▪ Transfer value share scheme to retained earnings	-	-	(69)	69	-
▪ Issue of ordinary shares	-	-	-	-	-
▪ Shares delivered from treasury shares	-	-	2	-	2
Total transactions with owners	**-**	**-**	**532**	**69**	**601**
Balance at 31 December 2019	**2,583**	**204,296**	**9,863**	**(148,527)**	**68,215**

in Euro x 1,000	Attributable to equity holders of the company				
	Ordinary shares	Share premium	Other reserves	Accumulated losses	Total Equity
Balance at 1 January 2020	**2,583**	**204,296**	**9,863**	**(148,527)**	**68,215**
Comprehensive expense					
Result for the year	-	-	-	(22,830)	(22,830)
Other Comprehensive income for the year	-	-	-	-	-
Total Comprehensive expense for the year	**-**	**-**	**-**	**(22,830)**	**(22,830)**
Transactions with owners					
▪ Employee share schemes- value of Employee services	-	-	702	-	702
▪ Employee share schemes - LTIP investment shares granted	-	-	137	-	137
▪ Transfer value share scheme to retained earning	-	-	(300)	300	-
▪ Issue of ordinary shares	8	-	-	-	8
▪ Shares delivered from treasury shares	-	-	5	-	5
Total transactions with owners	**8**	**-**	**545**	**300**	**852**
Balance at 31 December 2020	**2,591**	**204,296**	**10,407**	**(171,057)**	**46,238**

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statement of Cash Flows

For the year ended December 31

in Euro x 1,000	Notes	2020	2019
Cash flows from operating activities			
Loss for the year from continuing operations		(22,830)	(23,544)
Adjustments for:			
▪ Depreciation of property, plant and equipment	5	5,818	4,130
▪ Amortisation	6	152	183
▪ Depreciation of right of use assets	7	1,589	1,635
▪ Share in loss of joint ventures	8	-	259
▪ Share-based payment	14	839	599
▪ Finance costs - net	24	325	319
▪ Non cash portion of onerous contract (reversal) / expense		(492)	492
▪ Impairment of property, plant and equipment	5	38	-
Changes in working capital (excluding exchange differences on consolidation):			
▪ Decrease/(increase) in inventories	10	215	(280)
▪ Decrease/(increase) in trade and other receivables	11	4,251	(2,192)
▪ (Decrease)/increase in trade and other payables	16	(3,228)	8,442
▪ Increase/(decrease) in provisions	18	7	(13,107)
		(13,315)	**(23,064)**
Interest (paid) on current accounts	24	(69)	(17)
Net cash used in operating activities		**(13,383)**	**(23,080)**

in Euro x 1,000	Notes	2020	2019
Cash flows from investing activities			
Purchases of property, plant and equipment (PPE)	5	(3,425)	(8,458)
Purchases of intangible assets	6	(27)	(86)
Acquisition of subsidiary	9	-	(4,189)
Net cash used in investing activities		**(3,453)**	**(12,734)**
Cash flow from financing activities			
Interest received from current accounts	24	37	27
Principal elements of lease payments	7	(1,946)	(2,021)
Other interest received		-	56
Other interest paid and financing costs		(72)	(94)
Net cash used in financing activities		**(1,981)**	**(2,032)**
Net decrease in cash and cash equivalents		**(18,817)**	**(37,846)**
Cash and cash equivalents at beginning of the year	12	45,443	83,302
Effect of exchange rate changes	24	(1)	(12)
Cash and cash equivalents from continuing operations at end of financial year	12	**26,626**	**45,443**
Cash and cash equivalents at end of financial year	12	**26,626**	**45,443**

The accompanying notes are an integral part of these consolidated financial statements.

Main Notes to the Consolidated Financial Statements

1. General Information

Avantium N.V. ('the company') is a company incorporated and domiciled in the Netherlands, with its statutory seat at Zekeringstraat 29-31, 1014 BV in Amsterdam. The company is listed on Euronext Amsterdam. The consolidated financial statements of the company as at 31 December 2020 comprise of the company and its subsidiaries (together referred to as 'the group'). The company is also the ultimate parent of the group.

The company is primarily involved in developing and commercialising next generation bio-based plastics and chemicals based on our unique technological capabilities in advanced catalysis research & development. Avantium also provides advanced catalysis R&D services and systems (such as our Flowrence systems) to customers in the refinery and chemical industries.

For setting the principles for the recognition and measurement of assets and liabilities and determination of the result of its company financial statements, Avantium N.V. makes use of the option provided in Section 2:362 (8) of the Dutch Civil Code. This means that the principles of the recognition and measurements of assets and liabilities and determination of the result (hereafter referred to as accounting policies) of the company financial statements of Avantium N.V. are the same as those applied for the consolidated financial statements under IFRS (refer to note 2). By applying this option, reconciliation is maintained between the group's and the company's equity.

These consolidated financial statements were approved for issue by both the Supervisory Board and the Management Board on 23 March 2021.

2. Summary of Significant Accounting Policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

2.1. Basis of Preparation

The consolidated financial statements of Avantium N.V. have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. The consolidated financial statements have been prepared under the historical cost convention unless otherwise stated.

2.1.1 Going Concern

The financial statements have been prepared on a going concern basis.

Avantium N.V. ("Avantium")

Avantium is a leading technology company in renewable chemistry, dedicated to developing and commercialising breakthrough technologies for the production of chemicals from renewable sources and circular plastic materials.

Avantium consists of the three business segments, Avantium Catalysis, Avantium Renewable Polymers and Avantium Renewable Chemistries:

- **Avantium Catalysis:** Our revenue generating Catalysis Services & Systems business unit serves the R&D catalysis needs of international blue-chip players.
- **Avantium Renewable Polymers** develops FDCA (furandicarboxylic acid), which is a key ingredient for PEF (polyethylene furanoate). PEF is a novel 100% plant-based and fully recyclable polymer which outperforms today's packaging materials, such as plastic, glass and aluminium. PEF has huge potential in the packaging, film and textile sectors, which are large and growing markets. We currently aim to open, dependent on a positive Final Investment Decision (FID), our flagship plant for FDCA and PEF in 2023.

- **Avantium Renewable Chemistries** develops, among other technologies, plantMEG™ (mono-ethylene glycol), which is a plant-based and cost-competitive alternative for fossil-based MEG - an important chemical building block for PET and PEF resin, both of which are used in bottles and packaging; fibres for clothing, furniture and the automotive industry; and solvents and coolants. Avantium Renewable Chemistries opened a demonstration plant in Delfzijl in 2019, which was successfully commissioned and became fully operational in 2020. Avantium aims to scale up the plantMEG™ technology to a commercial facility in 2024/25. The strategy of Avantium is to implement a technology licensing business model for Ray Technology.

Our businesses were impacted by the COVID-19 pandemic and resulting measures as follows:
- **Avantium Catalysis:** Travel restrictions affected our Catalysis business, compromising our ability to maintain and install our systems at customers' sites.
- **Avantium Renewable Polymers:** COVID-19 impacted our Renewable Polymers business through several aspects: development work with partners and the engineering process was impacted as international travel and collaboration was restricted and negotiations with financial, commercial and other strategic partners are taking more time than foreseen given they all need to occur virtual.
- **Avantium Renewable Chemistries: Our Renewable Chemistries business unit, however, was able to seamlessly commission the new plantMEG™ demonstration plant despite the pandemic.**

Funding Avantium

Due to its nature as a technology development company with significant R&D expenses and negative cash flows, Avantium is dependent on external funding and regularly needs new financing sources. Given Avantium's cash balance at 31 December 2020 of €26.6 million and a negative forecasted cash flow over 2021 (cash spend during 2020 was €18.8 million), Avantium has to obtain new external funding to finance the ongoing operations and further development of its technologies such as the FDCA flagship plant. Failure to timely achieve new funding will result in the company being unable to fulfill obligations, to fund capital expenditures and working capital, both of which are necessary to execute our strategy, contract partners, retain key employees and meet our payment obligations. Without timely funding, the company's going concern is at risk.

In light of the above, management has assessed the going concern assumption on the basis of which Avantium's financial statements for 2020 have been prepared. Fundamental to Avantium's continuity is the realisation of a fully funded business plan for the FDCA flagship plant and to obtain financing for the other technologies of Avantium.

FDCA Flagship Plant Business Plan Avantium Renewable Polymers

On 31 December 2020, management had not yet taken a Final Investment Decision (FID) to construct the FDCA flagship plant. Finalisation of negotiations with financial, commercial and other strategic partners have taken longer than anticipated. There is a demand in the market for FDCA, however virtual negotiations with these parties are taking more time than foreseen. In order for management to take a positive FID a fully funded business plan needs to be realised for which three key conditions must be satisfied. These conditions are: (i) obtaining offtake commitments for 50% of the capacity of the flagship plant (ii) finalising the engineering and establishing the supply chain, and (iii) securing €150 million financing (excluding 20% contingency). As at the date of these financial statements the conditions have not been realised, however progress has been made.

(i) Offtake Agreements

As per 23 March 2021, Avantium Renewable Polymers has secured offtake agreements with customers for 30% of the capacity of the FDCA flagship plant. Avantium Renewable Polymers needs to obtain offtake agreements for at least 50% of the flagship plant capacity.

(ii) Engineering and Supply Chain

The front-end engineering and design (FEED) phase of the flagship plant has reached its final stages. With the signing of the term sheet with the global engineering company Worley and the multi-year polymerisation agreement with the global specialty polyester supplier Selenis, Avantium Renewable Polymers has made considerable progress on the engineering and establishment of the supply chain. Avantium Renewable Polymers and Worley agreed on the heads of terms of the engineering, procurement and construction (EPC) contract for the plant, structured to include a risk-sharing mechanism over the EPC phase of the FDCA flagship plant. Avantium Renewable Polymers and Worley also foresee collaboration on the execution phase of the Avantium's licensing strategy. Avantium believes that the confidence in the project demonstrated by Worley and its substantial engineering experience in scaling-up to industrial plants adds strength and credibility to Avantium's technology and licensing proposition. Parties are working out these term sheets to final contracts.

(iii) Financing Avantium Renewable Polymers

Previously, Avantium has communicated that it estimated to require a total funding package of approximately €150 million (excluding 20% contingency) for a fully funded business plan. This €150 million includes capex, operational expenditures, startup costs and working capital financing. Of this €150 million, Avantium has conditionally secured (subject to multiple conditions, including the fulfilment of the key conditions for the FID) €20 million in equity from the Groningen consortium, €10 million in equity from Worley as investment in kind, and €20 million "PEFerence"-EU Horizon 2020 grant awarded by Bio-based Industries Joint Undertaking. Additionally, the Groningen consortium intends to support Avantium Renewable Polymers with

€2.5 million of subordinated debt (letter of intent) and in December 2020, the National Programme Groningen awarded Avantium a €7.5 million grant to support the construction of the FDCA flagship plant. €35 million will be funded by Avantium of which €24 million has already been provided as per 19 March 2021, the remaining €11 million needs to be funded at the level of Avantium. All financing elements, including the investments by Worley and the Groningen consortium, are subject to multiple conditions, including the fulfilment of the key conditions for the FID. Avantium Renewable Polymers is in continued discussions with a number of debt providers on funding the debt portion, including funding of the 20% contingency.

Financing Avantium

Management prepared several business scenarios for 2021, including the worst-case scenario in which it is assumed that the FDCA flagship plant business plan will not be fully funded and no financing will be obtained by Avantium. A detailed cash flow forecast based on a worst-case scenario, assuming COVID-19 travel restrictions will be eased mid-2021, supports the conclusion of management that the company has sufficient cash to fund its ongoing operations for at least 12 months as per the date of this Annual Report after which Avantium needs financing which currently is not secured yet.

Avantium is exploring multiple options to strengthen its financial position and provide the company with strategic choices. Avantium is working on attracting additional sources of financing, consisting of a combination of equity, government grants and/or debt to provide funding for the company's medium term (>12 months) operations. At the 2020 Annual General Meeting, Avantium obtained approval to issue new share capital up to 20% of its existing capital. At this moment no additional financing has been obtained by Avantium.

These events indicate the existence of a material uncertainty that may cast significant doubt on Avantium's ability to continue as a going concern and therefore, that it may be unable to realise its assets and discharge its liabilities in the normal course of businesses.

Avantium is taking action to ensure sufficient funding and to continue as a going concern:

- The management works on obtaining sufficient offtake agreements, finalising the engineering and establishing the supply chain, and obtaining financing to ensure a fully funded FDCA flagship plant business plan for Avantium Renewable Polymers. We plan to take a FID in the course of 2021. We are convinced of our groundbreaking technology and foresee a bright future by applying this technology in many applications. Sustainability is gaining more and more momentum and we expect that consumers and thus brand owners will demand sustainable packaging solutions.
- The management is working on attracting additional sources of financing. Avantium obtained approval from the shareholders to issue new share capital up to 20% of its existing capital. Management is regularly engaging with existing and potential new investors. There is a clear trend towards investments in ESG driven companies such as Avantium.

The situation around the current COVID-19 pandemic seems to be developing positively. However, we cannot exclude the possibility of new and unknown developments later this year that might impact Avantium's ability to raise funds.

Based on the analysis and assessment of management's actions and although a material uncertainty remains on the company's going concern, management believes it is appropriate to prepare Avantium's financial statements using the going concern assumption.

2.1.2 Changes in Accounting Policy and Disclosures

New Standards, Amendments and Interpretations not yet Adopted

The group has applied the following standards and amendments for the first time for their annual reporting period commencing 1 January 2020:

- Definition of Material - amendments to IAS 1 and IAS 8
- Definition of a Business - amendments to IFRS 3
- Revised Conceptual Framework for Financial Reporting

The amendments listed above did not have any impact on the amounts recognised in prior periods and are not expected to significantly affect the current or future periods.

New Standards, Amendments and Interpretations not yet Adopted

A number of new standards and amendments to standards and interpretations have been published that are not mandatory for 31 December 2020 reporting periods and have not been early adopted by the company. These standards are not expected to have a material impact on the company in the current or future reporting periods and on foreseeable future transactions.

2.1.3 COVID-19

The COVID-19 pandemic had an impact on our Renewable Polymers business as virtual negotiations with financial, commercial and other strategic partners are taking more time than we had foreseen. Travel restrictions also affected our Catalysis business compromising our ability to maintain and install our systems at customers' sites. Our Renewable Chemistries business unit, however, was able to seamlessly commission the new demonstration plant despite the pandemic. Management implemented cost saving measures to compensate for the lower top line revenues.The impact of the pandemic on the significant accounting policies is disclosed below. Use of estimates The preparation of financial statements in accordance with IFRS requires the use of certain accounting estimates. It also requires management to exercise its judgement in the process of applying the group's accounting policies. Estimates and judgments are continually evaluated, and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

COVID-19 had an impact on the impairment. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered impairment are reviewed for possible reversal of the impairment at each reporting date. During 2020, COVID-19 and the resulting change in the economic environment did not result in an indication of an impairment.

