Solar Foods

Initiation of coverage

9/12/2024

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Inderes corporate customer

This report is a summary translation of the report “Skaalaamassa solumaatalouden kärkeen” published on 9/12/2024 at 8:50 am EEST.

Scaling to the top of cellular agriculture

We initiate our coverage of Solar Foods with a target price of EUR 11.0 and a Sell recommendation. Despite its early stage of development, the company is a leading global player in a rapidly growing and evolving industry. The key risk to the stock is the capital required to scale up production, which we believe will be the dividing line between successful cellular agriculture companies and others. If cellular agriculture delivers, we expect the winners of the industry to be rewarded with significant first-mover advantages and an attractive long-term investment horizon. In our view, the current price level is pricing in the potential of the stock in an unnecessarily premature manner, making the risk/reward ratio weak.

Primary food production and technology licensing at the heart of the business

Solar Foods is an early-stage food technology company. The company's spearhead product, Solein, is a nutrient-rich single cell protein whose commercialization is at the heart of the company's strategy for the coming years. With the commissioning of Factory 01 at the beginning of the year and access to the US market, the company is in a better position to realize the potential of Solein and hydrogen fermentation technology. At the heart of the scale-up phase are two different business models: the manufacture and sale of Solein to the food industry and the licensing of Solein's manufacturing technology to primary food producers and space operators. We expect significant capital expenditure requirements to be a bottleneck to industry-wide growth, which is why we see a capital-intensive licensing business that leverages a partner's balance sheet as particularly attractive at this stage of development. Solein's production has also attracted interest in space applications, as evidenced by Solar Foods winning its category in the NASA and CSA Deep Space Challenge this fall.

Cellular agriculture is still in its infancy, but there is plenty of potential for those who can bridge the funding gap

Cellular agriculture is still taking shape, but it is attracting significant interest from a variety of stakeholders. Protein fermentation offers a means to reduce the environmental impact of the food sector, and the industry is expected to grow significantly over the next 10 years. Scaling up production requires significant capital, and Solar Foods' planned industrial-scale plant represents an investment of approximately 150-420 MEUR, depending on its size and location. We believe that partners and public authorities have a key role to play in bridging the funding gap in the industry and the company has received a 110 MEUR IPCEI notification from the EU to expand production. We see companies that cross the financial chasm gaining a clear advantage by building their brands and customer relationships and being able to invest in patents and product development, raising the bar for the next wave of entrants. In our baseline scenario, the company will achieve a revenue of over 700 MEUR in 2040 and an EBIT margin of over 30%, which is high for the food industry, supported by high licensing revenues.

Current share price level is between positive and baseline scenario

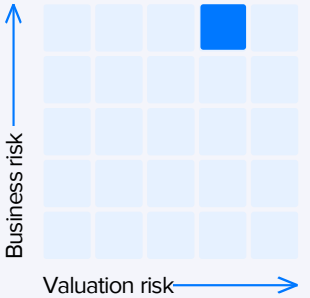
Due to the early stage of development, the valuation multiples of the stock will not provide anchor points until the early 2030s, when the upcoming Factory 02 will reach sufficient capacity utilization. Our DCF models based on different commercialization scenarios show a wide range of EUR 2-15 for the value of the share, and in our baseline case the value remains at EUR 9.0. With limited track record and no public financial targets, our confidence in the upper end of the range remains weak and our baseline scenario of a good outcome is not sufficient to justify the current share price.

Recommendation

Sell

11.00 EUR

Share price:
12.35



Key figures

	2023	2024e	2025e	2026e
Revenue	0.0	0.2	2.0	2.8
growth-%	50%	3172%	912%	42%
EBIT adj.	-6.8	-5.7	-10.1	-12.8
EBIT-% adj.	-113419.2 %	-2882.9 %	-511.1 %	-452.9 %
Net income	-9.0	-6.7	-11.3	-14.0
EPS (adj.)	-0.37	-0.25	-0.43	-0.53
P/E (adj.)	0.0	neg.	neg.	neg.
P/B	0.0	10.8	17.3	25.2
Dividend yield-%		0.0 %	0.0 %	0.0 %
EV/EBIT (adj.)		neg.	neg.	neg.
EV/EBITDA		87.2	neg.	neg.
EV/S		>100	>100	>100

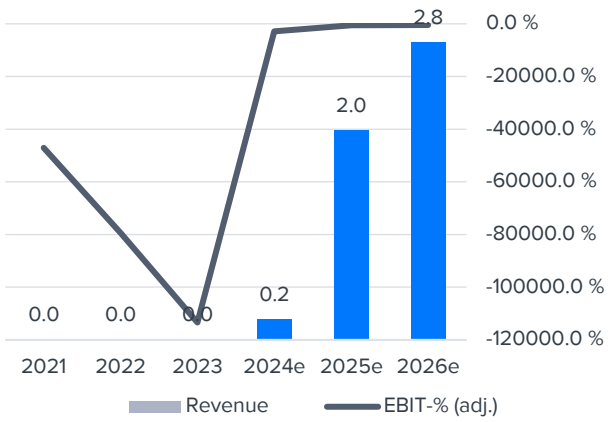
Source: Inderes

Guidance (Unchanged)

Solar Foods does not provide guidance for the current year.

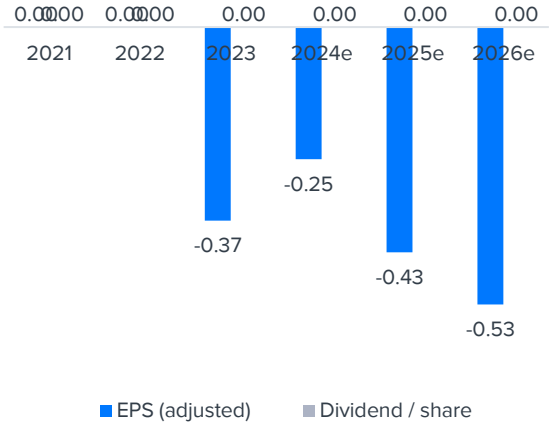
Share price

Revenue and EBIT-% (adj.)



Source: Inderes

EPS and dividend



Source: Inderes

Value drivers

- Market leadership in the company's niche and ability to create new products
- Large and growing target market
- Opportunity to bring to the market a product with a superior environmental impact
- Success in the licensing business would enable a profitable and capital-light business
- Potential takeover target

Risk factors

- Financial risks
- Risks associated with food regulatory approval processes for products
- Market viability of products yet to be proven on an industrial scale
- Solein's high mineral content may limit its uses beyond expectations

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An early-stage disruptor in the food industry

Solar Foods is an early-stage technology company focusing on cellular agriculture, born out of joint research between VTT and LUT-University. The company's goal is the commercialization of a novel food protein and the technology platform for its production - hydrogen fermentation. The technology has the potential to improve price and quality stability and availability of food raw materials with significantly lower CO2 emissions than current solutions.

Due to its early development phase, the company does not yet have noticeable revenue. Two types of business can emerge from the company: 1) a more capital-intensive producer of primary food ingredients and 2) a capital-light product development platform that develops and licensing technology solutions. To date, the company has one microbe-based food product, Solein, which is in the early stages of commercialization.

Solein is the company's spearhead

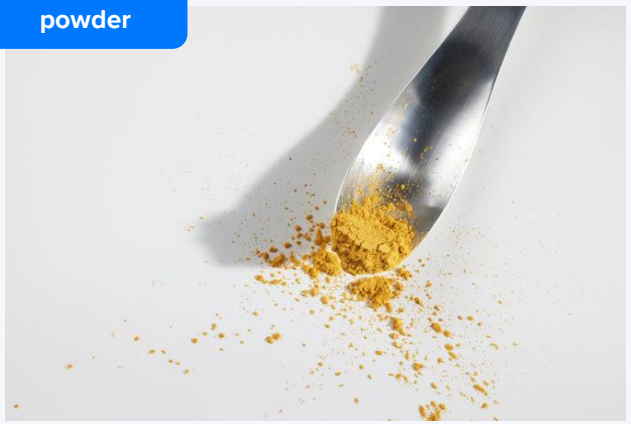
Solar Foods' spearhead product, Solein, is a naturally occurring single-cell microbe that the company discovered through its own research in Finnish nature. Solein, produced by Solar Foods, is a powdered, nutrient-dense, vegan protein source that can be used in a variety of foodstuffs. The Solein cell is made up of the same ingredients as other foods: protein, fiber, carbohydrates, fats, and vitamins.

At the current stage of development, Solar Foods' business is heavily focused on the commercialization of Solein, but the company also has two other products in development and is constantly exploring new microbes that may have uses that are significantly different from Solein. If the right microbe is found, the company could expand beyond the food industry to other sectors, but this would require new expertise and new partnerships, which of course takes time and money.

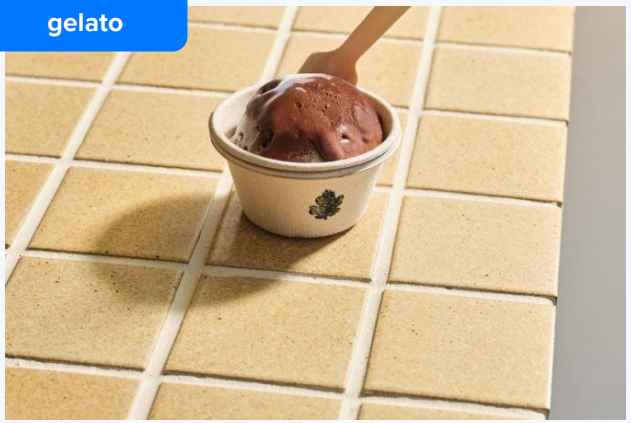
Solein is currently in limited supply

To date, consumers have had very limited access to Solein as it has only been sold in Singapore. Solein was granted a novel food authorization in Singapore in fall 2022, allowing the product to be sold to consumers for the first time. By 2023, a vegan chocolate ice cream containing Solein was available in Singapore, where Solein replaces dairy products. During 2024, a chocolate bar with Solein, launched by Fazer, was also available in Singapore. With an annual production capacity of 160 tons from Factory 01, completed in 2024, and the self-affirmed GRAS status in the US, Solar Foods will be in a much better position to create visibility and awareness for Solein, even though production capacity is very limited on a global scale. Despite its limited availability, Solein has attracted a significant amount of international media attention, which we expect will generate consumer interest in the product prior to obtaining the necessary food approvals to commercialize it. Due to the limited availability of Solein, the selling price per kilo has been in the hundreds of euros.

Solein powder



Solein gelato



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Two possible business models

Solar Foods aims to drive two types of business: 1) the manufacture and supply of Solein to food product manufacturers and 2) the licensing of hydrogen fermentation technology and production organisms to food companies.

As Solein's manufacturer, the company itself is investing in the factory capacity and working capital required for production, similar to the existing Factory 01. The business model is capital-intensive for a technology company due to the significant upfront investment required to produce Solein. It is our understanding that due to the novel nature of the production process, industrial scale hydrogen fermentation plants are not available worldwide, which means that the initial investment for the plant in this business model must be made by the company or a joint venture with a partner.

We believe the company can achieve attractive returns on capital as a manufacturer, but profitable production will require a much larger plant than Factory 01 in a location where electricity prices are low.

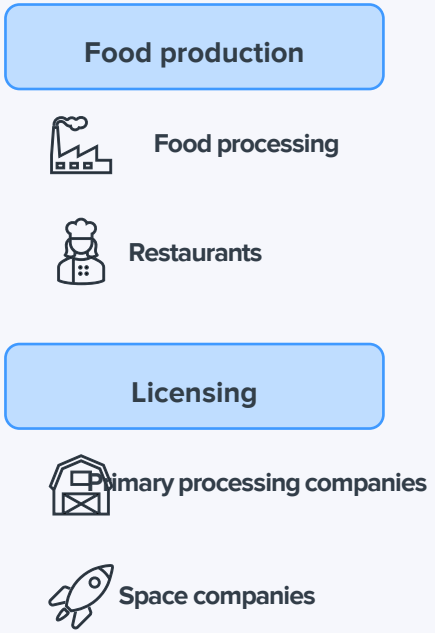
Technology licensing to outsource investments

As a technology licensor, the financing (and associated risk) and operation of the Solein plant would be outsourced to a partner who would be granted the right to sell Solein in agreed markets and/or product categories. In return, Solar Foods would charge a percentage licensing fee based on Solein sales.

The revenue potential of the licensing business is clearly more limited than in-house manufacturing, but we see it as a business with a lower risk profile than Solein manufacturing, especially in the early stages. As a licensor, the business is capital-light and inherently high margin, which can significantly accelerate the achievement of positive cash flow. Under the licensing model, the company may retain the right to sell Solein in other markets or product categories while promoting new industrially viable microbes.

So far, Solar Foods has no licensing revenue but has a letter of intent with a major global fermentation company to build a large-scale plant. Entering into a licensing agreement is a double-edged sword, as the company would likely have to give up the right to manufacture Solein in a particular market and rely on a partner for successful commercialization. There is no visibility on the terms of the letter of intent on the table, which makes it difficult to assess its attractiveness. Due to Solein's early stage of development and high risk profile, it is possible that the terms may not be favorable from the company's perspective and that better offers may emerge as Solein's commercialization process progresses and evidence of the product's market fit and manufacturing cost scaling accumulates. In general, we consider the interest in Solein signaled by the letter of intent to be positive.

Potential customers by business area



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Commercialization process of Solein

Typically, the sale of Solein requires a novel food authorization from the local authorities, which requires testing and studies to prove that the food is safe for consumption. Depending on the market, it can take several years to obtain the authorization. So far, Solein is approved for sale Singapore and the US. In the US, the company has recently achieved the self-affirmed GRAS (Generally Recognized as Safe) status required for Solein commercialization but plans to achieve the FDA-notified GRAS status required by some partners. The company is also in the process of obtaining food authorization in both the UK and EU. The company expects to achieve this status and EU novel food authorization during 2026. Ongoing approval processes (including the US) are critical as these regions represent more than 80% of Solein's current relevant market.

In the EU, the company estimates that the novel food authorization process can take 4-5 years. In addition to hefty bureaucracy, the EU authorization process carries political risks, as a decision by the European Food Safety Authority (EFSA) on the safety of the food is not sufficient for approval. The approval process also includes a vote by EU member states, where a majority must vote in favor. Without majority support, no novel food authorization will be granted.

The company believes that the novel food authorizations obtained may contribute to the commercialization process in other markets and increase interest in the product. However, the authorizations obtained are product-specific, and if a company introduces new microbes for food use, they must go through the same processes. This slows the commercialization of innovation, but also creates a barrier to entry that benefits products that make it through the regulatory process. As Solar Foods gains experience, we see the potential for the company to build expertise in novel food regulatory processes that will make future authorization processes faster and more efficient.

Factory 01 is essential for commercialization

Solar Foods is headquartered at Factory 01 in Vantaa, Finland. The production capacity of the plant is approximately 160 tons of Solein per year and the Solein is grown in a 20,000-liter bioreactor at the plant. The factory is not an industrial-scale production facility, but a demonstration plant for Solein's partners, the media and, from 2024, consumers. The production costs of Factory 01 are significantly higher than those of an industrial-scale plant, and its scale is not sufficient to achieve profitable production. We see the facility as critical to Solein's brand awareness and new customer relationships, as well as proof of the scalability of the production process.

Factory 01 was completed in the spring of 2024, prior to which Solein's production was concentrated in a pilot plant in Espoo, Finland. The pilot plant was able to produce Solein continuously in uninterrupted production cycles of more than one year. Despite its small size, the pilot plant will play a key role in gaining knowledge about hydrogen fermentation and exploring new microbes.

Timeline of Solein commercialization

2022

- Solein receives commercial license for Singapore

2023

- Solein launches in Singapore

2024

Achievements:

- Commissioning of the Factory 01
- Fazer and Ajinomoto launch their first Solein products
- Marketing authorization in the United States

Goals in the United States:

- Test marketing
- Commercial activities
- Using the US as a springboard

2026

Goal:

- Novel food authorization in the EU
- FDA-notified GRAS status in the United States

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Solein takes only 70 hours to grow

Solein is grown in bioreactors, where the microbe is provided with the natural conditions for growth and the raw materials required in nature. The raw materials fed to the microbe are mainly airborne (>90%) e.g. carbon dioxide, nitrogen, oxygen and a small amount of minerals in solution form. The minerals used by Solein (calcium, magnesium, phosphorus, iron, potassium, sulfur and sodium) are not fundamentally different from those used in traditional agriculture, as they are the same elements that plants extract from the soil through their roots. Since the microbe uses minerals as feedstock, about 5% of Solein's composition is made up of minerals, which is also the percentage of Solein's production cost that is made up of minerals. The final mineral content of the microbe can be regulated by the mineral solution fed to it, but it adjusts the growth rate of the microbe.

In addition to minerals, the production of Solein requires about ten different trace elements, including cobalt, zinc, and copper. The company expects mineral availability to remain stable for future production. The carbon dioxide used in the process is supplied to the company in liquid form and a small amount is recovered from the air.