2.2 Consolidation

2.2.1 Subsidiaries

Subsidiaries are all entities over which the group has control. The group controls an entity when the group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the group. They are deconsolidated from the date that control ceases.
The consolidated companies are listed below:

- Avantium Technologies B.V., Amsterdam (100%)
- Avantium Support B.V., Amsterdam (100%)
- Renewable Technologies B.V. Amsterdam (100%)
- Avantium Chemicals B.V., Amsterdam (100%)
- Avantium Knowledge Centre B.V., Amsterdam (100%)
- Furanix Technologies B.V., Amsterdam (100%)
- YXY Technologies B.V., Amsterdam (100%)
- Stichting Administratiekantoor Avantium, Amsterdam (100%)
- Stichting Stock Options Avantium, Amsterdam (100%)
- Feedstock Technologies B.V., Amsterdam (100%)
- Avantium Renewable Polymers B.V., Amsterdam (100%)
- Avantium Japan K.K, Tokyo (100%)

Inter-company transactions, balances and unrealised gains on transactions between group companies are eliminated. Unrealised losses are also eliminated. When necessary, amounts reported by subsidiaries have been adjusted to conform to the group's accounting policies.

2.2.2 Changes in Ownership Interests in Subsidiaries Without Change of Control

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. The difference between fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to non-controlling interests are also recorded in equity.

2.2.3 Disposal of Subsidiaries

When the group ceases to have control, any retained interest in the entity is remeasured to its fair value at the date when control is lost with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognised in other comprehensive income are reclassified to profit or loss.

2.2.4 Principles of Consolidation and Equity Accounting

When the group ceases to consolidate or equity account for an investment because of a loss of control, joint control or significant influence, any retained interest in the entity is remeasured to its fair value with the change in carrying amount recognised in profit or loss. This fair value becomes the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognised in other comprehensive income are reclassified to profit or loss.

If the ownership interest in a joint venture or an associate is reduced but joint control or significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income are reclassified to profit or loss where appropriate.

2.2.5 Segment Reporting

Operating segments are reported in a manner consistent with the business responsibilities and internal reporting. The Management Board has appointed the management team which assesses the financial performance and position of the group, and makes strategic decisions. The management team, consists of the Chief Executive officer, the Chief Financial Officer, the Chief Technology Officer, the Group Legal Counsel, the Managing Director of Avantium Renewable Chemistries, the Managing Director of Avantium Catalysis and the Managing Director of Avantium Renewable Polymers.

2.3 Foreign Currency Translation

Functional and Presentation Currency

Items included in the financial statements of each of the group's entities are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). The consolidated financial statements are presented in euros, which is the company's functional currency.

Transactions and Balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuations where items are remeasured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the statement of comprehensive income.

Foreign exchange gains and losses that relate to borrowings and cash and cash equivalents are presented in the statement of comprehensive income within 'finance income or cost'.

Group Companies

The results and financial position of all the group entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- Assets and liabilities for each balance sheet presented are translated at the closing rate at the date of that balance sheet.
- Income and expenses for each statement of comprehensive income are translated at the average exchange rates.
- All resulting exchange differences are recognised as a separate component of other comprehensive income.

2.4 Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingencies at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. The use of estimates is or could be a significant factor affecting the reported carrying values of property, plant and equipment, intangibles, trade and other receivables and trade and other payables. Despite management's best efforts to accurately estimate such amounts, future results could materially differ from those estimates.

2.5 Property, Plant and Equipment

Property, plant and equipment comprise mainly of laboratory equipment, hardware and leasehold improvements. Leasehold improvements include machinery that is located in at the various pilot plant sites. All property, plant and equipment is stated at historical cost less accumulated depreciation. Historical cost includes expenditures that are directly attributable to the acquisition of the items.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the group and the cost of the item can be measured reliably. All other repairs and maintenance charges are expensed in the financial period in which they are incurred.
Depreciation is calculated using the straight-line method to allocate their cost of the assets to their residual values over their estimated useful lives as follows:

- Leasehold improvement 5-20 years
- Machinery, laboratory equipment and vehicles 5 years
- Computer hardware 3 years
- Office furniture and equipment 3-5 years

Gains and losses on disposals are determined by comparing the proceeds with the carrying amount. Gains and losses are included in the consolidated statement of comprehensive income.

2.6 Intangible Assets

Research and Development

Research expenditures are recognised as expenses as incurred. Development costs that are directly attributable to the design and testing of identifiable and unique products controlled by the group are recognised as intangible assets when the following criteria are fulfilled:

- It is technically feasible to complete the intangible asset so that it will be available for use or sale.
- Management intends to complete the intangible asset and use or sell it.
- There is an ability to use or sell the intangible asset.
- It can be demonstrated how the intangible asset will generate probable future economic benefits.
- Adequate technical, financial and other resources to complete the development and to use or sell the intangible asset are available.
- The expenditure attributable to the intangible asset during its development can be reliably measured.

Other development expenditures that do not meet these criteria are recognised as an expense as incurred. Development costs previously recognised as an expense are not recognised as an asset in a subsequent period. Capitalised development costs are recorded as intangible assets and amortised from the point at which the asset is ready for use on a straight-line basis over its estimated useful life of five years. Intangible assets not ready for use are tested for impairment at least on an annual basis.

Amortisation of development costs is included in depreciation, amortisation and impairment charge in the statement of comprehensive income. All development costs arose from internal development.

Computer Software and other intangibles

Acquired computer software licenses are capitalised on the basis of the costs incurred to acquire and use the specific software. These costs are amortised straight-line over their estimated useful lives of three years.

Costs associated with developing or maintaining computer software programmes are recognised as expenses as incurred. Development costs that are directly attributable to the design and testing of identifiable and unique software products controlled by the group, that will probably generate economic benefits exceeding costs beyond one year, are recognised as intangible assets.

Other intangibles consisting of an in-kind contribution of a shareholder for their software at the foundation of the group and compensation paid to a third party to exclusively use parts of their technology. Amortisation is calculated using the straight-line method over the estimated useful life of three years.

Intellectual Property

Following the acquisition of Liquid Light on 30 December 2016, the company records intellectual property (patent portfolio acquired) on its consolidated balance sheet. The intellectual property is stated at historical cost, which will subsequently be lowered with accumulated amortisation in the following years, when the technology on which the intellectual property is filed is ready to deploy commercially.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the group and the cost of the item can be measured reliably.
Amortisation is calculated using the straight-line method to allocate their cost of the assets to their residual values over their estimated useful lives (average lifetime of patent portfolio) as follows:

- Intellectual property: 5-20 years

2.7 Impairment of Non-Financial Assets

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

2.8 Non-Current Assets (or Disposal Groups) Held for Sale

Non-current assets (or disposal groups) are classified as assets held for sale when their carrying amount is to be recovered principally through a sale transaction and a sale is considered highly probable. They are stated at the lower of carrying amount and fair value less costs to sell.

2.9 Financial Assets

2.9.1 Classification

The group classifies its financial assets in the following measurement category:

i. those to be measured at amortised cost.

The classification depends on the company's business model for managing the financial assets and the contractual terms of the cash flows. Management determines the classification of its financial assets at initial recognition. The group classifies its financial assets as assets held for collection of contractual cash flows.

2.9.2 Recognition and Measurement

Regular purchases and sales of financial assets are recognised on the trade-date, the date on which the group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the financial assets expire or if the company transfers the financial asset to another party and does not retain control or substantially all risks and rewards of the asset. Financial liabilities are derecognised when the company's obligations specified in the contract expire or are discharged or cancelled.

Financial assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest income from these financial assets is included in finance income using the effective interest rate method. Any gain or loss arising on derecognition is recognised directly in the statement of comprehensive income and presented in other gains/ (losses). Impairment losses are presented as separate line item in the statement of comprehensive income.

2.10 Offsetting Financial Instruments

Financial assets and liabilities are offset and the net amount reported in the balance sheet when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the company or the counterparty.

2.11 Impairment of Financial Assets

Assets Carried at Amortised Cost

Impairment provisions for trade receivables are recognised based on the simplified approach within IFRS 9 to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables and contract assets.

To measure the expected credit losses, trade receivables and contract assets have been grouped based on shared credit risk characteristics and the days past due. The contract assets relate to unbilled work in progress and have substantially the same risk characteristics as the trade receivables for the same types of contracts. The group has therefore concluded that the expected loss rates for trade receivables are a reasonable approximation of the loss rates for the contract assets.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised (such as an improvement in the debtor's credit rating), the reversal of the previously recognised impairment loss is recognised in the consolidated statement of comprehensive income.

Other assets are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs of disposal. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash inflows which are largely independent of the cash inflows from other assets or groups of assets (cash-generating units).

2.12 Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is determined using the first-in, first-out (FIFO) method. The cost of raw materials, finished goods and work in progress comprises all purchase costs including charges incurred to bring inventories to their current location and into their current state. It excludes borrowing costs. Net realisable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

2.13 Trade Receivables

Trade receivables are amounts due from customers for products sold or services performed in the ordinary course of business. If collection is expected in one year or less (or in the normal operating cycle of the business if longer), they are classified as current assets. If not, they are presented as non-current assets.

Trade receivables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, less provision for impairment. Refer to note 2.11 for further information about the group's impairment policy on financial assets.

2.14 Cash and Cash Equivalents

In the consolidated statement of cash flows, cash and cash equivalents includes cash in hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less and bank overdrafts. In the consolidated statement of financial position, bank overdrafts are shown within borrowings in current liabilities.

Restricted cash

The restricted cash includes cash deposits, which is measured at an amount equal to the current outstanding bank guarantees issued to third parties. The restricted cash is not available for use by the company to meet the short-term cash obligations. In the consolidated statement of financial position the restricted cash is shown as current assets.

2.15 Share Capital

Ordinary Shares

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of new ordinary shares or options are shown in equity as a deduction, net of tax, from the proceeds.

Treasury Shares

Where any group company or liquidity provider appointed by the group, purchases the company's equity share capital (treasury shares), the consideration paid, including any directly attributable incremental costs (net of income taxes), is deducted from equity attributable to the company's equity holders until the shares are cancelled or reissued. Where such ordinary shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs and the related income tax effects, is included in equity attributable to the company's equity holders. No gain or loss is recognised in the statement of comprehensive income on the purchase, sale, issuance or cancellation of the company's own equity instruments.

2.16 Trade Payables

Trade payables are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Accounts payable are classified as current liabilities if payment is due within one year or less (or in the normal operating cycle of the business if longer). If not, they are presented as non-current liabilities.

Trade payables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method.

2.17 Current and Deferred Income Tax

The tax expense for the year comprises current and deferred tax. Tax is recognised in the statement of comprehensive income, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case, the tax is also recognised in other comprehensive income or directly in equity respectively.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the balance sheet date in the countries where the company's subsidiaries and associates operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, the deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the balance sheet date and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

2.18 Employee Benefits

Pension Obligations

The group operates a defined contribution pension plan for all employees funded through payments to an insurance company. The group has no legal or constructive obligations to pay further contributions if the plan does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior years. The contributions are recognised as employee benefit expense when they are due. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

Share-based Payments

The group operates a share-based compensation plans for its employees, which consist of an Employee Stock Option Plan (ESOP) and a Long-term Incentive Plan (LTIP), also refer to note 14. These plans are classified as an equity-settled share option plans.

Share options granted to employees are measured at the fair value of the equity instruments granted under the indirect method of measurement. Fair value is determined through the use of an option-pricing model considering, amongst others, the following variables:

a. The exercise price of the option
b. The expected life of the option
c. The current value of the underlying shares
d. The expected volatility of the share price
e. The dividends expected on the shares
f. The risk-free interest rate for the life of the option

For the company's share option plan, management's judgment is that the Black-Scholes valuation model is most appropriate for determining fair values as this model allows accounting for non-transferability and early exercise. Since the company became listed in March 2017, there is published share price information available to determine the fair value of its shares and the expected volatility of that value. These assumptions and estimates are further discussed in note 14 to the IFRS consolidated financial statements. The result of the share option valuations and the related compensation expense is dependent on the model and input parameters used.

For the equity-settled Avantium ESOP, the fair value of the grant is determined at the grant date. For the LTIP, the fair value is determined by the share price of the award at the grant date. The fair value of the employee services received in exchange for the grant of the awards is recognised as an expense. For share-based payments that do not vest until the employees have completed a specified period of service, the group recognises the cost of services received as the employees render service during that period.

At each balance sheet date, the company revises its estimates of the number of awards that are expected to become exercisable. It recognises the impact of the revision of original estimates, if any, in the statement of comprehensive income and for the equity settled plan a corresponding adjustment to equity.

The proceeds received from exercised options net of any directly attributable transaction costs are credited to share capital (nominal value) and share premium.

Profit-sharing and Bonus Plans

The group recognises a liability and an expense for bonuses and profit-sharing where contractually obliged or where there is a past practice that has created a constructive obligation.

Termination Benefits

Termination benefits are payable when employment is terminated by the group before the normal retirement date, or when an employee accepts voluntary redundancy in exchange for these benefits. The group recognises termination benefits at the earlier of the following dates: (a) when the group can no longer withdraw the offer of those benefits; and (b) when the entity recognises costs for a restructuring that is within the scope of IAS 37 and involves the payment of terminations benefits. In the case of an offer made to encourage voluntary redundancy, the termination benefits are measured based on the number of employees expected to accept the offer. Benefits falling due more than 12 months after the end of the reporting period are discounted to present value.

2.19 Provisions

Provisions are recognised when the group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount can be reliably estimated.

The group provides for the estimated cost of product warranties at the time revenue is recognised and the group has a constructive obligation. Warranty provision is established based on the group's best estimates of the amounts necessary to settle future and existing claims on products sold as of the balance sheet date.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation.

2.20 Revenue Recognition

Revenue comprises the fair value of the consideration received or receivable for the sale of goods and services in the ordinary course of the group's activities. Revenue is shown net of value-added tax, returns, rebates and discounts and after eliminating sales within the group.

The group recognises revenue when specific criteria have been met for each of the group's activities as described below. The group bases its estimates on historical results, taking into consideration the type of customer, the type of transaction and the specifics of each arrangement.

Sales of Goods

For the supply of goods, revenue is recognised at a point in time, as soon as the control relating to the title of the goods have been transferred to the customer and the entity has a present right to payment. In practice, this is at the shipment date or after installation (if applicable). Contracts related to sale of goods are typically the following:

- System parts
- Consumables
- Material offtake agreements originating from Avantium Renewable Polymers and Avantium Renewable Chemistries

A receivable is recognised when the goods are shipped as this is the point in time that the consideration is unconditional because only the passage of time is required before the payment is due.