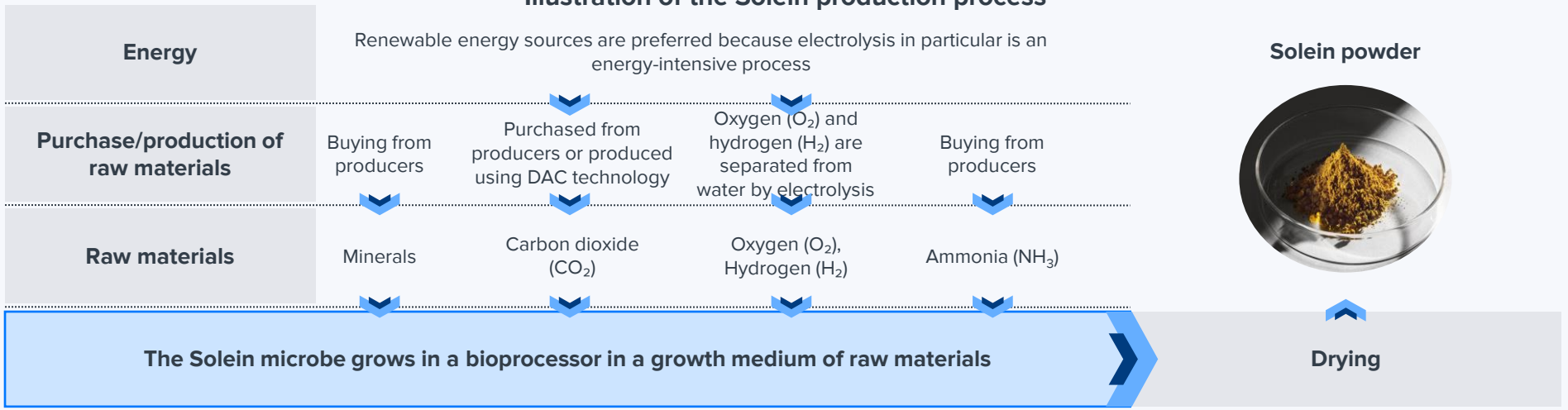
The Solein microbe uses hydrogen as an energy source, which the company produces at Factory 01 through electrolysis by splitting water molecules into hydrogen and oxygen using electricity. Hydrogen electrolysis requires a significant amount of electricity, which is the main source of variable cost in production. Hydrogen could be purchased from suppliers rather than produced in-house, significantly reducing the amount of electricity needed for production.

During the production process, microbes grow freely in the bioreactor and multiply continuously.

The process is similar to brewing beer, but instead of using agricultural feedstock such as sugar, hydrogen fermentation takes most of the raw materials from the air. At the end of the production process, the microbial growth is stopped, and the cells are separated from the growth medium (mineral water solution) and dried to powder.

Compared to traditional primary production, the production cycle is very short, as it takes 70 hours to grow a batch and the process can run all year round. In addition, Solein crops can be harvested prematurely in disruptive situations such as an extended power outage. Solein powder has a high protein content and can be stored at room temperature for more than a year, according to the company's shelf-life testing. Thanks to its good shelf life and compact form, Solein has low storage and transportation costs and can be sold at competitive prices far from the production site.

Illustration of the Solein production process



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Cellular farming has clear advantages over traditional methods

Solein's production process is similar to the natural process, but much more efficient in a bioreactor. Microbial production is also not tied to traditional agriculture, which means it avoids some of the challenges of primary production in terms of greenhouse gas emissions, land and water use, and environmental conditions.

Traditional protein production requires a significant amount of land. In terms of land use, Solein production is about 200 times more efficient than red meat production and 20 times more efficient than plant protein production. Solein does not require special external conditions to grow, which means that bioreactors can be placed underground, vertically on top of each other, or in really arid and harsh conditions where plants and animals would not survive. This makes cellular farming an attractive option for food self-sufficiency and security, especially in harsher environments and even for space exploration.

Moreover, Solein's production requires much less water than traditional agriculture. According to Solar Foods, Solein production requires 600 times less water than red meat production and 100 times less water than crop production. Other benefits of production based on hydrogen fermentation include no need for insecticides, antibiotics or other additives typically used in agriculture. These production-related benefits add up in terms of greenhouse gas emissions from food production, and a life-cycle analysis by the University of Helsinki suggests that the environmental impact of Solein is about 10% compared to vegetable proteins and 1% compared to meat.[1]

One weakness is that competitive production requires cheap electricity

While there are advantages, hydrogen fermentation also has certain disadvantages, such as the need for significant upfront investment and low-cost electricity, as well as the specific skills required for production.

The main variable cost in Solein's production is the electricity used in the production process, which accounts for more than half of the variable cost of production. As a result, competitive production of Solein requires low electricity costs to be economically feasible. Due to the large amount of electricity required for production, electricity generated from renewable energy sources or nuclear power is a prerequisite for Solein's environmentally friendly production. For that reason, Solar Foods has committed to not using fossil fuel energy sources. Other key variable cost drivers include minerals and other production inputs.

Strengths of Solein production

- Low environmental impact
- Little need for water
- Land-use efficient production
- Short production cycle
- Possible even in harsh conditions

Weaknesses in Solein production and commercialization process

- Need for significant amount of electricity
- Regulatory approvals required for commercialization
- Requires significant initial investment
- Possible consumer prejudice

1) Source: Järviö, Maljanen, Kobayashi, Ryynänen & Tuomisto 2021

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Uses and nutritional value of Solein

Solein is a nutrient-rich source of energy. It is neither a meat nor a vegetable protein, but a completely vegan food source. According to the company, it has properties similar to soy. Solein powder contains about 65-70% protein, 10-15% fiber, 5-8% fat and 3-5% minerals, but only little salt. Solein is a complete protein, meaning it contains all nine essential amino acids. Unlike animal products, Solein is low in saturated fat and contains no cholesterol. It is rich in minerals such as chromium, manganese, potassium, magnesium and especially iron. Solein contains vitamins B12, B2 and B3. Vitamin B12 makes Solein particularly attractive to vegans and vegetarians, as it is poorly found in plant-based products.

Solein is suitable for many things

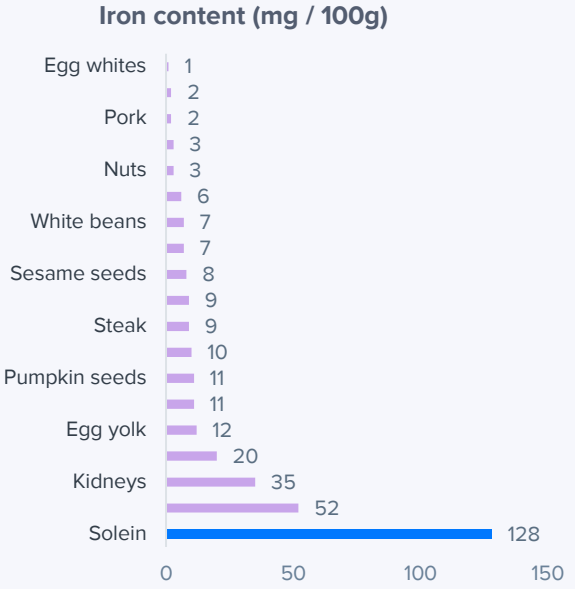
Solein has a mild, slightly umami taste, which the company believes makes it suitable for both savory and sweet foods in categories such as milk, meat and some egg replacements. Solein is yellow due to the color of the microbe itself. The color of the microbe can be brought out or masked as needed in the prepared food. Solein's yellow color makes it a poor choice for dairy products, for example, but the company is working on other microorganisms to meet those needs.

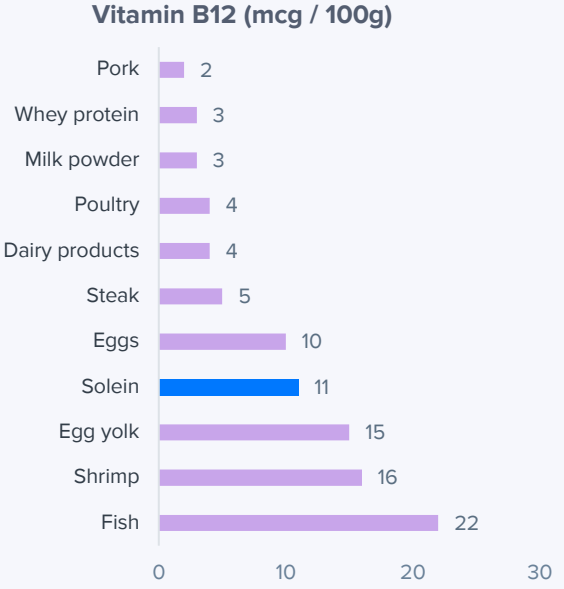
Mineral content limits uses

Iron is an essential building block for the body, but its high content is one of the factors limiting Solein's consumption. The EU has a recommended upper limit for iron intake (but not a maximum allowable limit). According to the European Food Safety Authority (EFSA), the safe upper intake level is 40 milligrams per day for adults and 10-35 milligrams per day for children, depending on age. An adult person could therefore consume 31 grams of Solein per day to stay within the iron intake limits set by EFSA, assuming that the person does not consume iron from other protein sources.

In addition to iron, Solein is also higher in manganese and nickel than other food sources, and excessive intake of these can be harmful to health. The high mineral content limits the product applications for Solein allowed by the novel food authorization, especially in Europe, where food safety authorities are stricter about the nutritional value of foods. For example, the authorities may declare Solein to be a safe food but specify that it should not be used in certain high-consumption products, such as pasta. We believe that the high mineral content of Solein limits its use as a primary source of protein for consumers.

According to Solar Foods, Solein can be used as a raw material in dairy-like products such as plant-based drinks, spreads and ice cream, meat-like products, meal replacements and protein powders, and products that benefit from nutritional fortification (e.g. cereals, bars and ready-to-eat soups). In our experience, Solein is a good substitute for eggs and dairy in applications such as ravioli and cheese, but we cannot comment on the difficulty of preparing Solein-based foods.





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Properties of Solein compared to other protein sources

	Solein	Soy protein	Pea protein	Oat protein	Whey protein	Mycoprotein
Vegan	✓	✓	✓	✓		✓
Essential amino acids	✓	✓	✓	✓	✓	✓
Vitamin B12	✓				✓	Low
Iron	✓	✓	Low	Low		Low
Dietary fibers	✓	✓	✓	✓		✓
Carotenoids	✓		✓	✓	✓	
Folic acid	✓	✓	Low	✓	Low	✓
Free from agriculture	✓					
Allergy free	✓				✓	✓

Source: Solar Foods

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Key partners - Ajinomoto and Fazer

Despite the early stage of commercialization of Solein, Solar Foods has already signed more than 40 material testing contracts with various food companies and has signed a letter of intent with two global food companies. Ajinomoto of Japan is the world's leading producer of amino acids and Solar Foods' largest strategic partner. Like Solar Foods, Ajinomoto is also involved in fermentation and has launched two desserts containing Solein in Singapore this year. We understand that US GRAS status and a local partner are key to obtaining a novel food authorization in Japan, and we expect Ajinomoto to facilitate this project for Solein.

The Finnish company Fazer is another important partner and shareholder for Solar Foods. The companies have jointly launched a vegan chocolate bar containing Solein in Singapore in early 2024.

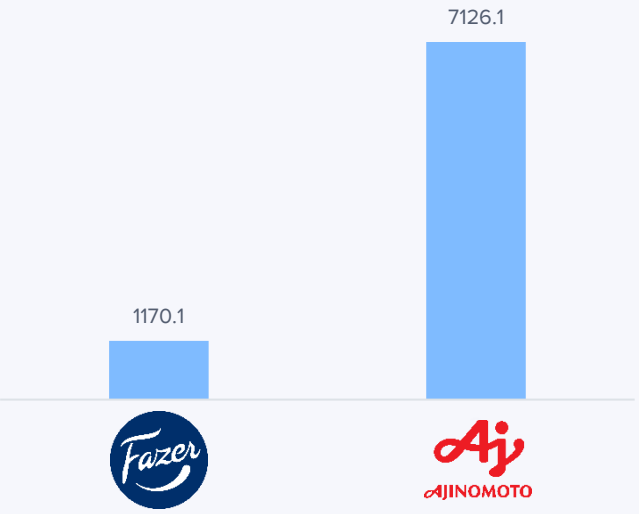
In 2019, Solar Foods signed a research and development cooperation agreement with Fazer, under which Fazer has the right of first refusal to purchase 70% of Factory 01's production at market price for two years after the European novel food authorization is granted. Thereafter, the company will still have the right to purchase the amount of Solein it previously purchased at market prices. The agreement also includes exclusive rights to develop products in certain product categories with Nordic and Baltic companies until EU novel food authorization is obtained. We see the Fazer contract as a double-edged sword, because on the one hand it provides some certainty in terms of selling the capacity of Factory 01. On the other hand, it may limit Solar Foods' ability to promote new global cooperation patterns if Fazer decides to purchase a significant share of the production of Factory 01.

Space business can provide an attractive path to licensing scale-up

Solein production shows promise for space applications, as evidenced by Solar Foods' success in NASA's and the Canadian Space Agency's (CSA) three-year Deep Space Food Challenge. In August 2024, Solar Foods was declared the winner of the third phase of the international series of the challenge.

Solar Foods' solution allows stored water to be split into hydrogen and oxygen in space. The oxygen produced in the process is vital to astronauts, but Solein's manufacturing process wastes hydrogen, resulting in an estimated loss of 0.5 kilograms of water per day for each crew member. Economically, the impact of the water method is significant, as the freight cost for a 6-person LEO crew, including water and food, is estimated to increase by more than 40 MUSD per year. Solar Foods estimates that its technology would provide a source of nutritious protein for orbit and potentially significant cost savings for space station companies. We believe that one advantage of Solein production over the Air Protein microbe in space applications is that it does not require a separate processing step, which saves space and reduces the weight of the equipment.

Revenue of Solar foods' key partners (MEUR, 2023)



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We understand that the Deep Space Food Challenge did not result in meaningful financial compensation, but it did significantly increase the company's visibility among international space station operators. According to Solar Foods, the reputation it has built will enable it to sign major cooperation agreements with space station companies and space agencies in the near future, and the company aims to sign several licensing agreements with LEO (Low Earth Orbit) space station companies. To date, Solar Foods is in discussions with four space companies and will demonstrate the technology to them in the near future, according to the company. These early-stage development projects are not financed from the company's own balance sheet but are mainly funded by research grants from organizations such as the European Space Agency (ESA), the EU, Business Finland, NASA, and the Japanese National Space Administration (JAXA). Solar Foods' space business can be profitable at an early stage and is very capital-light. The company's core ground business can also benefit from R&D efforts in the space business, as space bioreactors require higher levels of automation, reliability and monitoring, and space projects can bring significant brand value.

Solar Foods estimates that it could also attract investor funding for its space projects if it could demonstrate that the risk of Solein production is low enough, for example through a small-scale demonstration on LEO.

Currently, the company has an ongoing funding agreement through 2023 with the European Space Research and Technology Center (ESTEC) of the European Space Agency (ESA) to develop a space-produced protein manufacturing system. This project is worth EUR 175,000 and will end during the current year. The company has received an advance payment of EUR 52,500 under this program and expects to receive the remaining installments upon achievement of the interim and final milestones under the financing agreement.

Food supply is key challenge for Mars missions

The world's major space powers (e.g. the US, EU & Japan) are involved in the ARTEMIS program, which aims to permanently colonize the Moon, but also to provide the technological capability for Mars missions in the 2030s. The target date for the next launch of the program, ARTEMIS 2, is 2025 and ARTEMIS 3 is planned for 2026. The challenges of missions to Mars are completely new, with a total mission duration of about 2.5-3.5 years. According to NASA, food supply is the biggest risk associated with missions because launching food with a crew of 4-6 requires a launch mass of more than 4,000 kilograms, and food preservation is another challenge.

Patents protect microbes and hydrogen fermentation technology

Patents play a very central role in Solar Foods' business because novel food authorization processes expose a lot of sensitive information for competitive purposes. The company has an extensive patent portfolio that includes 12 patent families and more than 160 patent applications, of which 28 have been granted. Each patent family consists primarily of EPO and PCT applications, plus 9-13 applications in various countries worldwide. Patents typically run for 20-25 years and are expected to expand geographically in the future.

According to Solar Foods, the patent on Solein's production organism is its most important, and the organism will not be publicly available to competitors until the patent expires. The patent was filed at the end of October 2019 and will expire no later than October 29, 2039. The company's other patent families cover, e.g., bioreactor technology, post. treatment and food technology.

We do not expect the expiration of the patent protecting Solein (or other microbial inventions) to result in an immediate loss of competitiveness, as Solar Foods also has patents protecting various advances in microbial development (e.g., through genetic modification) and its innovations in hydrogen fermentation technology. As a result, a new competitor copying Solein's production would have to adapt its production processes to circumvent Solar Foods' existing patents protecting its production and would not be able to take advantage of the company's latest advances in microbial development.

Solar Foods is not just a one-trick pony

The commercialization of Solein has been at the heart of the Solar Foods investment story to date. In the coming years, Solein will be the most promising source of funding for business development, but the company is also constantly seeking to identify new commercially viable microbes.

Company description and business model 10/11

In addition to Solein, Solar Foods is also working on other microbes that we believe may differ from Solein in terms of growth rate, nutritional value, taste or color. This allows them to be better suited than Solein for various applications where Solein's features are simply not viable.

Solar Foods plans to genetically modify its organisms, which could improve their properties and expand their suitability for new uses. The potential of cellular farming extends beyond food, and finding the right microbe could lead Solar Foods into entirely new industries, such as biomaterials. However, the company's early stage of development, limited team and negative earnings may limit the ability to commercialize promising new microbes and create pressure to focus efforts on Solein. In terms of new openings, progress in the licensing business would clearly alleviate the situation, as it could serve as a source of funding for other projects.