Construction Contracts

Revenue and expenses related to Flowrence systems are accounted over time, which recognises revenue as performance of the contract progresses. The company satisfies the criteria prescribed under IFRS 15 for recognising revenue over time, since each sales contract agreed with a customer relates to the creation of a Flowrence system, a tailor-made machine, with varying components for the various chemistries which cannot be used for alternative purposes by the company and the company has an enforceable right to payment for the performance completed to date. The customer has full control over the Flowrence as it is being created.
The customer can direct the specifics of how the asset is to be used and has input on the varying components of the Flowrence being created. The stage of completion is measured by referring to the contract costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Costs incurred in the year in connection with future activity on a contract are excluded from contract costs in determining the stage of completion.

On the balance sheet, the group reports the net contract position for each contract as either a contract asset or a contract liability. A contract represents a contract asset where costs incurred plus recognised profits (less recognised losses) exceed progress billings; a contract represents a contract liability where the opposite is the case.

Variations in contract work, claims and incentive payments are included in contract revenue to the extent that may have been agreed with the customer and can be reliably measured. Where the income of a revenue contract cannot be estimated reliably, contract revenue that is likely to be recovered is recognised to the extent of contract costs incurred. Contract costs are recognised as expenses in the period in which they are incurred.

Multiple Element Arrangements

In certain circumstances, it is necessary to apply the recognition criteria to the separately identifiable components of a single transaction in order to reflect the substance of the transaction. Conversely, the recognition criteria are applied to two or more transactions together when they are linked in such a way that the commercial effect cannot be understood without reference to the series of transactions as a whole.

The group offers arrangements whereby a customer purchases systems and installations services under one arrangement. When such multiple element arrangements exist, an element is accounted for as a separable element if it has value to the customer on a standalone basis and the fair value can be determined objectively and reliably. The transaction price is allocated to each separate element based on the stand-alone selling prices.

When Catalysis systems revenues and installation service revenues are identified as separable elements in a multiple element transaction, the systems revenue recognised is determined based on the standalone selling price of the systems in relation to the transaction price of the arrangement taken as a whole and is recognised as discussed above. The revenue relating to the installation service element, which represents the standalone selling price of the installation services in relation to the transaction price of the arrangement, is recognised on completion of the installation services.

This separation is justified due to the fact that the supply and installation of the goods are offered to the customer separately as the installation can also be executed by an independent third party. Timing of payment by the customer from the supply of goods is based on the contractual identified instalments. This could result, on a product by product basis, in advanced payments. These amounts are reported as contract liabilities on the balance sheet under other current liabilities.

Sales of Services

Revenue from the sales of services is recognised over time recognising revenue based on the actual services provided to the end of the accounting period as a proportion of the total services to be performed.

Timing of payment by the customer from sale of services is based on the contractual identified technical milestones. This could result, on a project by project basis, in contract assets or contract liabilities. These amounts are reported on the balance sheet under other receivables or other current liabilities.

As part of the Renewable Chemistries business development agreements, which constitute solely a step-in, management identified this as one-off revenue recognition at moment of signing the agreements, in accordance with IFRS 15, since it is deemed that once the agreement is signed, no future obligation is to be fulfilled.

If circumstances arise that may change the original estimates of revenues, costs or extent of progress toward completion, estimates are revised. These revisions may result in increases or decreases in estimated revenues or costs and are reflected in income in the period in which the circumstances that give rise to the revision become known by management.

2.21 Grants

Grants and subsidies from third parties are recognised at their fair value when there is a reasonable assurance that the grant will be received, and the group will comply with all attached conditions. Any outstanding receivables related to these grants are recorded as other receivables under current receivables.

Government grants pre-financed amounts received are deferred and recognised in the income statement over the period necessary to match them with the costs that they are intended to compensate.

Government grants relating to property, plant and equipment are included in non-current liabilities as deferred government grants and are credited to the income statement on a straight-line basis over the expected lives of the related assets.

2.22 Interest Income

Interest income is recognised using the effective interest method. When a loan and receivable is impaired, the group reduces the carrying amount to its recoverable amount, being the estimated future cash flow discounted at the original effective interest rate of the instrument and continues unwinding the discount as interest income. Interest income on impaired loan and receivables is recognised using the original effective interest rate.

2.23 Leases

The group leases various offices and a number of vehicles. Rental contracts are generally made for fixed periods of 3 to 10 years but may have extension options. Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants, but leased assets may not be used as security for borrowing purposes.

Contracts may contain both lease and non-lease components. The group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices.

Leases are recognised as right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the group. Each lease payment is allocated between the lease liability and finance cost. The finance cost is charged to the statement of comprehensive income over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. Right-of-use asset are depreciated on a straight-line basis over the remaining term of the lease or over the remaining economic life of the asset, if this is judged to be shorter than the lease term.

Assets and liabilities arising from a lease are initially measured on a present value basis.

Lease terms are negotiated on an individual basis and contain a wide range of different terms and conditions. The lease agreements do not impose any covenants other than the security deposits in the leased assets that are held by the lessor. Leased assets may not be used as security for borrowing purposes.

Lease Liability

Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payments are based on an index or a rate - decommissioning costs; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

The group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Right-of-use Assets

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of the lease liability;
- any lease payments made at or before the commencement date less any lease incentives received - any initial direct costs; and
- onerous contract provisions .

Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis. If the group is reasonably certain to exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

The group has no financial lease obligations.

2.24 Earnings per Share

Basic Earnings per Share

Basic earnings per share is calculated by dividing:

- The profit attributable to owners of the company, excluding any costs of servicing equity other than ordinary shares
- By the weighted average number of ordinary shares outstanding during the financial year, excluding treasury shares (note 15).

Diluted Earnings per Share

Diluted earnings per share adjusts the figures used in the determination of basic earnings per share to take into account:

- The after-income tax effect of interest and other financing costs associated with dilutive potential ordinary shares
- The weighted average number of additional ordinary shares that would have been outstanding assuming the conversion of all dilutive potential ordinary shares.

2.25 Cash Flow Statement

The cash flow statement is presented using the indirect method. Cash flow in foreign currencies are converted at the exchange rate on the date of the cash flow, or based on the average rate.
A distinction is made in the cash flow statement between the cash flows from operating, investment and financing activities.

3. Financial Risk Management

3.1 Financial Risk Factors

The group's activities expose it to a variety of financial risks: market risk (including currency risk, interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. The group's risk management programme focuses on the unpredictable nature of financial markets and seeks to limit any potential adverse effects on financial performance.

Risk management is carried out by the central Finance & Accounting department (Group F&A) under policies approved by the Management Board. Group F&A identifies, evaluates and covers financial risks in close cooperation with the group's operating units. The board provides principles for overall risk management, as well as written policies covering specific areas such as foreign-exchange risk, interest rate risk, credit risk, use of non-derivative financial instruments, and investment of excess liquidity.

Financial instrument by category

Current Financial assets as at December 31

in Euro x 1,000	Notes	2020	2019
Trade receivables	11	1,049	2,644
Other receivables	11	6,434	8,897
Cash and cash equivalents	12	26,626	45,443

Current Financial liabilities as at December 31

in Euro x 1,000	Notes	2020	2019
Trade payables	16	1,910	3,727
Other liabilities	16	6,114	5,418
Deferred government grant	16	5,870	8,223
Lease liabilities	7	1,703	1,534

The carrying amounts of these financial assets and liabilities are assumed to approximate their fair values due to their short-term nature. Also refer to note 16 for an overview of trade and other payables.

Interest Rate Risk

As at 31 December 2020 there were no current or non-current borrowings. As the company has no significant interest bearing assets and liabilities, the direct impact of changes to the group's income and operating cash flow is limited.

Currency Risk

The group operates internationally and is exposed to foreign exchange risk primarily in relation to the US dollar. Foreign exchange risk arises from future commercial transactions, recognised assets and liabilities. Management has set up a policy that requires group companies to manage their foreign exchange risk against their functional currency. The group companies are required to close commercial transactions in euros. Certain US-based customers negotiate US-dollar contracts. There are a limited number of these contracts, and the group companies can only close these with management's written approval. The group's operations are therefore not subject to significant foreign exchange rate risks. Foreign exchange risk arises when future commercial transactions or recognised assets and liabilities are denominated in a currency that is not the entity's functional currency.

The group had outstanding trade receivables in US dollars of $24,000 (2019: $109,000).
The group had no trade receivables in another foreign currency. The group had outstanding trade payables in US dollars of $44,000 (2019: $68,000), in British pound of £29,000 (2019: £14,000) and in Japanese Yen of ¥1,128,000 (2019: ¥5,236,000).

If at 31 December 2020, the euro had weakened by 10% against the US dollar with all other variables held constant, post-tax result for the year would have been €1,500 higher (2019: €4,000 lower). The US dollar cash position as at 31 December 2020 is $16,833 (2019: $12,680).
The group had no cash position in other foreign currencies.

Credit Risk

Credit risk is managed on group basis. The group does not have any significant concentrations of credit risk and is limited to outstanding trade receivables, cash and cash equivalents.
On 31 December 2020, the largest single client exposure consisted of 14% of the outstanding trade receivables. The group clients are subject to creditworthiness tests. Sales are subject to payment conditions varying between payments in advance and 30 days after invoice date. For certain projects, deviations to this rule may apply only after approval of group F&A, in which case additional security, including guarantees and documentary credits, may be required. Management does not expect any losses from non-performance by its clients nor from concentration of this risk.

In 2020, €0 (2019: €0) of trade or other receivables was written off; €438,000 was past due, of which 60% had been paid before 3 March 2021.

The amount of trade and other receivables past due as at December 31, were as follows:

in Euro x 1,000	**2020**	**2019**
More than 1 month past due	207	1,587
More than 3 months past due	81	-
More than 6 months past due	150	-
	438	**1,587**

Impairment provisions for trade receivables are recognised based on the simplified approach within IFRS 9 to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables and contract assets.

To measure the expected credit losses, trade receivables and contract assets have been grouped based on shared credit risk characteristics and the days past due. The contract assets relate to unbilled work in progress and have substantially the same risk characteristics as the trade receivables for the same types of contracts. The group has therefore concluded no provision for credit losses is required on trade receivables and contract assets, since after careful consideration of each customer's payment profile and likelihood to default on payments, the credit losses was deemed to be immaterial.

Trade receivables and contract assets are written off where there is no reasonable expectation of recovery. Indicators that there is no reasonable expectation of recovery include, amongst others, the failure of a customer to engage in a repayment plan with the group, and a failure to make contractual payment for a period of greater than 6 months past due. The group has therefore concluded that a provision of doubtful debt of €150,000 on the trade receivables had to be recognised as at 31 December 2020.

The maximum exposure to credit risk at the reporting date is the carrying value of each class of receivable mentioned above. The group does not hold any collateral as security. The long-term credit ratings of banks used by the group, as at 31 December 2020 at Moody's and S&P subsequently, are as follows. Group funds are held at Rabobank with a long-term credit rating of Aa3 and A+, Deutsche bank with a long-term credit rating between A3 and Baa3, ABN AMRO bank with a long-term credit rating of between A1 and A, and at ING Bank with a long-term credit rating between Baa1 and A-.

Liquidity Risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of committed credit facilities and the ability to close out market positions.

The table below analyses the group's financial liabilities into relevant maturity groupings based on the remaining period at the balance sheet to the contractual maturity. The amounts disclosed in the table are the contractual undiscounted cash flows for continuing operations. The specific time buckets are not mandated by the standard but are based on a choice of management.

As at December 31, 2020:

in Euro x 1,000	**Less than 1 year**	**Between 1 and 2 years**	**Between 2 and 5 year**	**Over 5 years**	**Total**
Lease liabilities	(1,703)	(1,330)	(4,078)	(2,595)	(9,706)
Trade payables	(1,910)	-	-	-	(1,910)
Deferred government grant	(5,870)	-	-	-	(5,870)
Other current liabilities	(6,114)	-	-	-	(6,114)
	(15,598)	**(1,330)**	**(4,078)**	**(2,595)**	**(23,601)**

As at December 31, 2019:

in Euro x 1,000	**Less than 1 year**	**Between 1 and 2 years**	**Between 2 and 5 year**	**Over 5 years**	**Total**
Lease liabilities	(1,534)	(1,309)	(5,333)	(2,622)	(10,798)
Trade payables	(3,727)	-	-	-	(3,727)
Deferred government grant	(8,223)	-	-	-	(8,223)
Other current liabilities	(5,418)	-	-	-	(5,418)
	(18,902)	**(1,309)**	**(5,333)**	**(2,622)**	**(28,166)**

The carrying amounts of these financial liabilities are assumed to approximate their fair values due to their short-term nature.

3.2 Capital Management

The group's objective when managing capital is to safeguard its ability to continue as a going concern (also refer to 2.1.1) in order to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital. To maintain or adjust the capital structure, the group monitors capital on the basis of its adjusted solvency ratio. This ratio is calculated as adjusted equity divided by the adjusted balance sheet total.
The adjusted equity is calculated as equity:

- Minus the intangible assets, participating interests and receivables from shareholders

The adjusted balance sheet total is calculated as total assets:

- Minus the intangible assets, participating interest, receivables from shareholders and shares held in the own company

The adjusted solvency ratios as at December 31, were as follows:

in Euro x 1,000	**2020**	**2019**
Equity attributable to owners of the parent	46,238	68,215
Intangible assets	(559)	(684)
Adjusted equity total	45,678	67,531
Adjusted balance sheet total	69,424	95,834
Adjusted solvency ratio	**66%**	**70%**

4. Critical Accounting Estimates and Judgments

The preparation of financial statements in accordance with IFRS requires the use of certain accounting estimates. It also requires management to exercise its judgement in the process of applying the group's accounting policies. Estimates and judgments are continually evaluated, and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

Income Taxes

The group, which has a history of recent tax losses, recognises deferred tax assets arising from unused tax losses or tax credits only to the extent that the relevant fiscal unity has sufficient taxable temporary differences or there is convincing other evidence that sufficient taxable profit will be available against which the unused tax losses or unused tax credits can be utilised by the fiscal unity. Management's judgment is that there is not a high degree of certainty that sufficient profits will be earned to utilise the losses. Consequently, based on management's judgment, sufficient convincing other evidence is not available, and a deferred tax asset is therefore not recognised.

Share-based Payments

Share options granted to employees are measured at the fair value of the options granted (indirect method of measurement). For the company's share option plan, management's judgment is that the Black-Scholes valuation method is most appropriate for determining fair values. The assumptions and estimates used in the valuation are further discussed in note 14 to the consolidated financial statements.

The result of the share option valuations and the related compensation expense is dependent on the model and input parameters used. Even though management considers the fair values reasonable and defensible based on the methodologies applied and the information available, others might derive at a different fair value for the options granted under the company's share option plan.