HYDROCOW research project aims to open up new dimensions for Solein

In the fall of 2023, Solar Foods launched the HYDROCOW consortium project, which aims to produce milk protein without cows. The European Innovation Council is funding the project as part of the Pathfinder Challenge funding program, which aims to identify groundbreaking research projects in areas such as food and nutrition. Solar Foods is the project coordinator, and the other partners are the University of Groningen in the Netherlands, RWTH Aachen University in Germany, and the Swiss biotechnology company Fgen AG. The total budget of the four-year project is 3.9 MEUR. Solar Foods' share of the budget is around 1.6 MEUR, half of which is still to be used.

The consortium aims to genetically engineer Solein into a novel technological platform that would enable new applications in food, materials, pharmaceuticals and chemicals. The project aims to produce intracellular machinery for the Solein microbe that enables protein secretion outside the microbial cell. Solein does not inherently have such a machinery, but the consortium members believe it is feasible. If successful, this would enable precision fermentation with Solein, which has a higher cost structure.

Initially, the consortium aims to produce beta-lactoglobulin, one of the most important proteins in cow's milk, outside the Solein microbe cell. If successful, this solution would also allow the production of other milk and egg proteins as part of Solein production with relatively minor modifications. The success of the project could open up the possibility of extending the use of the hydrogen fermentation platform from animal proteins to various materials, chemicals and even pharmaceuticals or parts thereof. For other applications, we estimate that the price points and therefore the profitability potential of the end products are significantly higher than for milk proteins. Competitive precision fermentation using Solein would open up significant commercialization potential, but it is very difficult to assess its likelihood at this stage. In addition to new uses for Solein, Solar Foods expects the project to contribute significantly to the understanding of the microbe and help attract talented employees.

Capitalized development costs and related grants (MEUR)

Company description and business model 11/11

CEO Vainikka is one of Solar Foods' founders

Pasi Vainikka is one of the founders of Solar Foods and has been the CEO since the company was founded. Vainikka has a long research background from, e.g., VTT and Business Finland's largest research program on energy systems based entirely on renewable energy sources in Finland. He holds a PhD in engineering. With his background, Vainikka knows Solar Foods and its business environment very well. In addition, Juha-Pekka Pitkänen, Chief Technology Officer, and Jari Tuovinen, Vice Chairman of the Board, are still actively involved in the company's operations and all three have significant shareholdings in the company. For the long-term management of the company, we welcome the significant ownership of the three founders, which we believe aligns the interests of management and other shareholders.

Ilkka Saura has been CFO of Solar Foods since April 2024. His background includes serving as CFO of Faron Pharmaceuticals, a publicly traded biotechnology company, and as an auditor with Deloitte. We believe that Saura's background in public company management and his experience in capital transactions are a positive fit for Solar Foods at this stage of its development.

The management team at Solar Foods is quite large for the size of the company, with a total of 9 people. Other members of the management team are COO Tiia Kuusimäki, Chief Commercial Officer Juan M. Benitez-Garcia, Production Manager Jouni Ahtinen, Project Manager Benoit Formesyn, Strategy Director Troels Nørgaard and Brand and Chief Experience Officer Laura Sinisalo. Over the past year, the company has added several new members to its management team as it prepares for a new phase of growth. Insider ownership is at a good level as the Board of Directors and management team together own approximately 26% of the shares and employees have outstanding stock options.

Solar Foods' strong focus on research and product development is reflected in the distribution of the company's employees. 56% of employees work in production and process development, 9% in new organism development, 7% in product application development, and others in new food regulations, business development, branding and administrative functions.

Karl Fazer is the largest shareholder

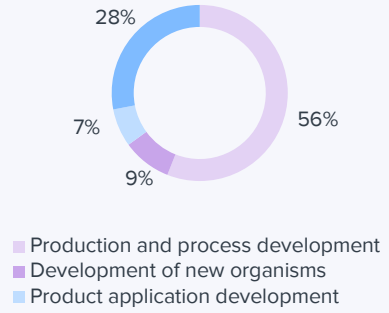
As a result of the share consolidation at the time of going public, Solar Foods now has only one series of shares. Ownership of Solar Foods has so far been quite concentrated, with the top ten shareholders holding 72% of the company's shares at the time of listing. The largest owner of Solar Foods is the Finnish company Fazer, which is also a partner in the company. In addition to the major shareholders, the company also has a significant number of retail investors as a result of the financing rounds arranged by Springvest, which allowed the listing to take place without a share issue. In assessing the ownership structure of Solar Foods, it is important to consider the company's existing options, which represent approximately 8% of the current share capital. The warrant holders include the company's management, employees and Springvest, which arranged the company's financing rounds.

Largest shareholders and outstanding options

Shareholder	Total shares	Share of shares
Oy Karl Fazer AB	3,148,064	13%
Juha-Pekka Pitkänen	3,039,000	12%
Lifeline Ventures Fund III Ky	2,607,044	11%
Pasi Vainikka	2,330,000	9%
Bridford Investments Limited	1,820,247	7%
VTT Ventures Oy	1,735,382	7%
Agronomice Investment Holdings Limited	1,563,271	6%
Ilmastorahasto Oy	1,441,910	6%
Total	**17,684,918**	**72%**
Total number of shares	**24,553,107**	**100%**

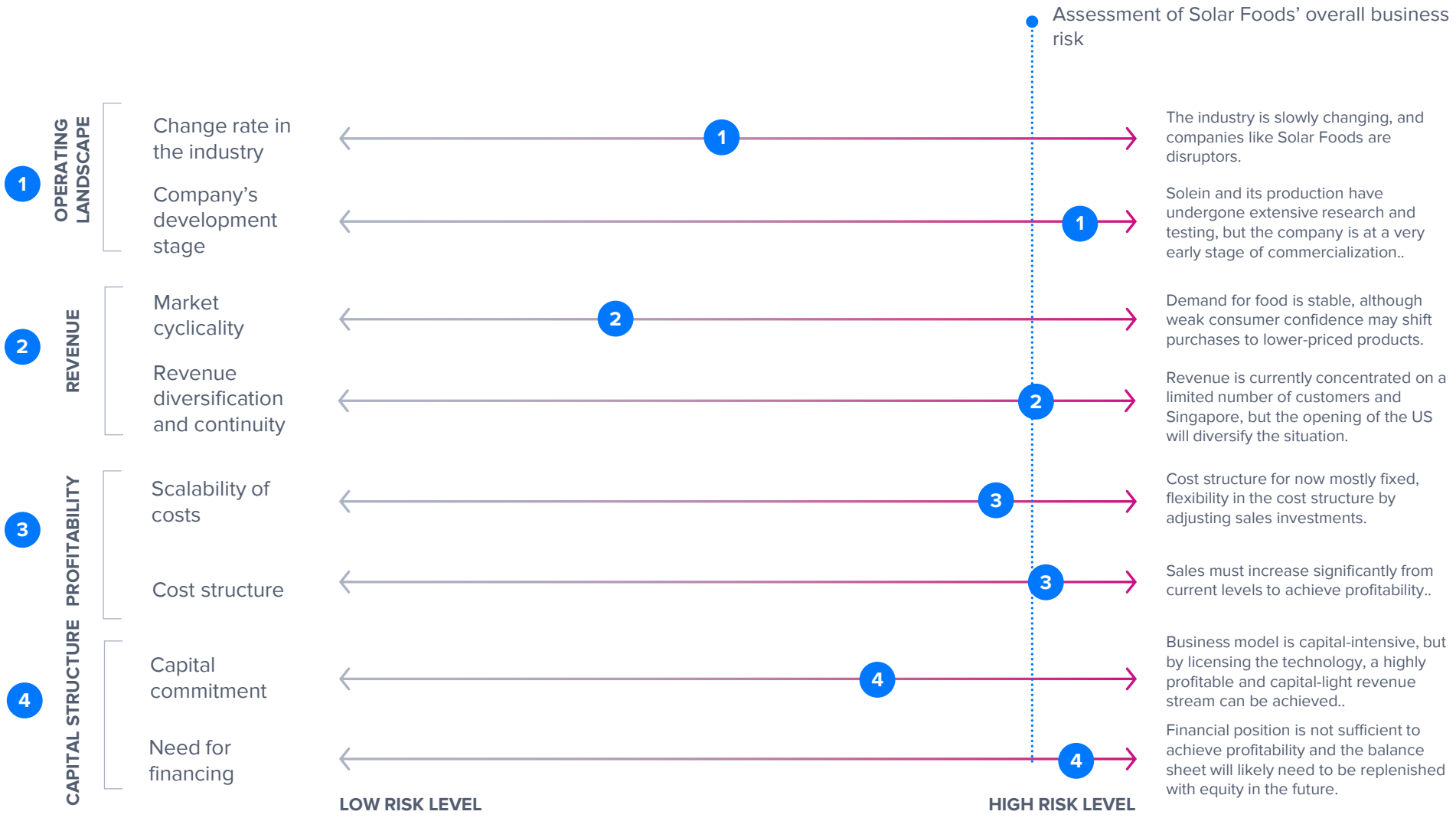
Option schemes	Amount	Subscription price
2020/1[1]	284,000	€ 0.21
2020/2[1]	768,000	€ 2.75
2023/1[2]	30,110	€ 0.001
2024/2[2]	21,832	€ 0.001
2024/2[1]	953,250	€ 2.75
Total number of options	**2,057,192**	
Total diluted number of shares	**26,610,299**	