Research and Development Expenditures

The project stage forms the basis in the decision of whether costs made for the group's product development programmes should be capitalised or not. Management judgment is required in determining when the group should start capitalising development costs as intangible assets.

Management determined that for a system, commercial feasibility is, in general, probable when the group has built a successful prototype and has interested customers for the commercial product. Management determined that for product development, (note 2.6) commercial feasibility is, in general, probable when the group has successfully completed essential testing phases and are in a late stage of discussions with potential partners for commercialisation opportunities.

Revenue Recognition

The group recognises revenue over time or at point in time depending on the agreed contract performance obligations. For Flowrence® systems and services contracts the group recognises revenue over time as performance of the contract progresses. The performance on a contract relates to fixed-price contracts to construct tailor-made Flowrence® systems which the customers control and cannot be of alternative use to the company. For the Flowrence® systems, the stage of completion is measured by reference to the total contract costs incurred up to the end of the reporting period as a percentage of total estimated costs for each contract. Value is delivered to customers up to each of these points. For services, in order to recognise revenue over time, the group is required to estimate the series of distinct services performed to date as a proportion of the total services to be performed, where also stage gates are present, and value is added up to that point. To define the recognised revenues, the group estimates the required total costs (Flowrence®) or man-hours (services) to complete each project. On a regular basis a review of the total costs or man-hours is performed.

Going Concern

For the critical accounting judgment with regard to the going concern assumption, see note 2.1.1.

Government Grants

The group uses the percentage-of-completion (POC) method in accounting for its government grants it has been awarded. For grant programmes, use of the POC method requires the group to estimate the services/actions performed to date as a proportion of the total services or actions to be performed. For further considerations and assumptions with regard to the critical accounting estimate in relation to government grants, see note 2.21.

Impairment

Judgments and estimates are required, not only to determine whether there is an indication that an asset may be impaired, but also whether indications exist that impairment losses previously recognized may no longer exist or may have decreased (impairment reversal). After indications of impairment have been identified, judgments and estimates are also involved in the determination of the recoverable amount of a non-current asset. The recoverable amount is determined based on the higher of the fair value less cost to sell and the value-in-use. These involve estimates of expected future cash flows (based on future growth rates and remaining useful life) and residual value assumptions, as well as discount rates to calculate the present value of the future cash flows. The future cash flows are calculated using a pre-tax discount rates.

Onerous Contract Provision

In 2019 an onerous lease contract was recognised that required an adjustment to the right-of-use asset at the date of the initial application, 1 January 2019. During 2020 management's intentions for the use of the lease asset changed, which resulted in the onerous contract being reassessed. Management concluded that the requirements of an onerous contract are no longer met.
The onerous contract was reversed on 31 December 2020. Please also refer to note 7 for further information.

Notes to the Consolidated Statement of Financial Position

5. Property, Plant and Equipment

in Euro x 1,000	Leasehold improvements	Laboratory equipment	Hardware	Office furniture and equipment	Construction in progress[1]	Total
At At 1 January 2019						
Cost	15,727	25,428	2,749	1,805	3,632	49,341
Accumulated depreciation	(7,304)	(22,810)	(2,340)	(1,701)	-	(34,155)
Net book amount	**8,424**	**2,617**	**409**	**104**	**3,632**	**15,186**
Year ended 31 December 2019						
Opening net book amount	8,424	2,617	409	104	3,632	15,186
Acquisition of subsidiary	613	7,060	-	263	226	8,163
Additions	5,640	603	72	53	2,091	8,458
Transfers	2,972	133	81	-	(3,186)	-
Depreciation charge	(1,704)	(2,085)	(171)	(170)	-	(4,130)
Closing net book amount	**15,944**	**8,329**	**391**	**250**	**2,763**	**27,677**
At 31 December 2019						
Cost	24,953	33,224	2,901	2,121	2,763	65,962
Accumulated depreciation	(9,008)	(24,895)	(2,510)	(1,871)	-	(38,285)
Net book amount	**15,944**	**8,329**	**391**	**250**	**2,763**	**27,677**
Year ended 31 December 2020						
Opening net book amount	15,945	8,329	391	250	2,763	27,677
Additions	349	707	78	-	2,291	3,425
Disposals	-	(87)	-	-	(18)	(105)
Transfers	61	713	195	7	(976)	-
Accumulated depreciation on disposals	-	58	-	-	-	58
Impairment charge	-	(38)	-	-	-	(38)
Depreciation charge	(3,297)	(2,161)	(201)	(159)	-	(5,818)
Closing net book amount	**13,058**	**7,521**	**463**	**97**	**4,060**	**25,198**
At 31 December 2020						
Cost	25,364	34,519	3,174	2,127	4,060	69,244
Accumulated depreciation	(12,305)	(26,999)	(2,712)	(2,030)	-	(44,045)
Net book amount	**13,058**	**7,521**	**463**	**97**	**4,060**	**25,198**

[1] During 2020 errors relating to the transfer from construction in progress to the relevant asset classes for both 2018 and 2019 were identified. The correction of the 2018 transfer is earlier that the earliest period presented and it is corrected in the opening balance of 2019. The opening balance as at 1 January 2019 is corrected with the reclassification of €3,742,000 as a transfer from construction in progress to the respective asset class. The transfer correction for 2019 is €3,186,000. The error for both 2018 and 2019 is only relating to the classification in the note and has no financial impact on the statement of financial position and statement of comprehensive income.

The additions in property plant and equipment during 2020 predominantly relate to the investment in the FEED process by Avantium Renewable Polymers segment, finalisation of engineering and construction of pilot plant in Delfzijl for the Avantium Renewable Chemistries segment and upgrades to equipment for the Avantium Catalysis segment.

6. Intangible Assets

(In Euro x 1,000)	Development costs	Software	Intellectual Property	Other	Total
At 1 January 2019					
Cost	2,159	7,043	433	1,042	10,676
Accumulated amortization and impairment	(2,159)	(6,828)	-	(967)	(9,954)
Net book amount	**-**	**214**	**433**	**75**	**722**
Year ended 31 December 2019					
Opening net book amount	-	214	433	75	722
Acquisition of subsidiary	-	63	-	-	63
Additions	-	65	-	22	86
Transfers	-	(5)	-	-	(5)
Amortization charge	-	(183)	-	-	(183)
Closing net book amount	**-**	**155**	**433**	**97**	**684**
At 31 December 2019					
Cost	2,159	7,165	433	1,064	10,821
Accumulated amortization and impairment	(2,159)	(7,011)	-	(967)	(10,137)
Net book amount	**-**	**155**	**433**	**97**	**684**
Year ended Year ended 31 December 2020					
Opening net book amount	-	155	433	97	684
Additions	-	27	-	-	27
Amortization charge	-	(152)	-	-	(152)
Closing net book amount	**-**	**30**	**433**	**97**	**559**
At 31 December 2020					
Cost	2,159	7,193	433	1,064	10,848
Accumulated amortization and impairment	(2,159)	(7,163)	-	(967)	(10,289)
Net book amount	**-**	**30**	**433**	**97**	**559**

Development Costs

The development costs consist of the development and prototype expenses of the Flowrence system and are all fully amortised.

Software and Other Intangibles

Software mainly comprises purchased general laboratory and office-related software. Other intangibles are the in-kind contribution of a shareholder relating to software at the foundation of the group and compensation paid to a third party to exclusively use parts of their technology.

Intellectual Property

Following the Liquid Light acquisition in 2016, the company records intellectual property (patent portfolio acquired) on its consolidated balance sheet, which will subsequently be lowered with accumulated amortisation the following years, when the technology on which the intellectual property is filed, is ready to deploy commercially. As at 31 December 2020, the recoverable amount of the intellectual property exceeds the carrying amount.

Total of research expenditures recognised as an expense in the consolidated statement of comprehensive income amounted to €1,008,000 and mainly constitute of early stage research trials.

7. Leases

This note provides information for leases where the group is a lessee.

Amounts Recognised in the Balance Sheet

The balance sheet shows the following amounts relating to leases:

in Euro x 1,000	**31-12-2020**	**31-12-2019**
Properties	8,877	9,469
Motor vehicles	165	263
Total right-of-use assets	**9,042**	**9,732**

in Euro x 1,000	**31-12-2020**	**31-12-2019**
Current lease liabilities	1,703	1,534
Non-current lease liabilities	8,003	9,264
Total Lease liabilities	**9,706**	**10,798**

Additions to the right-of-use assets during the 2020 financial year were nil (2019: nil).

Amounts Recognised in the Statement of Comprehensive Income

The statement of comprehensive income shows the following amounts relating to leases:

in Euro x 1,000	**31-12-2020**	**31-12-2019**
Properties	1,490	1,537
Motor vehicles	99	99
Total depreciation charge of right-of-use assets	**1,589**	**1,635**

in Euro x 1,000	**31-12-2020**	**31-12-2019**
Interest expense included in finance cost	217	239
Total interest charge on lease liabilities	**217**	**239**

The cash flow net of VAT related to principal elements of the lease payments amounted to €1,608,000 (2019: €1,669,000).

Some of the lease agreements contain variable lease elements that are linked to the usage of the lease, which is not included in the measurement of the lease liability. The variable lease payments for the year not included in the measurement of the lease liability amounted to €342,000 (2019: €670,000).

8. Investments in Joint Ventures and Associates

Investments in joint ventures and associates related to the joint venture that Avantium established with BASF, Synvina C.V. on 30 November 2016.

In January 2019, BASF exited the Joint venture, which lead to the repurchase of BASF shares in Synvina by Avantium. The economic transfer took place on 15 January 2019, whereas the legal transfer of control took place on 25 January 2019.

The share in loss of the joint venture of €259,000 is the result of the 49% stake in the Synvina joint venture up to and including 15 January 2019, which after the Joint venture was unwound and the unwinding interest reclassified as an investment in subsidiaries, refer to note 9.

The carrying amount of the equity-accounted investments changed as follows:

(In Euro x 1,000)	
At 31 December, 2018	**4,249**
Share in loss of joint venture	(259)
Dividend	-
At 15 January 2019	**3,990**
Unwinding of joint venture	(3,990)
At 31 December 2019	**-**
Share in loss of joint venture	-
At December 31, 2020	**-**

Upon the exit of BASF, Avantium N.V. gained full control over the investment in the joint venture and consequently this investment was reclassified from interests in joint ventures and associates to investments in subsidiaries. For further information of this step-up acquisition, refer to note 9.

9. Business Combinations

Avantium N.V. acquired 51% of the issued shares in Synvina C.V. on 15 January 2019, for a consideration of €17.4 million in cash. This was considered a step-acquisition, and was accounted for using the acquisition method at the acquisition date.

The group's previously held interest in Synvina was re-measured to its fair value at acquisition date. Given the composition of the assets acquired in Synvina, mainly consisted of recently acquired property, plant and equipment, receivables/payables and other financial assets, the assets fair value was deemed to be equal to their respective carrying values as at 15 January 2019.

The assets and liabilities recognised as a result of the acquisition during 2019 was as follows:

in Euro x 1,000	**15-01-2019**
Property, plant and equipment	8,163
Intangible assets	63
Right of use assets	2,869
Inventories	137
Cash and cash equivalents	12,434
Other receivables	1,249
Other payables	(5,494)
Other current liabilities	(8,373)
Lease liabilities	(2,869)
Net identifiable assets as at 15 January 2019	**8,179**
Unwinding of Joint venture	(3,990)
Onerous contract provision settlement	13,088
Onerous contract expense	232
Other intercompany settlements	(100)
Total consideration paid	**17,409**

The consideration transferred for the controlling interest in the Subsidiary, amounted to €4,189,000 with existing interest valued at €3,990,000 that was transferred from the investment in joint venture and associates.

The impact on the statement of cash flows was as follows:

in Euro x 1,000	31-12-2020	31-12-2019
Acquisition of Subsidary	-	(4,189)
Settlement of onerous contract provision	-	(13,088)
Acquisition of Subsidary admin costs	-	(232)
Other intercompany settlements	-	100

10. Inventories

(In Euro x 1,000)	31-12-2020	31-12-2019
Raw materials	875	992
Work in progress	350	448
	1,225	**1,440**

The costs of inventories recognised as an expense and included in raw materials and contract costs, amounted to €269,000 (2019: €273,000).

11. Trade and Other Receivables

(In Euro x 1,000)	31-12-2020	31-12-2019
Trade receivables	1,049	2,644
Less: Allowance for doubtful debt	(150)	-
Social security and other taxes	606	2,062
Prepayments	317	224
Contract assets	3,059	4,379
Other receivables	2,452	2,233
Current portion	**7,333**	**11,541**

The other receivables comprise primarily of funding to be received in relation to government grants where the company has already complied with the attached conditions under the specific grant program (€2,215,000) and deposits held at third parties (€237,000).

In 2020, €0 (2019: €0) of trade receivables was written off and €438,000 (30 days or more after invoice date) was past due, of which 60% was paid before 3 March 2021 and of the remaining 40%, 11% is for one credit worthy customer.

Trade receivables and contract assets are written off where there is no reasonable expectation of recovery. The company assessed the trade receivables balance as at 31 December 2020 and concluded that there is no reasonable expectation of recovery of these receivable balances and therefore a provision for doubtful debt of €150,000 is recognised (see also note 3.1).
The carrying amounts of these financial assets are assumed to approximate their fair values.

Impairment provisions for trade receivables are recognised based on the simplified approach within IFRS 9 to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables and contract assets.

To measure the expected credit losses, trade receivables and contract assets have been grouped based on shared credit risk characteristics and the days past due. The contract assets relate to unbilled work in progress and have substantially the same risk characteristics as the trade receivables for the same types of contracts. The group has therefore concluded no provision for credit losses is required on trade receivables and contract assets, since after careful consideration of each customer's payment profile and likelihood to default on payments, the credit losses was deemed to be immaterial.

12. Cash and Cash Equivalents

(In Euro x 1,000)	31-12-2020	31-12-2019
Cash at bank and on hand	25,126	45,443
Restricted cash	1,500	-
Cash and cash equivalents for cash flow purposes	**26,626**	**45,443**

The carrying amounts of these financial assets are assumed to approximate their fair values. A notional cash pool agreement is in place for all Rabobank accounts where balances are netted on a daily basis. Within the cash pool, there are €0 overdrafts.

The cash and cash equivalents presented in the consolidated statement of financial position and the consolidated statement of cash flow include restricted cash of €1.5 million, deposit held with Rabobank, which represent an amount equal to the current outstanding bank guarantees issued to third parties. For further information on commitments issued to third parties, refer to note 28.

13. Share Capital and Other Reserves

Avantium N.V. listed on Euronext Amsterdam and Euronext Brussels.

13.1 Ordinary Shares

The authorised share capital amounted to €4,500,000 consisting of 45,000,000 ordinary shares, with a nominal value of €0.10 each. The issued share capital at 31 December 2020 comprises 25,912,170 ordinary shares (2019: 25,831,817). In 2020, 136,640 options were exercised by employees, from these option exercises, 80,343 resulted in additional ordinary shares issued. The residual 53,297 option exercises were delivered in shares covered by shares held in treasury with the Stichting Administratiekantoor. At 31 December 2020, zero (2019: 53,297) shares were held by the Stichting Administratiekantoor Avantium (the Foundation) and nil employee shares were repurchased. All 25,912,170 shares issued are fully paid and stated at its par value of €0.10 each.

13.2 Other Reserves

The costs of equity settled share-based payments to employees are recognised in the statement of comprehensive income, together with a corresponding increase in equity during the vesting period, taking into account (deferral of) corporate income taxes. The accumulated expense of the share incentive plan recognised in the statement of comprehensive income is shown as a total of the equity category 'other reserves' in the consolidated statement of changes in equity.

13.3 Currency Translation Difference

The group does not hold a company reporting in any other currency than euros and therefore does not hold a currency translation reserve.

13.4 Treasury Shares

The total value of treasury shares outstanding at 31 December 2020 is €616,000 (2019: €622,000).

14. Share-based Payment

The group operates share-based compensation plans for its employees, which consists of an Employee Share Option Plan (ESOP) and a Long-term Incentive Plan (LTIP). These plans are classified as equity-settled share-based payment plans which was initially adopted in 2006 and replaced by the new share-based compensation plans at the IPO in 2017. Note that there was a reverse share split in 2017, where the nominal value of the shares increased from €0.01 to €0.10.

Long-term Investment Plan (LTIP)

The members of the management team are obligated to invest a percentage of their (net) bonus in (depositary receipts for) shares to be delivered by the company under the LTIP. Each Investment share relates to one share. The cash component of the bonus may, at the discretion of the relevant member of the management team, also be invested in Investment shares. The Investment shares are subject to a retention period of five years, during which the investment shares cannot be sold. After the end of the retention period, the company will match the (depository receipts for) shares granted under the LTIP at a 1:1 ratio, i.e. one Matching share is granted for each Investment share.

The entitlement to receive Matching shares will be reduced as follows in the case of termination: 100% if the termination date is prior to the first anniversary of the date of Award; 66.67% if the termination date is prior to the second anniversary but after the first anniversary of the date of Award; 33.33% if the termination date is prior to the third anniversary but after the second anniversary of the date of Award.

In 2020, 92,240 additional awards were granted under the Long term Investment Plan (LTIP). These awards consist of 46,120 Investment shares and 46,120 Matching shares.

Further details on the grants in 2020 can be found in the table below:

Grant date	Plan	Number of LTIP awards granted	Share price in Euro at grant date
14 May 2020	LTIP	92,240	3.59

The movements in outstanding LTIP awards with the Management Board and senior management can be summarised as follows:

Long-term Investment Plan	2020		2019	
	Number of awards	Weighted Average share price at grant date (in Euro)	Number of awards	Weighted Average share price at grant date (in Euro)
Number of awards outstanding 1 January	**87,254**	**5.36**	**76,416**	**5.98**
Number of matching shares forfeited	-	-	(11,740)	4.13
Number of awards granted (including matching shares)	92,240	3.59	22,578	2.64
Number of awards outstanding 31 December	**179,494**	**4.45**	**87,254**	**5.36**

LTIP awards outstanding at the end of the year had the following share price at grant date:

Grant date	Share price at grant date in Euro	Number of awards
1 July 2017	10.50	5,418
16 March 2018	5.36	65,155
21 March 2019	2.64	16,681
14 May 2020	3.59	92,240
At 31 December 2020		**179,494**

The fair value of LTIP awards under the Long-term Investment Plan is determined by the share price at grant date and the weighted average fair value of LTIP awards granted during 2020 was €3.59 per award (2019: €2.64).

Employee Share Option Plan (ESOP)

On an annual basis and on certain other occasions set out in the plan rules, options under the Employee Share Option Plan (ESOP) may be conditionally granted to eligible employees of the company. The options will vest yearly over a three-year vesting period. The vested options have an exercise period of five years after vesting, after which the option expires.

In 2020, 591,960 share options were granted. In 2020, 136,640 options were exercised with a weighted-average share price of €5.71 at the date of exercise by the employees. Further details on the grants in 2020 can be found in the table below.

Grant date	Plan	Number of ESOP options granted	Exercise price in Euro per option
16 May 2019	ESOP	615,000	2.60
12 November 2019	ESOP	15,000	2.68
14 May 2020	ESOP	533,500	3.59
30 September 2020	ESOP	43,460	5.78

The movements in outstanding options with the Management Board, senior management and certain other employees can be summarised as follows:

Share Option	2020		2019	
	Number of options	Weighted Average exercise price (in Euro)	Number of options	Weighted Average exercise price (in Euro)
Number of options outstanding 1 January	**2,149,587**	**2.46**	**1,758,906**	**2.79**
Number of options exercised	(136,640)	5.71	(22,260)	2.59
Number of options forfeited	(104,583)	5.85	(202,059)	5.75
Number of options granted	591,960	3.73	615,000	2.60
Number of options outstanding 31 December	**2,500,324**	**2.44**	**2,149,587**	**2.46**

Share options outstanding at December 31, 2020, amounted to 2,500,324. The exercise prices range from €0.10 to €10.58. The weighted average remaining contractual term for options outstanding at December 31, 2020, was 4.8 years.

Avantium N.V. has issued shares resulting from the exercise of options to the Stichting Administratiekantoor Avantium (the Foundation).

The Foundation has issued depository receipts to members of the Management Board, senior management and certain other employees. The Foundation is a consolidated special purpose entity set up by Avantium N.V. The shares held by the Foundation, however, only represent the voting rights associated with the issued shares and depository receipts representing all economic benefits issued by the Foundation to members of the Management Board, senior management and certain other employees, and consequently the shares held by the Foundation are not considered treasury shares.

The number of options which are exercisable at the end of the period (i.e. vested, but not yet exercised) amounted to 1,098,236.

The fair value of options under the equity-settled share-based payment plans is determined using the Black-Scholes valuation model and the weighted average fair value of options granted during 2020 was €1.56 per option (2019: €0.99).

The significant inputs into this model were as follows:

	30 September 2020	14 May 2020	12 November 2019
Input price	5.78	3.59	2.68
Volatility	43%	41%	35%
Risk free interest rate	-0.59%	-0.56%	-0.32%
Dividend yield	-	-	-
Expected life	7.6 years	7.6 years	7.6 years
Early exercise rate	5%	5%	5%

The historical volatility used is based on the volatility of the company's own shares in combination with the historical volatility of a peer group (five companies in total which are considered to be comparable listed companies), of which the daily stock returns over a period equal to the maturities of each plan related to the valuation dates was used.

During the year, a reclassification was made from other reserves to retained earnings, totalling €299,698, to reflect the effect of exercised, expired and forfeited options in 2020.

15. Earnings per Share

Earnings per Share

Earnings per share for the years 2020 and 2019 are derived below:

In Euro	31-12-2020	31-12-2019
Loss from continuing operations	(22,829,594)	(23,544,000)
Loss for the period - basic	**(22,829,594)**	**(23,544,000)**
Dilutive adjustments	-	-
Loss for the period - diluted	**(22,829,594)**	**(23,544,000)**
Weighted average number of ordinary shares	**25,886,849**	**25,831,817**
Number		
Options per end of the year	2,500,324	2,149,586
LTIP awards per end of the year	179,494	87,254
Effect of dilutive / anti-dilutive securities	**2,679,818**	**2,236,840**
Weighted average number of shares - diluted	**25,886,849**	**25,831,817**
In Euro		
Earnings per share - basic	**(0.88)**	**(0.91)**
Earnings per share - diluted	**(0.88)**	**(0.91)**

Basic earnings per share are calculated by dividing the net result for the period by the weighted average number of ordinary shares. Diluted earnings per share are calculated by dividing the net results for the period on a diluted basis by the weighted average number of shares on a diluted basis. As the company is in a loss-making position, the options and LTIP awards have an antidilutive impact on the diluted earnings per share, for this reason the options and LTIP awards for the year are not considered in the calculation of diluted earnings per share.

16. Trade and Other payables

(In Euro x 1,000)	31-12-2020	31-12-2019
Trade payables	1,910	3,727
Social security and other taxes	428	-
Holiday pay and holiday days	1,292	991
Contract liabilities	1,580	1,326
Deferred government grants	5,870	8,223
Other current liabilities	2,814	3,101
	13,894	**17,367**

The other current liabilities comprise primarily of other staff pay related accruals (€1,027,000) and accrued expenses (€1,787,000). Deferred government grants comprise of advances received in relation to government grants. The carrying amounts of these financial liabilities are assumed to approximate their fair values.

Contract liabilities relating to systems contracts are balances due to customers under construction contracts. These arise if a particular milestone payment exceeds the revenue recognised to date under the percentage-of-completion method. Contract liabilities relating to services are balances due to customers under services contracts. These arise if particular services are to be rendered over time for which a prepayment has been received.

The following table shows how much of the revenue recognised in the current reporting period relates to carried-forward contract liabilities:

In Euro x 1,000)	31-12-2020	31-12-2019
Revenue recognized that was included in the contract liability balance at the beginning of the period		
▪ Systems contracts	197	545
▪ Services contracts	161	211
▪ Renewable chemistries	-	-
	358	**756**

17. Borrowings

The group had no borrowings in 2020 and 2019.

Bank Overdrafts

During 2020, the group decided to cancel the committed banking facility with Rabobank of €4.0 million, as this facility remained undrawn and the group had no intention to utilise this facility in the foreseeable future. As at 31 December 2020, the group had no overdraft facilities with any bank.

18. Provisions for Other Liabilities and Charges

(In Euro x 1,000)	**Warranty provision**	**Onerous contract with Synvina provision**	**Total**
Balance at 1 January 2019	**157**	**13,088**	**13,244**
Additional provision	68	-	68
Unused amounts reversed	(78)	-	(78)
Settlement of provision	-	(13,088)	(13,088)
Used during the year	(10)	-	(10)
At Balance at 31 December 2019	**137**	**-**	**137**
Balance at 1 January 2020	**137**	**-**	**137**
Additional provision	38	-	38
Unused amounts reversed	(27)	-	(27)
Used during the year	(4)	-	(4)
Balance at 31 December 2020	**145**	**-**	**145**

Warranty

The provision for warranty consists of estimated costs for repairs of installed products during the warranty period of one year. This estimate is based on historical experience of broken or repaired units and the costs associated with that. This provision is current (shorter than one year). Unused amounts are reversed after expiration of the warranty period.

Notes to the Consolidated Statement of Comprehensive Income

19. Revenues

Reported consolidated revenue from continuing operations decreased by 29% from €13.8 million in 2019 to €9.9 million in 2020. All revenue is recognised over time, except for revenues from renewable chemistry development agreements, systems revenue generated out of spare parts sold and Material offtake agreements (MTA) from Renewable Polymers (see note 2.20). Revenues per segment are reported under note 21. All revenue reported originates in the Netherlands.

The following table depicts the disaggregation of revenue from contracts with customers:

2020 (in Eurox 1,000)	Catalysis services revenue	Catalysis systems revenue	Renewable Chemistry development agreements	Renewable Polymers MTA agreements	Total
Segment revenue	3,323	5,851	405	285	9,863
Revenue from external customers	**3,323**	**5,851**	**405**	**285**	**9,863**
Timing of revenue recognision					
▪ At a point in time	-	622	405	285	1,312
▪ Over time	3,323	5,229	-	-	8,552
Total	**3,323**	**5,851**	**405**	**285**	**9,863**

2019 (in Euro x 1,000)	Catalysis services revenue	Catalysis systems revenue	Renewable Chemistry development agreements	Renewable Polymers MTA agreements	Total
Segment revenue	3,064	9,391	1,195	170	13,821
Revenue from external customers	**3,064**	**9,391**	**1,195**	**170**	**13,821**
Timing of revenue recognision					
▪ At a point in time	-	-	1,195	170	1,365
▪ Over time	3,064	9,391	-	-	12,456
Total	**3,064**	**9,391**	**1,195**	**170**	**13,821**

As of 31 December 2020, the aggregate amount of the transaction price in Catalysis allocated to the remaining performance obligations is €7.8 million (2019: €8.8 million) and the group will recognise this revenue as the progress on each contract is completed, which is estimated to occur over the next 9–24 months.

20. Other Income

(In Euro x 1,000)	31-12-2020	31-12-2019
Grants recognised	8,403	4,217
	8,403	**4,217**

The group recognised total government grants of €8,403,000 (2019: €4,217,000) to contribute to Avantium's development programmes, where efforts are focused on developing a new catalytic process for making bio-based ethylene-glycol and on developing an economical viable chemical process to convert ligno-cellulosic biomass into high quality glucose as feedstock for bio-based chemical, and in Renewable Polymers, for its plant-to-plastics YXY Technology®.

21. Segment Information

Description of the Segments and Principal Activities

In the company, the management team consists of the Chief Executive Officer, Chief Financial Officer, Chief Technology Officer, Group Legal Counsel, and the Managing Directors of Avantium Renewable Chemistries, Avantium Catalysis, and Avantium Renewable Polymers. It has identified three separate business segments:

- Avantium Catalysis provides advanced catalysis R&D services, systems and testing to industry-leading global customers. Catalysts help to limit the environmental impact of the petrochemical industry by making processes more efficient, reducing unwanted side products, and removing impurities and pollutants. With the scalable catalyst testing system, Flowrence®, Avantium Catalysis helps customers reach their sustainability, profit and growth targets.
- Avantium Renewable Chemistries develops PlantMEG. PlantMEG is a plant-based and cost-competitive alternative for fossil-based MEG – an important chemical building block for PET and PEF resin, both of which are used in bottles and packaging; fibres for clothing, furniture and the automotive industry; and solvents and coolants. The common basis, on which each activity rests, is formed by Avantium's unique technological capabilities that have been validated through the execution of millions of experiments, covering a broad range of chemistries, including highly complex and challenging R&D projects. The portfolio of programmes includes the Volta programme, and the Dawn Technology and Ray Technology™.
- Avantium Renewable Polymers aims to commercialise our YXY plants-to-plastics Technology®. This technology catalytically converts plant-based sugars into FDCA (furandicarboxylic acid) and materials such as the new plant-based packaging material PEF (polyethylene furanoate). PEF is a 100% plant-based, 100% recyclable plastic with superior performance properties compared to today's widely used petroleum-based packaging materials.