Solar Foods' personnel distribution



1) employee incentive plan, 2) awarded to Springvest in connection with the funding round

Risk profile of the business model



Source: Inderes

Industry and competitive field 1/6

Alternative protein sources becoming more popular is expected to drive market growth

The global market for consumer protein products is very large, with nearly 600 million tons of protein products consumed annually.[1] As populations grow and emerging economies become more affluent, global protein consumption is expected to continue to increase. For Solar Foods, however, the relevant market is limited to animal-based alternative protein sources, and the company estimates the size of the relevant market for its first Solein product in 2022 to be approximately 3.8 BNEUR. According to the Boston Consulting Group, the market share of alternative proteins will be only about 2% or 13 million tons in 2020 but is expected to grow to 11% in 2035 (14% annual growth) in their baseline scenario. Of course, this estimate is only indicative, and the future penetration rate of the category will determine the rate of growth. Within the category, BCG expects cell-based protein to grow significantly faster than plant-based substitutes, but plant-based products will remain the primary substitute for animal-based protein. A key barrier to the adoption of fermented proteins is the global lack of suitable production facilities, as existing fermentation plants, e.g. for beverages, are not suitable for protein fermentation, requiring a wave of investment to scale up the production process[2].

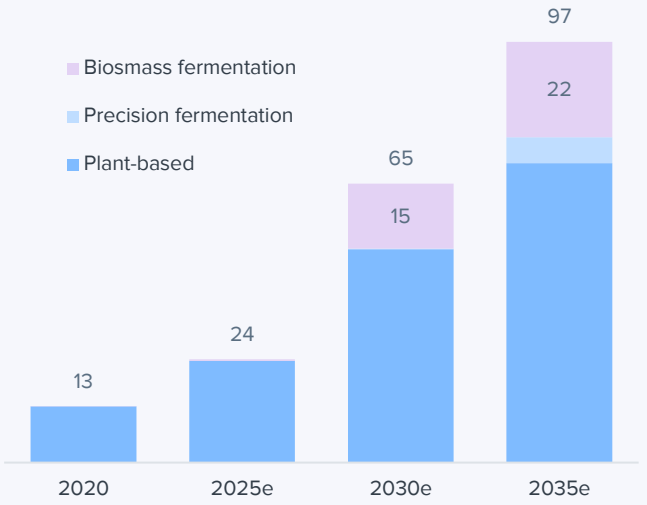
Production methods using cellular farming can be divided into three categories

Proteins produced by cellular farming can be divided into three groups based on the method of production: 1) precision fermentation, 2) biomass fermentation with sugar, 3) biomass fermentation with hydrogen and carbon dioxide[1]. We have summarized the general characteristics of the different production methods in cellular farming on the following page. BCG estimates that biomass fermentation (which Solar Foods uses) will experience the fastest percentage growth within the category from 2025 to 2030, but growth in precision fermentation will accelerate from 2030 to 2035 as technological advances drive down production costs. The growth projected by BCG requires that substitutes are competitive with animal products in terms of taste, texture and price.

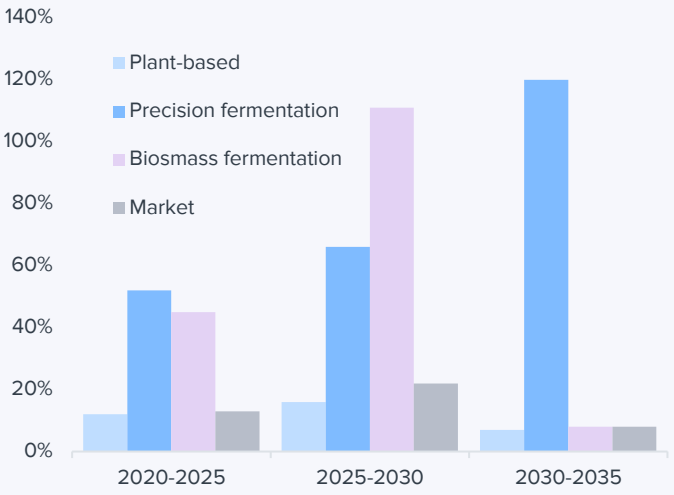
In addition to Solar Foods, the third group includes Air Protein and Farmless. The group uses hydrogen to grow microbial cells as an energy source and the entire cell mass as a raw material for protein. Solar Foods believes that biomass fermentation using hydrogen and carbon dioxide is the most sustainable way to produce protein and food when the production is powered by renewable energy.

The weaknesses of Solar Foods' production process, according to the company, are the need for novel food authorizations, the new nature of the production process, and the lack of existing infrastructure. According to Solar Foods, the company's Factory 01 plant is the first commercial-scale factory to produce food products from biomass fermented protein using hydrogen and carbon dioxide. Despite the novel nature of the production process, we believe that there are several players in the industry capable of providing equipment for manufacturing, and therefore equipment manufacturing does not represent a significant bottleneck in the value chain.

Alternative protein market[1] (million tons)



Alternative protein market growth[1] (CAGR)



1) Source: BCG, Food For Thought: The Protein Transformation (2021), 2) GFI: 2023 State Of The Industry Report: Fermentation

Industry and competitive field 2/6

Protein production methods utilizing cellular farming

	Precision fermentation	Biomass fermentation with sugar	Biomass fermentation with hydrogen and carbon dioxide
Description	• Animal proteins are produced by microbes • Microbes are genetically engineered to enable the process • Microbes are grown in bioreactors where they produce the desired proteins outside the cell	• Microbial cells are grown and the entire cell mass is used as feedstock for protein • Typically, fungal cells are used • The main raw material fed to the microbes is sugar produced in agriculture	• Microbial cells are grown and the entire cell mass is used as feedstock for protein • The main raw materials fed to microbes are hydrogen and carbon dioxide
Examples of companies	PERFECT DAY, EVERY, change FOODS, remilk., Formo	Quorn, MICRO HARVEST, BlueNalu, MYCORENA, ENOUGH	SOLAR FOODS, air protein, Farmless
Strengths	• Ability to produce proteins identical to milk or eggs, but without an animal • It is easy to replace existing animal proteins in consumption, as the proteins are identical	• Technologically simpler fermentation process contributes to competitive cost levels • Not all varieties require novel food authorization	• Solar Foods says this is the most sustainable way to produce protein and food if using renewable energy • Can be produced anywhere and anytime • Competitive with any other protein in large-scale production, according to Solar Foods
Weaknesses	• Requires novel food authorization • Complex technology makes it difficult to achieve competitive cost levels • Authorities may consider products to be genetically modified, which may make it difficult to obtain novel food authorization.	• Cost level not yet competitive with soy • Price depends on grain price and availability • Longest history and clearly more established than other fermentation methods	• Requires novel food authorization • New technology with little to no associated know-how or production infrastructure

1) Source: Solar Foods

Industry and competitive field 3/6

Interest in cellular agriculture has continued

Despite the industry's need for investment and the tighter global financial environment in recent years, interest in protein production through cellular farming remained strong in 2023, although the number of new entrants and the amount of capital raised has declined significantly. According to statistics from the Good Food Institute (GFI), the number of companies focused on protein production through fermentation rose to 158 worldwide last year (153 in 2022), and a total of 7 new protein fermentation plants were opened. The majority of protein fermentation operators are located in Europe (61), but there is also a significant number in North America (50).

Partnerships play a key role in scaling up production

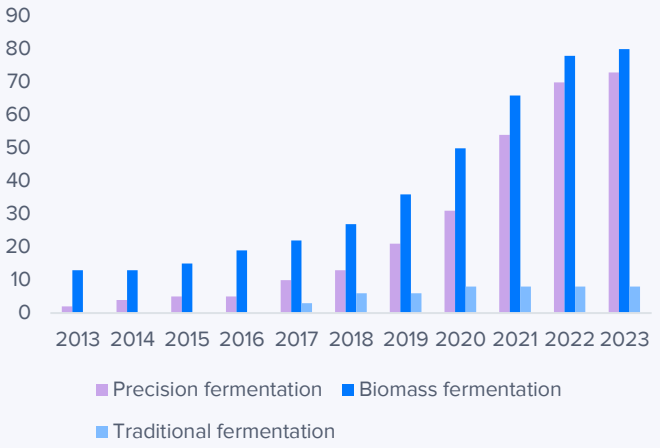
Fermented protein is of interest to mature large food companies such as Danone and Nestle, as at least 123 external companies will be involved in the industry by the end of 2023, either through investments, partnerships, or joint product launches. We have summarized the exposure of major food companies to alternative protein sources on the following page.