All employees of Avantium are employed in the Netherlands. The average number of full time equivalent employees of the group per business segment and other departments is as follows:

(in full time equivalent employees)	31-12-2020	31-12-2019
Catalysis	47	50
Renewable Chemistries	71	68
Renewable Polymers	54	55
Unallocated	40	39
Total average number of FTE during the year	**211**	**213**

EBITDA

The main KPI of the company within the profit & loss account is EBITDA. Note that the EBITDA figure excludes company overheads and shared service activities.

The EBITDA is calculated in the following manner: Profit/loss for the period plus Finance costs-net plus depreciation, amortisation and impairment charge.

The EBITDA figures of the business segments are as follows.

(In Euro x 1,000)	31-12-2020	31-12-2019
Catalysis	2,582	3,735
Renewable Chemistries	(1,605)	(2,971)
Renewable Polymers	(7,331)	(7,941)
Total EBITDA of business segments	**(6,353)**	**(7,177)**

Revenues per Segment

(In Euro x 1,000)	**31-12-2020**	**31-12-2019**
Catalysis	9,173	12,456
Renewable Chemistries	405	1,195
Renewable Polymers	285	170
Total segment revenue	**9,863**	**13,821**

Revenue is only generated from external customers and no transactions with other segments have taken place.

Other Income per Segment

(In Euro x 1,000)	**31-12-2020**	**31-12-2019**
Catalysis	235	85
Renewable Chemistries	5,764	3,467
Renewable Polymers	2,288	531
Unallocated items	116	134
Total segment other income	**8,403**	**4,217**

Reconciliation

(In Euro x 1,000)	**31-12-2020**	**31-12-2019**
Total EBITDA of business segments	(6,353)	(7,177)
Amortisation	(152)	(183)
Depreciation of property, plant and equipment	(5,856)	(4,130)
Depreciation of right of use assets	(1,589)	(1,635)
Finance costs - net	(325)	(319)
Share based compensation	(895)	(813)
Rent	(179)	(193)
Share in loss of joint ventures	-	(259)
Reversal / (Expense) due for onerous contract	492	(724)
Company overheads/other	(7,971)	(8,112)
Loss before income tax from continuing operations	**(22,830)**	**(23,544)**

The ‘Other’ costs category comprises mainly of company overhead costs.

Depreciation and Amortisation

(In Euro x 1,000)	**31-12-2020**	**31-12-2019**
Catalysis	(513)	(558)
Renewable Chemistries	(3,474)	(1,991)
Renewable Polymers	(1,932)	(1,840)
Unallocated items	(1,677)	(1,558)
Total Depreciation and amortisation	**(7,597)**	**(5,948)**

22. Expenses by Nature

Net operating expenses in 2020 amounted to €33.2 million (2019: €35.1 million). The decrease in costs in 2020 was mainly as a result of lower expenditure on raw material and contract costs and advertising and representation expenses. Which is explained in further detail below. In addition, the one-off reversal of the onerous contract expenses lead to a lower net operating expense in 2020.

Depreciation, amortisation and impairment charges increased to €7,597,000 (2019: €5,948,000). The increase is mainly a result of the pilot plant in Delfzijl for the Avantium Renewable Chemistries segment, being depreciated for a full year in 2020 compared to prior year.

Raw materials and contract costs in 2020 amounted to €2,339,000 (2019: €3,666,000) and comprises of cost of goods sold, costs of laboratory consumables directly attributable to revenue projects, and other specific costs related to revenues. The decrease is mainly as a result of the lower revenues for the year.

Patent, license, legal and advisory costs in 2020 amounted to €4,204,000 (2019: €3,185,000). The increase is mainly due to advisors hired by Avantium Renewable Polymers in preparation for the Final Investment Decision.

Other operating expenses in 2020 amounted to €1,528,000 (2019: €890,000) and comprises of external development costs, such as trials, and other general costs including company insurances. The increase is mainly related to external development costs incurred by Avantium Renewable Polymers.

Advertising and representation expenses in 2020 amounted to €679,000 (2019: €1,438,000) and comprises of external and internal marketing, communications, and business development efforts, including travel. Wages for internal business development staff is excluded, as this is included under employee benefit expenses. The decrease is mainly attributable to COVID-19, as travel restrictions have been heavily imposed across the world during 2020.

Employee benefit expenses in 2020 amounted to €19,262,000 (2019: €19,747,000) and includes wages and salaries, social security costs, share options granted to directors and employees, pension costs, and government grants received. The decrease is mainly due to a number of employee related costs of which substantially reduced with the COVID-19 restrictions, resulting in a reduction in the demand for catering, home/office travel and flex workers.

Office and housing expenses in 2020 amounted to €1,990,000 (2019: €1,800,000) and comprises of short-term rental agreements, other facility related costs, telephony and other IT related office materials and costs. Laboratory expenses in 2020 amounted to €3,664,000 (2019: €3,606,000) and comprises of laboratory consumables, spare parts, maintenance and repair work in the laboratory, and small laboratory projects.

23. Employee Benefits

(In Euro x 1,000)	31-12-2020	31-12-2019
Wages and salaries	18,282	18,813
Government grants R&D (WBSO)	(3,032)	(2,939)
Social security costs	2,203	2,201
ESOP expense (note 14)	702	574
LTIP awards expense (note 14)	193	239
Pension costs - defined contribution plans	913	859
	19,262	**19,747**
Number of full time equivalent employees at the end of the year	**218**	**209**

The average number of FTEs during 2020 was 211 (2019: 213).

In 2020, €3,032,000 (2019: €2,939,000) government grants in the form of WBSO were recognised directly as an offset of employee benefit expenses.

24. Finance Income and Costs

(In Euro x 1,000)	31-12-2020	31-12-2019
Finance costs:		
Net foreign exchange (gains) loss	1	12
Interest current accounts	69	17
Financing component of lease payments	217	239
Other finance costs	76	77
Finance costs	**362**	**345**
Finance income:		
Interest current accounts	(37)	(27)
Finance income	**(37)**	**(27)**
Finance costs - net	**325**	**319**

25. Income Tax Expense

No tax charges or tax income were recognised in 2020 and 2019, respectively since the company was in a loss-making position and no deferred tax asset was recognised for carry-forward losses. The loss in 2020 was mainly driven by the incorporation of Renewable Polymers cost base into the consolidated financial statements of Avantium as well as significant investments in product development programmes. As a result of the significant investment in our product development programmes, the company does not expect any taxable income in the following year(s).
The company forms an income tax group with its subsidiaries. Under the standard conditions, the members of the tax group are jointly and severally liable for any taxes payable by the group. Tax loss carry-forward is subject to a time limitation of nine years. As from 1 January 2019, the carry forward term has been reduced from nine to six years; however for the tax losses incurred prior to 2020 the loss carry forward term remains nine years.

For corporate income tax purposes IP is valued and being amortised over a period of 10 years resulting in an additional depreciation which ensures that the carry-forward losses will increase again. The total amount of tax losses carried forward as of 31 December 2020 is estimated at €175,150,000 and a first part (the loss of 2012) will expire in 2022, which is estimated at €15,203,000.

(In Euro x 1,000)	31-12-2020	31-12-2019
Current tax	-	-
Deferred tax	-	-
Loss before tax	**(22,830)**	**(23,544)**
Temporary differences	-	-
Expenses not deductible for tax purposes	-	-
Loss for the year offset against available tax losses	(22,830)	(23,544)
Tax losses for which no deferred income tax asset was recognized	-	-
Tax charge	**-**	**-**

The nominal tax rates and amount in 2020 are 19% up to €200,000 and 25% over €200,000.

26. Dividends

The company declared no dividends for any of the years presented in these consolidated financial statements.

Other Notes to the Consolidated Financial Statements

27. Contingencies

During 2020, the company reassessed the facility agreement it had in place with Rabobank. Given that the group never drew on this credit facility in the past and had no intention to do so in the future, the company decided to cancel the committed credit facility of €4.0 million.

The company has been released of all covenants that were applicable under the revolving credit facility agreement and therefore there is no longer any of the group's assets held as pledge.

28. Commitments & Guarantees

Guarantees

With the renegotiation of the revolving credit facility agreement, the company also renegotiated a new €3.0 million cash-collateralised guarantee facility, which replaced the initial €2.0 million guarantee facility the company had in the prior years.

This guarantee facility is also disclosed as part of the cash equivalents in note 12, which represents an amount equal to the current guarantees issued to third parties totalling €1,472,000. These guarantees are primarily issued in relation to payments from customers following a systems deal for which a bank guarantee had to be issued.

29. Related-party Transactions

Identification of Related Parties

Key management is defined as those persons having legal authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of that entity. Our key management comprises the members of the Management Board and the Supervisory Board.

Key Management Changes 2020

At the Annual General Meeting of Shareholders (General Meeting) on 14 May 2020, Michelle Jou was appointed as a Supervisory Board member for a term of four years. At the end of an Extraordinary General Meeting (EGM) on 30 September 2020, Denis Lucquin retired as a member of the Supervisory Board, after serving on it for almost a decade. At the same EGM, Cynthia Arnold and Trudy Schoolenberg were appointed as Supervisory Board members for a term of four years.The following persons were members of the Supervisory Board on 31 December 2020:

- Edwin Moses, Chairperson
- Margret Kleinsman, Vice Chairperson
- Trudy Schoolenberg
- Cynthia Arnold
- Michelle Jou

Key Management Remuneration Policy

Avantium does not grant its key management with any personal loans, guarantees or advance payments. For further information on the remuneration policy refer to p. 74 - 88.

Key Management Remuneration 2020

The total remuneration paid to members of the Management Board and independent members of the Supervisory Board amounted to €737,000 (2019: €1,208,000) and €321,000 (2019: €262,000) respectively.

The following table provides a breakdown of the remuneration in 2020 of the members of the Management Board:

(In Euro x 1,000) Management Board	Salary	Other benefits[25]	Cash bonus	Investment share bonus	Share-based payments	Post-employee benefits	Severance payments	Total Remuneration
T.B. van Aken								
2020	268	26	-	-	117	19	-	430
2019	261	27	59	59	116	17	-	540
B.J.J.V. Welten								
2020	228	26	-	-	29	25	-	307
2019	-	-	-	-	-	-	-	-
F.C.H. Roerink (former CFO)								
2020	-	-	-	-	-	-	-	-
2019	235	32	92	-	58	17	235	668
Total - 2020	**495**	**52**	**-**	**-**	**145**	**44**	**-**	**737**
Total - 2019	**496**	**59**	**151**	**59**	**174**	**34**	**235**	**1,208**

The following table provides a breakdown of the remuneration in 2020 of the members of the Supervisory Board:

(In Euro x 1,000)		Annual fee[1]	Share-based payments		Travel expenses			Total
Supervisory Board member	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**	**2020**	**2019**
E. Moses	90	3	48	-	-	-	138	3
M.G. Kleinsman	50	50	-	-	-	-	50	50
G.E. Schoolenberg	13	-	-	-	-	-	13	-
M.B.B. Jou	32	-	17	-	1	-	50	-
CA. Arnold	13	-	12	-	1	-	26	-
Total Supervisory Board members	**198**	**53**	**77**	**-**	**2**	**-**	**277**	**53**
Former Supervisory Board members								
K. Verhaar	-	90	-	-	-	-	-	90
D.J. Lucquin	37	50	-	-	7	-	44	50
G.E.A. Reijnen	-	21	-	-	-	-	-	21
J.S. Wolfson	-	18	-	-	-	-	-	18
R.W. van Leen	-	30	-	-	-	-	-	30
Total former Supervisory Board members	**37**	**209**	**-**	**-**	**7**	**-**	**44**	**209**

[1] The membership fee included within the annual fee excludes the fee covering the onboarding period prior to the respective appointments, being equal to the prorated base membership fee (€40,000 on pro rate basis).

30. Proposed Appropriation of Result

In anticipation of the annual General Meeting's adoption of the annual accounts, the net loss for the year of €22,829,594 has been added to retained earnings (accumulated deficit).

31. Events After the Balance Sheet Date

Subsequent to the date of the balance sheet, no events material to the group as a whole occurred that require disclosure in this note.

Company Financial Statements 2020

Company Balance Sheet

As at December 31

The balance sheet has been prepared before appropriation of current year result.

(In Euro x 1,000)	Note	2020	2019
ASSETS			
Non-current assets			
Financial fixed assets	34	60,921	44,800
Right-of-use assets		6,988	7,452
Total non-current assets		**67,909**	**52,252**
Current assets			
Other receivables		333	187
Cash and cash equivalents		22,608	43,638
Total current assets		**22,941**	**43,825**
Total assets		**90,850**	**96,077**
EQUITY			
Equity attributable to owners of the parent			
Ordinary shares	13	2,591	2,583
Share premium		204,296	204,296
Other reserves	13	10,407	9,862
Accumulated losses		(171,057)	(148,527)
Total equity		**46,238**	**68,215**

(In Euro x 1,000)	Note	2020	2019
LIABILITIES			
Non-current liabilities			
Lease liabilities		7,412	8,359
Provisions	35	36,956	19,228
Total Non-current liabilities		**44,368**	**27,587**
Current liabilities			
Trade payables		244	190
Other current liabilities		-	85
Total current liabilities		**244**	**276**
Total liabilities		**44,613**	**27,863**
Total equity and liabilities		**90,850**	**96,078**

Company Income Statement

For the financial year ended December 31

in Euro x 1,000	2020	2019
Other revenues	-	-
Operating expenses		
Employee benefit expenses	(722)	(595)
Office and housing expenses	(1)	-
Patent, license, legal and advisory expenses	(360)	(196)
Reversal / (Expense) due for onerous contract	492	(724)
Other operating expenses	(21)	(27)
Depreciation, amortisation and impairment charge	(986)	(979)
Operating loss	**(1,598)**	**(2,521)**
Finance costs - net	(232)	(213)
Result before income tax	**(1,830)**	**(2,735)**
Income tax expense	-	-
Result subsidiaries and joint ventures	(21,000)	(20,809)
Loss for the period	**(22,830)**	**(23,544)**

Notes to the Company Financial Statements

32. General Information

The company statements are part of the 2020 financial statements of Avantium N.V.

For setting the principles for the recognition and measurement of assets and liabilities and determination of the result of its company financial statements, Avantium N.V. makes use of the option provided in Section 2:362 (8) of the Dutch Civil Code. This means that the principles of the recognition and measurements of assets and liabilities and determination of the result (hereinafter referred to as accounting policies) of the company financial statements of Avantium N.V. are the same as those applied for the consolidated financial statements under IFRS (refer to note 2). By applying this option, reconciliation is maintained between the group's equity and the company's equity.

In the company financial statements, investments in group companies are stated as net asset value if the company effectively exercises influence of significance over the operational and financial activities of these investments. The net asset value is determined on the basis of the accounting principles applied by the company. In case the net asset value of an investment in a group company is negative, any existing loans to group companies considered as net investment are impaired. A provision for any remaining equity deficit is recognised when an outflow of resources is probable and can be reliably estimated.

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union. Please refer to the notes to the consolidated financial statements for a description of these principles.

33. Equity attributable to equity holders of the company

For details of the movements in and components of equity, reference is made to the consolidated statement of changes in equity of the consolidated financial statements and the notes to these.

34. Financial Fixed Assets

The company directly held 100% interests in the following subsidiaries on 31 December 2020:

- Avantium Technologies B.V., Amsterdam
- Renewable Technologies B.V., Amsterdam
- Avantium Support B.V., Amsterdam
- Avantium Knowledge Centre B.V., Amsterdam
- Feedstock Technologies B.V., Amsterdam
- Avantium Renewable Polymers B.V., Amsterdam

The movements in financial fixed assets can be summarised as follows:

(In Euro x 1,000)	**Investment in group companies**	**Loans to group companies**	**Financial fixed assets assets**
On January 1, 2020	34,857	9,942	**44,800**
Share of profit of group companies	-	-	**-**
Movements in loans to group companies/ provision	(3,272)	19,393	**16,122**
On December 31, 2020	31,585	29,336	**60,921**

The financial fixed assets consist of investments in group companies and loans with subsidiaries. The value of the loans of Avantium N.V. to group companies on 31 December 2020 was €29.3 million.

35. Provisions

(In Euro x 1,000)	Provisions
On January 1, 2020	**(19,228)**
Share of profit of group companies	-
Movements in loans to group companies/ provision	(17,728)
On December 31, 2020	**(36,956)**

The provisions for financial fixed assets with a negative net equity as at 31 December 2020 relate to the following:

- Equity deficit of Feedstock Technologies B.V. of €28,000
- Equity deficit of Avantium Support B.V. of €25,696,000
- Equity deficit of Avantium Renewable Polymers B.V. of €10,930,000
- Equity deficit of Avantium Technologies B.V. of €303,000

36. Commitment and Contingencies

The company is part of a fiscal unity for corporate income taxes. As a consequence, the company bears joint and several liability for the debts with respect to corporate income taxes. The company settles corporate income taxes, in principle, based on the results before taxes of the subsidiaries belonging to the fiscal unity.

Avantium has issued joint and several liability for the debts arising out of the legal acts of these subsidiaries, in accordance with Section 403 Part 9, Book 2 of the Dutch Civil Code. Each of these subsidiaries has filed Avantium's 403 declaration with the Dutch trade register:

- Avantium Support B.V.
- Avantium Technologies B.V.
- Avantium Chemicals B.V.

37. Audit Fees

The fees listed below relate to the procedures applied to the company and its consolidated group entities by PricewaterhouseCoopers Accountants N.V., the Netherlands, the independent external auditor as referred to in section 1(1) of the Dutch Accounting Firms Oversight Act (Dutch acronym: Wta), as well as by other Dutch and foreign-based PricewaterhouseCoopers Accountants N.V. individual partnerships and legal entities, including their tax services and advisory groups:

(In Euro x 1,000)	31-12-2020	31-12-2019
Audit of the financial statements	234	247
Other audit procedures	-	-
Tax services	-	-
Other non-audit services	-	-
Total	**234**	**247**

38. Remuneration of the Management Board and the Supervisory Board

The remuneration of the Supervisory Board amounted to €321,000 (2019: €262,000).
The total remuneration paid to or for the benefit of members of the Management Board in 2020 amounted to €737,000 (2019: €1,208,000). For further details, refer to note 29 of the consolidated financial statements.

39. Employee Information

The company had no employees in 2020 (2019: nil).

Signing

Amsterdam, 23 March 2021
Avantium N.V. (Chamber of Commerce number: 34138918)

Management Board

Tom van Aken, Chief Executive Officer
Bart Welten, Chief Financial Officer

Supervisory Board

Edwin Moses, Chairperson
Margret Kleinsman
Trudy Schoolenberg
Cynthia Arnold
Michelle Jou

The financial statements on p. 71-123 are authorised for issue by the Management Board on 23 March 2021.

T.B. van Aken	B.J.J.V Welten
Chief Executive Officer	Chief Financial Officer

Other information

Articles of Association Governing Profit Appropriation

According to article 31 of the company's Articles of Association, the annual General Meeting determines the appropriation of the company's net result for the year.

Independent auditor's report

To: the general meeting and the supervisory board of Avantium N.V.

Report on the financial statements 2020

Our opinion

In our opinion:

- the consolidated financial statements of Avantium N.V. together with its subsidiaries ('the Group') give a true and fair view of the financial position of the Group as at 31 December 2020 and of its result and cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union ('EU-IFRS') and with Part 9 of Book 2 of the Dutch Civil Code;
- the company financial statements of Avantium N.V. ('the Company') give a true and fair view of the financial position of the Company as at 31 December 2020 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the accompanying financial statements 2020 of Avantium N.V., Amsterdam. The financial statements include the consolidated financial statements of the Group and the company financial statements.
The consolidated financial statements comprise:

- the consolidated statement of financial position as at 31 December 2020;
- the following statements for 2020: the consolidated statements of comprehensive income, changes in equity and cash flows; and
- the notes, comprising significant accounting policies and other explanatory information.

The company financial statements comprise:

- the company balance sheet as at 31 December 2020;
- the company income statement for the year then ended;
- the notes, comprising the accounting policies applied and other explanatory information.

The financial reporting framework applied in the preparation of the financial statements is EU-IFRS and the relevant provisions of Part 9 of Book 2 of the Dutch Civil Code for the consolidated financial statements and Part 9 of Book 2 of the Dutch Civil Code for the company financial statements.

The basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. We have further described our responsibilities under those standards in the section 'Our responsibilities for the audit of the financial statements' of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of Avantium N.V. in accordance with the European Union Regulation on specific requirements regarding statutory audit of public-interest entities, the 'Wet toezicht accountantsorganisaties' (Wta, Audit firms supervision act), the 'Verordening inzake de onafhankelijkheid van accountants bij assuranceopdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

Material uncertainty related to going concern

We draw attention to the going-concern paragraph in note 2.1.1. Going Concern (see page 99) of the financial statements, which indicates that the Company, given its stage and nature of operations, needs to obtain funding to finance the ongoing operations and the further development of its technologies. The funding that is needed in this respect is, amongst others, heavily dependent on the realisation of a fully funded business plan for the FDCA flagship plant and obtaining financing for the other technologies of the Company. These conditions indicate the existence of a material uncertainty, which may cast significant doubt about the Company's ability to continue as a going concern. Our opinion is not modified in respect of this matter.

Our audit approach

Overview and context
Avantium N.V. is a chemical technology company, developing and commercialising innovative renewable chemistry solutions. As of 31 December 2020, the Company consists of three business units (Renewable Polymers, Renewable Chemistries and Catalysis), which were subject to our audit procedures as set out in the section 'The scope of our group audit'. We paid specific attention to the areas of focus driven by the operations of the Group, as set out below.

The global outbreak of the COVID-19 pandemic and securing funding for the execution of the strategy in the medium- to long-term (> twelve months) characterised the financial year 2020 for Avantium N.V. Government measures to contain the spread of COVID-19, as implemented in the various regions in which the Group operates, had an impact on the Company's catalysis business unit, hindering the installation and maintenance of its systems at customers' sites. It also impacted the progress of the Company's execution of the business plan for the FDCA flagship plant, it's negotiations and arriving at final agreements with financial, commercial and other strategic partners has taken longer than anticipated. Due to its nature as a technology development company with significant R&D expenses and negative cash flows, the Company is dependent on external funding and regularly needs new financing sources. The realisation of a fully funded business plan for the FDCA flagship plant and obtaining financing for the other technologies of the Group is fundamental to the Group's continuity as noted in section 2.1.1. Going Concern (see page 99) of the annual report.

The management board has made plans to successfully obtain financing at the level of Renewable Polymers as well as the Group. Because of the significance of the management board's assertion with respect to the probability of obtaining financing and the management board's assessment on the Group's ability to continue as a going concern, we have paid specific attention to this in our audit.

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where the management board made important judgements, for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. In note 4 Critical Accounting Estimates and Judgments of the financial statements, the Company describes the areas of judgement in applying accounting policies and the key sources of estimation uncertainty. Given the significant estimation uncertainty and the related higher inherent risks of material misstatement in the impairment assessment of property, plant and equipment, we considered this matter as a key audit matter as set out in the section 'Key audit matters' of this report.

Other areas of focus in our audit, that were not considered as key audit matters, were project revenue recognition, accounting for government grants and accounting for share-based payments. As in all of our audits, we also addressed the risk of management override of controls, including evaluating whether there was evidence of bias by the management board that may represent a risk of material misstatement due to fraud.

We ensured that the audit team at group level included the appropriate skills and competences, which are needed for the audit of a listed chemical technology company. We, therefore, included experts and specialists in the areas of, amongst others, business restructuring, IT audit, and experts in the areas of valuations and share-based payments in our team.

The outline of our audit approach was as follows:

Materiality
- Overall materiality: €750,000.

Audit scope
- All group components were in scope, being Renewable Polymers, Renewable Chemistries and Catalysis business unit. We audited all group components as part of our audit.
- For all components, the group engagement team performed the work.

Key audit matters
- Material uncertainty related to going concern (included as a separate section in our report, as required by the Dutch Standard 570).
- Impairment assessment of property, plant and equipment.

Materiality

The scope of our audit is influenced by the application of materiality, which is further explained in the section 'Our responsibilities for the audit of the financial statements'.

Based on our professional judgement we determined certain quantitative thresholds for materiality, including the overall materiality for the financial statements as a whole as set out in the table below. These, together with qualitative considerations, helped us to determine the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and to evaluate the effect of identified misstatements, both individually and in aggregate, on the financial statements as a whole and on our opinion.

Overall group materiality	€750,000 (2019: €750,000).
Basis for determining materiality	We used our professional judgement to determine overall materiality. We used 4% of the result before income tax as a guideline for our judgement. As a result of this, we could increase our materiality in comparison to last year, but we considered it more appropriate to apply the same materiality level as last year.
Rationale for benchmark applied	We used the result before income tax as the primary benchmark, a generally accepted auditing practice, based on our analysis of the common information needs of users of the financial statements. On this basis, we believe that the result before income tax is an important metric for the financial performance of the Company.

We also take misstatements and/or possible misstatements into account that, in our judgement, are material for qualitative reasons.

We agreed with the supervisory board that we would report to them misstatements identified during our audit above €37,500 (2019: €37,500), as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

The scope of our group audit

Avantium N.V. is the parent company of a group of entities. The financial information of this group is included in the consolidated financial statements of Avantium N.V.

We tailored the scope of our audit to ensure that we, in aggregate, provide sufficient coverage of the financial statements for us to be able to give an opinion on the financial statements as a whole, taking into account the management structure of the Group, the nature of operations of its components, the accounting processes and controls, and the markets in which the components of the Group operate. In establishing the overall group audit strategy and plan, we determined the type of work required to be performed at component level by the group engagement team.

The group engagement team performed the audit work on all components, the group consolidation and financial statement disclosures. By performing these procedures, we have been able to obtain sufficient and appropriate audit evidence on the Group's financial information as a whole, to provide a basis for our opinion on the financial statements.

Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in the audit of the financial statements. We have communicated the key audit matters to the supervisory board. The key audit matters are not a comprehensive reflection of all matters identified by our audit and that we discussed. In this section, we described the key audit matters and included a summary of the audit procedures we performed on those matters.

We addressed the key audit matters in the context of our audit of the financial statements as a whole, and in forming our opinion thereon. We do not provide separate opinions on these matters or on specific elements of the financial statements. Any comment or observation we made on the results of our procedures should be read in this context.

In addition to the matter described in the section 'Material uncertainty related to going concern' we have determined the matter described below to be a key audit matter to be communicated in our report.

Key audit matter	Our audit work and observations

Impairment assessment of property, plant and equipment

Refer to note 5

As at 31 December 2020, the balance of property, plant and equipment of the Company comprised €25.2 million. The valuation of this balance depends on the substantiation of the Company's technologies potential.

As part of the annual closing process and triggered by the material uncertainty related to going concern, the Company performed an assessment of the recoverable amounts for the relevant assets. The management board concluded that the assets were not impaired as at 31 December 2020.

For purposes of performing the recoverability assessment, the management board identifies the relevant cash-generating units ('CGUs'). The recoverable amount of the underlying CGUs is determined as the higher of the fair value less cost of disposal or the value in use. The assessment contains a number of significant assumptions, both quantitative and qualitative, including revenue growth rate, cost structure, discount rate and timely completion of development projects (for example the construction of the FDCA flagship plant of Avantium Renewable Polymers). Changes in these assumptions may lead to potential impairment charges on the carrying value of the assets.

The use of assumptions in the assessment also requires estimates and judgment which may be affected by unexpected future market, economic or political conditions. With respect to Avantium Renewable Polymers a fair value less cost of disposal model was applied and the management board concluded that no impairment was required.

We focused on this area as the Company's assets are significant to the Company's operations and the assessment performed by the management board involved significant estimates and judgement.

We obtained the management board's impairment assessment, which is based on the models calculating the recoverable amount using the fair value less cost of disposal method based on cash flow projections at the relevant CGU level.
Our audit of this matter focused on the management board's impairment assessment, which included the following procedures:

- Assessing the methodology used by the management board to estimate fair value less cost of disposal, assessing the accuracy and relevance of the input data to supporting evidence, such as approved budgets and considering the reasonableness of these budgets by comparing the budgets to the historical results and the market data.
- Assessing the appropriateness of the cash flows projection in calculation of the fair value less cost of disposal of these assets, including the impact of the longer than anticipated process to take a Final Investment Decision to construct the FDCA flagship plant of Avantium Renewable Polymers, challenging the reasonableness of key assumptions based on our knowledge of the business and industry, by comparing the assumptions to historical results and published market and industry data, and comparing the current year's actual results with the prior year forecast and other relevant information.
- Performing a sensitivity analysis in consideration of the potential impact of reasonably possible downside changes in these key assumptions.

Based on the audit procedures performed, we found that the conclusion made by the management board that no impairment was required was supported by reasonable assumptions, that were consistently applied and supported by available evidence.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information that consists of:

- Avantium at a Glance.
- Management Board Report.
- Governance (including the Report of the Supervisory Board and the Remuneration Report 2020).
- Supplementary Information.
- The other information pursuant to Part 9 of Book 2 of the Dutch Civil Code.
- Based on the procedures performed as set out below, we conclude that the other information:
- is consistent with the financial statements and does not contain material misstatements;
- contains the information that is required by Part 9 of Book 2 and the sections 2:135b and 2:145 subsection 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and understanding obtained in our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing our procedures, we comply with the requirements of Part 9 of Book 2 and section 2:135b subsection 7 of the Dutch Civil Code and the Dutch Standard 720. The scope of such procedures was substantially less than the scope of those performed in our audit of the financial statements.