We believe that partners play a key role in the growth of the category, as they can support growth through their product development, distribution channels and capital. Given the significant wave of investment required for the adoption of cellular farming and the early stage of development of companies in the sector, we expect partnerships to play a key role in scaling up production. For example, Fermbox Bio, an Indian precision fermentation company, and BBGI, a Thai company, have formed a joint venture to scale up production, with BBGI contributing upstream and process expertise and financing. Private label food manufacturer LiDestri Foods has funded an 8.5 MUSD investment in a new production facility by precision fermentation company Fermentum In addition to direct factory investments and joint ventures, we believe it is likely that future factory investments will be financed through other instruments, such as licensing deals and prepayments for future production.

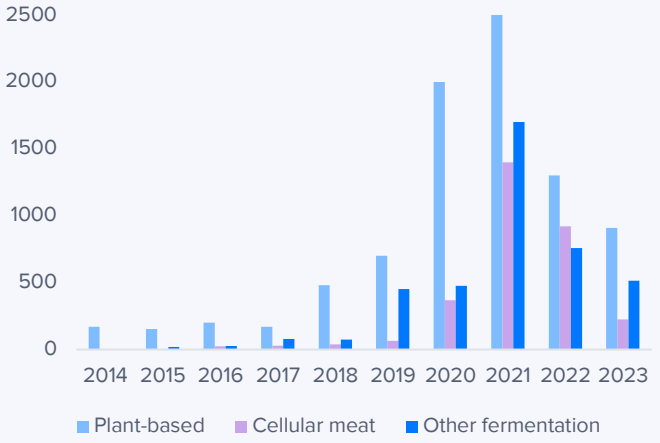
Air Protein is Solar Foods' most direct competitor

Air Protein and Farmless are the only companies we know of using hydrogen fermentation for protein production. Unlike Solar Foods, Air Protein's products require a separate processing step to ensure the protein is safe for consumers. Solein does not require a similar processing step, which we believe may make it more cost effective to manufacture on an industrial scale and more suitable for space-constrained environments, such as the aerospace industry. Our view of Solar Foods' competitiveness in space applications is supported by the company's victory in the third round of NASA's Deep Space Food Challenge

Number of companies producing protein using different production methods[1]



Capital raised by alternative protein manufacturers (MUSD)[2]



Source: Good Food Institute, State of the Industry Report: Fermentation (2023)

1) Number in GFI database, 2) GFI

Industry and competitive landscape 4/6- Exposure to alternative protein producers

Source: GFI, State of the Industry Report 2023

Industry and competitive field 5/6

Solar Foods ahead of the competition in R&D and commercialization

In addition to Air Protein, Farmless is another competitor focused on hydrogen fermentation. Founded in late 2022, Farmless' production method differs from its competitors in that the microbe draws its energy from a liquid instead of a hydrogen gas. The company is at a remarkably early stage compared to Solar Foods and Air Protein.

In addition to these players, the University of Massachusetts Amherst and the Welsh government-funded FerMôntation project are investigating the use of hydrogen fermentation for protein production. Despite competing projects, we believe that Solar Foods is the largest hydrogen fermentation company in terms of personnel, production capacity and number of patents. We see a clear pioneering advantage in the industry in terms of production processes, as new entrants have to navigate an existing patent jungle to develop their own production process. We believe this may limit the ability of a new entrant to commercialize the microbe it discovers, even if it is competitive in terms of taste or growth rate and may drive industry consolidation at a later stage of development.

Traditional proteins the main competitor

Despite the similarity of the businesses of Solar Foods, Air Protein and other biomass fermentation companies, we see traditional protein sources as the main competition for Solein. This is due to the non-existent market share of cellular agriculture, which means that a consumer switching to Solein is very likely to switch from traditional protein sources rather than from a direct competitor for a long time to come. For example, the visibility and acceptance of Air Protein by regulators and consumers may even benefit Solar Foods by raising consumer awareness and potentially dispelling doubts about cellular agriculture.

In addition, government and consumer attitudes toward cellular agriculture are critical to business growth, as Solein's target market is very limited with current novel food authorizations. We believe it is critical to the success of the category that operators are able to invest in industrial-scale production facilities and bring the price point of the category down to a level that is competitive with traditional protein sources.

Precision fermentation has the potential to become a very real competitor to Solar Foods' solutions, but BCG estimates that it will take years for the technology to become viable as technological advances bring production costs closer to alternative protein sources and as novel food authorization processes advance in key markets. Precision fermentation makes it possible to produce a product that is virtually identical to animal protein in a laboratory environment, so switching to does not require customers to adapt to new tastes or compromises in product use. Solar Foods will also gain exposure to precision fermentation if the HYDROCOW project achieves its goals.

Company	Number of patents[1]
The Every Company	89
Solar Foods	85
Nature's Fynd	82
Perfect Day	68
Corbion	53
Mycotechnology	52
Air Protein	47
Marlow Foods (Quorn)	39
Algama	35
Geltor	32
The Protein Brewery	31
Calysta	28
Mycorena & C16 Biosciences	22
Meati Foods	21
Superbrewed Food Inc	20
Formo Bio Gmbh	19
Nextfern & Prime Roots	18
Checkerspot & Sophies Bionutrients	14
Impossible Foods & New Culture	13

1) For the last 36 months in 2023. Includes patent applications. Source: GFI 2023 State of the Industry Report

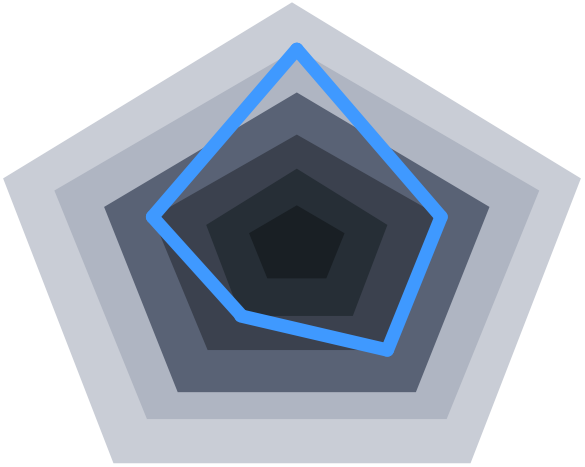
Industry and competitive landscape 6/6

Current competitive situation (significant*)

- The industry is growing at a moderate pace and competition for consumer attention is fierce.
- The return on capital in primary food production is low, but Solar Foods' solution is unique within the industry framework.
- Significant cost advantage over many traditional protein sources, if the company is able to reduce the production cost of Solein as expected.

Threat of substitutes (low*)

- Cellular agriculture challenges and competes with conventional agriculture.
- Solar Foods is a disruptor, but the commercial viability of its products has yet to be proven.



Bargaining power of suppliers (low*)

- Raw materials used in production are bulk commodities and there are no significant costs associated with switching suppliers.
- Suppliers have little room for differentiation, so the market mechanism determines the price level.
- No threat of vertical integration of suppliers.

Threat of new competitors (minor*)

- Entry into cellular agriculture requires very high initial investments in both research and production.
- In addition to production, the sector requires investment in product development and building a brand and distribution network.
- In manufacturing, product development, and distribution, economies of scale can create competitive advantages that create moats. Solar Foods' main competitive advantage over traditional players may be the efficiency of the production process and a lower cost structure.

Customer bargaining power (low*)

- Solein is a highly competitive product in terms of nutritional value and environmental impact, but large-scale consumer sales require competitive pricing.
- Distributors do not have similar products available on a large scale, which increases Solar Foods' pricing power.
- Solein can be produced in environments where there are no other sources of protein (e.g. space, extremely arid regions), which theoretically increases pricing power to very high levels in some places.

*Inderes' view of the threats caused by industry power for Solar Foods on the scale no threat, minor, low, moderate, significant and high.

Strategy and objectives 1/2

Solar Foods' strategy for global growth: Going global with the business

Development of technology platform

Solar Foods' strategy is to create a microbial and hydrogen fermentation technology platform capable of producing food and raw materials in a sustainable manner.

Commercialization of products

Solar Foods is advancing the commercialization of Solein by applying for novel food authorizations for the product in various markets and by developing new products containing Solein in collaboration with food companies.

Scaling up production technology

To scale up production, Solar Foods plans to invest in factories, either on its own balance sheet or with partners, depending on the situation.

Strategic acquisitions

Acquisitions that accelerate the development of the technology platform are part of Solar Foods' strategy.

Inderes' comments on Solar Foods' strategic focus areas

- The company has a strong R&D background in DNA, which makes acting as a technology platform a natural area of strength.
- As part of the technology business, Solein is being further processed and new commercially viable microbes are being studied. The successes of the HYDROCOW project may provide a more efficient means of precision fermentation than current production methods. In turn, a new microbe that grows more efficiently than Solein could allow for expansion into pet food or animal feed production.