The management board is responsible for the preparation of the other information, including the directors' report and the other information in accordance with Part 9 of Book 2 of the Dutch Civil Code and the remuneration report in accordance with the sections 2:135b and 2:145 subsection 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements

Our appointment

We were appointed as auditors of Avantium N.V. on 10 March 2020 by the supervisory board following the passing of a resolution by the shareholders at the annual meeting held on 14 May 2020. Our appointment has been renewed annually by shareholders representing a total period of uninterrupted engagement appointment of 17 years.

No prohibited non-audit services

To the best of our knowledge and belief, we have not provided prohibited non-audit services as referred to in Article 5(1) of the European Regulation on specific requirements regarding statutory audit of public-interest entities.

Services rendered

We have not provided any other services to the Company and its controlled entities, in addition to our audit, for the period to which our statutory audit relates.

Responsibilities for the financial statements and the audit

Responsibilities of the management board and the supervisory board for the financial statements

The management board is responsible for:

- the preparation and fair presentation of the financial statements in accordance with EU-IFRS and with Part 9 of Book 2 of the Dutch Civil Code; and for
- such internal control as the management board determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, the management board is responsible for assessing the Company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the management board should prepare the financial statements using the going concern basis of accounting unless the management board either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so. The management board should disclose events and circumstances that may cast significant doubt on the Company's ability to continue as a going concern in the financial statements.

The supervisory board is responsible for overseeing the Company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our responsibility is to plan and perform an audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence to provide a basis for our opinion. Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high, but not absolute level of assurance, which makes it possible that we may not detect all material misstatements. Misstatements may arise due to fraud or error. They are considered to be material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A more detailed description of our responsibilities is set out in the appendix to our report.

Rotterdam, 23 March 2021
PricewaterhouseCoopers Accountants N.V.

Original has been signed by A.F. Westerman RA

Appendix to our auditor's report on the financial statements 2020 of Avantium N.V.

In addition to what is included in our auditor's report, we have further set out in this appendix our responsibilities for the audit of the financial statements and explained what an audit involves.

The auditor's responsibilities for the audit of the financial statements

We have exercised professional judgement and have maintained professional scepticism throughout the audit in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit consisted, among other things of the following:

- Identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the intentional override of internal control.
- Obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the management board.
- Concluding on the appropriateness of the management board's use of the going concern basis of accounting, and based on the audit evidence obtained, concluding whether a material uncertainty exists related to events and/or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report and are made in the context of our opinion on the financial statements as a whole. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluating the overall presentation, structure and content of the financial statements, including the disclosures, and evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Considering our ultimate responsibility for the opinion on the consolidated financial statements, we are responsible for the direction, supervision and performance of the group audit. In this context, we have determined the nature and extent of the audit procedures for components of the Group to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole. Determining factors are the geographic structure of the Group, the significance and/or risk profile of group entities or activities, the accounting processes and controls, and the industry in which the Group operates. On this basis, we selected group entities for which an audit or review of financial information or specific balances was considered necessary.

We communicate with the supervisory board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit. In this respect, we also issue an additional report to the audit committee in accordance with Article 11 of the EU Regulation on specific requirements regarding statutory audit of public-interest entities. The information included in this additional report is consistent with our audit opinion in this auditor's report.

We provide the supervisory board with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related actions taken to eliminate threats or safeguards applied.

From the matters communicated with the supervisory board, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, not communicating the matter is in the public interest.

Supplementary Information

About This Report

Scope of the Annual Report

This Annual Report covers Avantium N.V., including all our consolidated entities as stated in 'Note 2.2.1 subsidiaries'. Our financial and non-financial results are presented in one report and relate to all consolidated entities for the period of January 1 until December 31, 2020, unless stated otherwise.

Reporting Structure

This Annual Report outlines how Avantium creates value for our stakeholders in the long term. Our value creation model is presented at the beginning of the report, showing how our vision, mission and actions create a positive impact for our direct value chain and beyond. We present the cohesion of the different elements of our strategy, material topics, sustainability targets and the UN's Sustainable Development Goals, KPIs, and related risks.

Assurance

Currently, the financial data and related information is covered by external assurance. For non-financial information, we decided to not seek external assurance at this moment. We expect to be able to regularly report on the progress made towards our targets as outlined in our Sustainability Plan 'Chain Reaction 2030'. Chain Reaction 2030 commits Avantium to a series of goals and targets where it has the greatest impact on social and environmental issues. This includes accelerating its own technologies and operations to support the circular economy and driving responsible and sustainable business practices across the industry. The plan also includes the company's actions to empower its own employees and to excite the next generation to accelerate the transition to a fossil-free world.

Safe Harbor Statement

This Annual Report may include forward-looking statements. Other than reported financial results and historical information, all statements featured in this Annual Report, including, without limitation, those regarding our financial position, business strategy and management plans and objectives for future operations, are forward-looking statements. These forward-looking statements are based on our current expectations and projections about future events and are subject to risks and uncertainties that could cause actual results to differ materially from those expressed in the forward-looking statements. Many of these risks and uncertainties relate to factors that are beyond Avantium's ability to control or estimate precisely, such as future market conditions, the behaviour of other market participants and the actions of governmental regulators. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report and are subject to change without notice. Other than as required by applicable law or the applicable rules of any exchange on which our securities may be traded, we have no intention or obligation to update forward-looking statements.

Glossary

This glossary has been carefully compiled and we believe it to be accurate. Definitions may however be based on Avantium's interpretation and such use of terms may differ from the meaning assigned to them elsewhere in the industry or otherwise.

Bio-Based Economy
A bio-based economy exists when predominantly plant-based materials (i.e. biomass rather than fossil-based raw materials like petroleum) are used as a feedstock for making the chemicals, materials and products we consume.

Bio-Based Plastic
These are plastics derived from man-made polymers that can be made from building blocks that originate from biological (once living) systems. Most of these building blocks (monomers) are derived from sugars. Examples are FDCA and PEF. At Avantium, we prefer to call PEF and FDCA plant-based plastics, in order to prevent confusion with the term bioplastic. Bioplastic is a plastic derived from a biopolymer, such as DNA, insulin, cellulose or starch.

Biodegradability/Biodegradation
Biodegradation is the breakdown of organic matter by microorganisms, such as bacteria and fungi, to produce CO_2 and water. PET is considered to break down in 300-500 years. The first results of tests by Organic Waste Systems Belgium show that PEF degrades much faster than PET under industrial composting conditions (full biodegradation in 250-400 days at 58° Celsius in soil). The biodegradability of PEF in the natural environment is under investigation via a 10-year field trial and we have observed that degradation starts within the first year. PEF biodegradation does not occur during normal use of PEF. Only when a PEF product unintentionally ends up in nature, does the presence of bacteria and fungi cause it to degrade. How quickly the degradation happens depends on environmental conditions (like moisture (rain), heat and sunlight).

Biomass
Biomass is organic feedstock especially of plant origin. These feedstocks are renewable and originally found in nature in the form of agricultural and forestry products like corn, wheat, sugar beet, sugar cane, rapeseed and woody plants. The residues of these products also contain starch, carbohydrates, fats and proteins.

Biorefinery/Biorefining
A biorefinery is a factory that processes biomass into a range of products and where the goal is to make the most efficient use of the biomass or raw material. Biorefining aims to use every component of the raw material so that nothing goes to waste thereby improving efficiencies and environmental impact. Dawn Technology is the brand name of Avantium's biorefinery technology, which converts non-food plant-based feedstock into industrial sugars and lignin.

Catalysis/Catalyst
A catalyst is a substance that increases the rate of a chemical reaction. Catalysis is the process of using a catalyst in such a reaction. Catalysts are not consumed in the catalysed reaction and can be reused repeatedly.

Catalyst Testing
Catalyst testing is an important practice in the process of developing a new or improved catalyst. Over the years, Avantium Catalysis has executed numerous catalyst testing projects in the various phases of a catalyst development trajectory, from discovery and screening to process optimisation and commercial selection.

Circular Economy
A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. Avantium works to advance new technologies for a more sustainable future. PEF plays a significant role in the circular economy.

Carbon Dioxide (CO_2)
A greenhouse gas that originates as waste from the burning of fossil fuels and the production of electricity, fertilisers, chemicals, steel and cement. It is the biggest contributor to climate change. The development of electrochemistry has the potential to use CO_2 as a feedstock for the sustainable production of chemicals and materials, and is seen as a 'game-changer' for the chemical industry. The result is that this greenhouse gas is sequestered into products that can replace plastics and chemicals that are traditionally produced from fossil feedstock. Avantium's Volta Technology is the leading electro-catalytic platform developing CO_2 utilisation solutions for a circular future.

COVID-19
The disease resulting from the infection of the coronavirus variant identified in 2019.

Dawn Technology™
Dawn Technology is the brand name of Avantium's biorefinery technology, which converts non-food plant-based feedstock into industrial sugars and lignin. These sugars, such as glucose, are an excellent raw material for chemistry and fermentation processes and are used to produce a broad range of products.

Furandicarboxylic Acid (FDCA)
2.5-furandicarboxylic acid is an intermediate chemical for making PEF.

Flowrence®

Avantium's Flowrence is an advanced high-throughput platform for high-quality testing of catalysts and adsorbents.
The Flowrence system can be used for a broad range of industrial applications that operate in gas, vapor or trickle phases.

The parallel reactor system combines the reproducibility of larger-scale reactors with the advantages of small-scale reactors such as intrinsic safety, high accuracy, low costs per experiment and, ultimately, faster time-to-market.

Glucose

A sugar consisting of six carbon atoms (C6). It is a core building block for a bio-based economy. Glucose serves as a feedstock for the production of a broad range of chemicals and materials produced via chemistry or fermentation processes. The resulting products can be existing and new plant-based chemicals, such as such as plantMEG and plantMPG.

Glycols

A glycol is any of a class of organic compounds belonging to the alcohol family. The term is often applied to the simplest member of the class: mono-ethylene glycol or MEG, a colourless, oily liquid. Avantium has developed plant-based MEG, a vital ingredient for the production of polyester textiles and film, PET and PEF resins and engine coolants.

Life Cycle Assessment (LCA)

The compilation and evaluation of the input, output and potential environmental impact of a product system throughout its life cycle. LCAs are fundamental to understanding how Avantium's technologies compete with fossil-based alternatives. LCAs form the bedrock of how we measure our footprint and describe the sustainability benefits of our innovations.

Lignin

In the Dawn Technology biorefining process, lignin is the mass remaining after the sugars have been removed from the initial raw material. It is very efficient for energy generation as its energy content is up to 40% higher than the original wood chips used in the process. Energy generation is currently the predominant application for lignin. Additional higher value applications are being developed, including bio-asphalt.

Management Board and Management Team

The Management Board (consisting of the CEO and the CFO) is Avantium's statutory executive body and is, together with the management team, (the CEO, CFO, CTO, General Counsel and the Managing Directors of the business units), responsible for the day-to-day management of Avantium.

Mono-Ethylene Glycol (MEG)

MEG is a vital ingredient for the production of polyester textiles and film, PET and PEF resins and engine coolants. End uses for plant-based MEG (plantMEG) range from clothing and other textiles, to packaging, kitchenware, non-toxic coolants (eg. antifreeze) and solvents (eg. paint and coatings).
Ray Technology™ is the brand name of Avantium's technology to produce plantMEG™.

Mono-Propylene Glycol (MPG)

MPG is a valuable intermediary and is used in a wide variety of applications, including unsaturated polyester resins, industrial uses and food, feed and pharma. Unsaturated polyester resins represent 41% of MPG offtake, and are mainly used in fibreglass reinforced plastics for construction in the marine and transportation industries. Technical applications such as functional fluids and solvents account for 30% of MPG demand. Food, feed and pharma applications make up the remaining 29%. Ray Technology™ is the brand name of Avantium's technology to produce plant-based MPG (plantMPG) as a co-product of plantMEG.

Polyethylene Furanoate (PEF)

PEF is, a polyester made form MEG and FDCA. PEF produced by Avantium's YXY® Technology is a 100% plant-based and recyclable polymer that can be used in an enormous range of applications, including packaging for soft drinks, water, alcoholic beverages and fruit juices. PEF's barrier and thermal properties are superior to conventional PET. In combination with a significantly reduced carbon footprint, the added functionality gives PEF all the attributes to needed become the next-generation polyester.

Polyethylene Terephthalate (PET)

PET ia a, transparent polyester used for bottles and film. Currently PET is made from fossil-based MEG and fossil-based terephthalic acid.

Polyesters

Polyesters are polymers formed from a dicarboxylic acid and a diol. Polyesters are very stable and strong and are particularly useful in making fibres for clothing or plastics. Polyesters are most commonly found as either PET or PEF.

Polymers

A polymer is a chemical compound with molecules bonded together in long repeating chains. The term "polymer" is commonly used today in the plastics and composites industry, and it is often used as a synonym for "plastic" or "resin."

Ray Technology™

Ray Technology is the brand name of Avantium's technology to produce plantMEG™.

Renewable Resources

These are agricultural or forestry raw materials used as feedstock for industrial products. The use of renewable resources by industry saves fossil resources and reduces the amount of greenhouse gas emissions.

Sustainable Development Goals
The United Nations launched its 17 Sustainable Development Goals in 2013.

Throughput
The volume of chemicals a system can process per hour.

Volta Technology
Avantium's Volta Technology, a carbon capture and utilisation technology, is the leading electrocatalytic platform developing CO_2 as a feedstock for a circular future.

YXY® Technology
Avantium's YXY® technology helps to produce a wide range of novel 100% plants-based materials and products by converting plant-based sugars (fructose) into plant-based chemicals (e.g. for the production of biobased plastics, such as PEF).

1st Generation Feedstock
Carbohydrate-rich plants such as sugar beet, sugar cane, corn and wheat that can also be used as food or feed and for making plant-based chemicals and materials.

2nd Generation Feedstock
Non-food feedstock resulting from agricultural and forestry waste or residual streams. Dawn Technology™ is the brand name of Avantium's biorefinery technology, which converts non-food plant-based feedstock into industrial sugars and lignin.

If you have any questions or remarks regarding this report, we invite you to contact us.

Avantium N.V.
P.O. Box 2915
1000 CX Amsterdam
The Netherlands
Tel. +31 20 586 8080
E-mail: ir@avantium.com
Website: www.avantium.com

Published on 24 March 2021

Design and Execution
CF Report, Amsterdam, the Netherlands
Pieter Vonk, Utrecht, the Netherlands

Editors
Avantium N.V., Amsterdam, the Netherlands
Narrative Labs, The Hague, the Netherlands

Project Support and Advice
Report Company, Soest, the Netherlands