- To commercialize its products, Solar Foods is seeking regulatory approvals in new markets and working closely with partners to launch new products.
- The commercialization process for Solein requires significant investment in sales and marketing to build global awareness of the product.
- We believe that achieving production costs that are competitive with other proteins is critical to scaling up Solein production.

- In our view, that technology licensing and joint ventures are the most direct path to profitable cash flow, but the terms may be unfavorable at the current stage of commercialization.
- The existing letter of intent with a global hydrogen fermentation company can facilitate the rapid scaling up of the licensing business.
- The first investment to expand production may well come from the space business.

- We believe that Solar Foods' management has the ability to screen promising technologies at an early stage of development, but without evidence of historical acquisitions, the ability to create value inorganically makes us wary.
- In our view, the industrial logic for acquiring peers focused on hydrogen fermentation would be straightforward: access to Solar Foods' production methods, a commercialization platform for new foods, and the elimination of duplicative R&D efforts.

Source: Solar Foods, Inderes

Strategy and objectives 2/2

Solar Foods strategy periods

Objectives for the demonstration phase (2021-2028)

Proving scalability: Demonstrate scalability of hydrogen fermentation and reach full production capacity of Factory 01 plant

Food authorization: Achieve food regulatory status and revenue from North America, Europe and Asia

Inderes' comments on the objectives

- With Solein's self-affirmed GRAS status in the US, the path to increased sales seems straightforward, although some customers also require an FDA No Questions Letter. Ramp-up of sales in the US will also support regulatory approvals in markets such as Japan, while the company expects regulatory approval in the EU in 2026.
- Solar Foods expects revenue in the demonstration phase to come from food companies that produce Solein products for consumer sale. To date, the company has letters of intent with two global food companies to commercialize products containing Solein and dozens of material testing agreements with various food companies. In addition to new customer contracts, the company aims to improve the cost efficiency of Solein's production.

Objectives for the full-scale phase (2024-2028+)

Industrial-scale production: Design, implementation and commissioning of a large production facility (Factory 02)

Global production: Increasing the global capacity of dozens of Solein factories, some owned and some operated by partners.

Inderes' comments on the objectives

- Solar Foods estimates the investment cost of Factory 02 at 150-420 MEUR. At the current stage of development, the financing solutions for the plant are of particular importance, as the decision on who will finance the first full-scale Solein plant will determine the capital requirements for the next few years. The company has signed a letter of intent with a major global fermentation company for the construction and commercialization of a large-scale facility that, if realized, would outsource at least part of the investment to the partner. The company has 76 MEUR outstanding from the 110 MEUR IPCEI funding notification received for Factory 02, although there is no funding decision in force.
- In our view, the scale-up phase is critical to competitiveness, as the entire industry faces a lack of funding. Those who scale their businesses in the coming years will enjoy a clear first-mover advantage in building their brands, forging partnerships, and gaining valuable knowledge of cellular agriculture.

Objectives for the technology platform phase

Into space: Expanding business from the ground to space stations

Inderes' comments on the objectives

- Winning the NASA Deep Space Food Challenge raised Solar Foods' profile with commercial space station operators, and the company is already in discussions with several space operators to license Solein. We see significant potential for technology licensing in space applications due to the unique advantages of hydrogen fermentation, but we estimate that the true commercialization potential will not become clear until the 2030s.

Source: Inderes, Solar Foods

Financial position and historical development 1/2

Other operating income and capitalizations should be considered

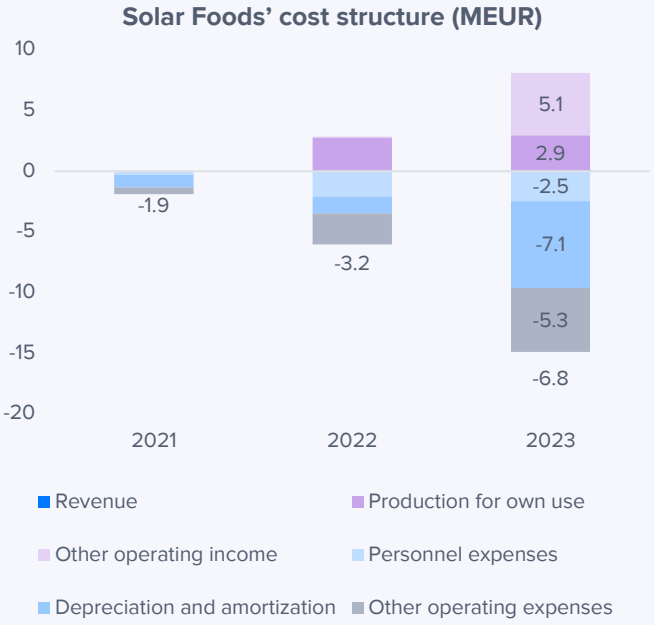
Solar Foods has just begun to commercialize Solein in its first market, so the company has not had significant revenues in recent years. However, with the opening of the new Factory 01, a novel food license in Singapore and self-affirmed GRAS status in the US, the company is now in a position to increase sales.

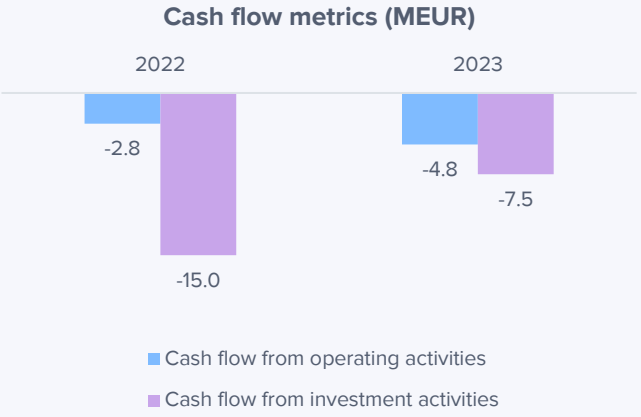
For a manufacturing company, Solar Foods has unusually high levels of production for own use and other operating income in its income statement. Production for own use results from the capitalization of current expenses in the balance sheet as they are expected to generate income in future accounting periods. The capitalization of expenses increases the profit for the financial year, but this must be taken into account when estimating the profit level due to the negative cash flow effect of the item. In turn, other operating income mainly reflects grants received by the company, which amounted to 5.1 MEUR last year, mainly from Business Finland in connection with the company's IPCEI grant.

As part of the Important Project of Common European Interest (IPCEI) launched by the European Commission in 2022 to support research and innovation in hydrogen technology, the Solar Foods Factory 01 and future Factory 02 investments have been granted IPCEI status, which does not guarantee funding. The total planned value of the project application submitted by the company is around 600 MEUR, of which the maximum amount of IPCEI support according to the notification received is 110 MEUR, of which the company has received a funding decision from Business Finland for 33.6 MEUR. This funding from Business Finland represents a grant of around 83% of all activities and costs planned for the project and will significantly support Solar Foods' profitability. To date, Business Finland's IPCEI grant to the company has amounted to approximately 72% of the company's reported costs, totaling 9.7 MEUR.

Looking at the company's cost structure, the size of the business has increased significantly in terms of personnel expenses, depreciation and amortization and other operating expenses. In 2022, the company had an average of 21 employees, compared to 45 today. The introduction of Factory 01 at the end of 2023 has a significant impact on the company's income statement due to the increased depreciation, but also due to the staffing requirements. Solar Foods' increased depreciation is driven by the commissioning of Factory 01, which started to accumulate depreciation on related machinery and equipment. The increased amount of intangible assets created by the capitalizations also increases Solar Foods' depreciation level. To our understanding, the depreciation recorded by the company is highly correlated with the IPCEI grant paid against Business Finland's retroactive expenses, and we expect the grants to cover a significant portion of the depreciation in the coming years.

The commissioning of Factory 01 will significantly reduce Solar Foods' need for capital expenditures, limiting negative cash flow in the coming years. However, the next major investment cycle will come with the decision to invest in Factory 02, if Solar Foods decides to finance it itself.





Financial position and historical development 2/2

Factory 01 dominates the balance sheet

Solar Foods has an unusual balance sheet for a technology company due to the 20 MEUR of intangible assets related to Factory 01. The company operates as a tenant in the factory premises, which increases the volatility of the result. Solar Foods follows FAS accounting, so no lease liabilities or tangible assets for the factory premises are recognized in the balance sheet, but the lease liabilities recognized in the notes amount to around 23.6 MEUR at the end of 2023.

Hydrogen fermentation requires a heavy balance sheet, so in the longer term the key driver for the balance sheet structure is the split of the business between primary food production and acting as a technology platform. The technology platform business would increase the company's intangible assets through capitalized R&D investments and the balance sheet intangible assets of 9.5 MEUR are related to this. The capitalization of R&D costs creates a balance sheet write-off risk if these investments do not generate the expected revenues. Solar Foods' significant accrued income of 6.7 MEUR relates to the amortization of the company's cooperation projects, part of which was also recognized as advance payments received.

Balance sheet turned to net cash

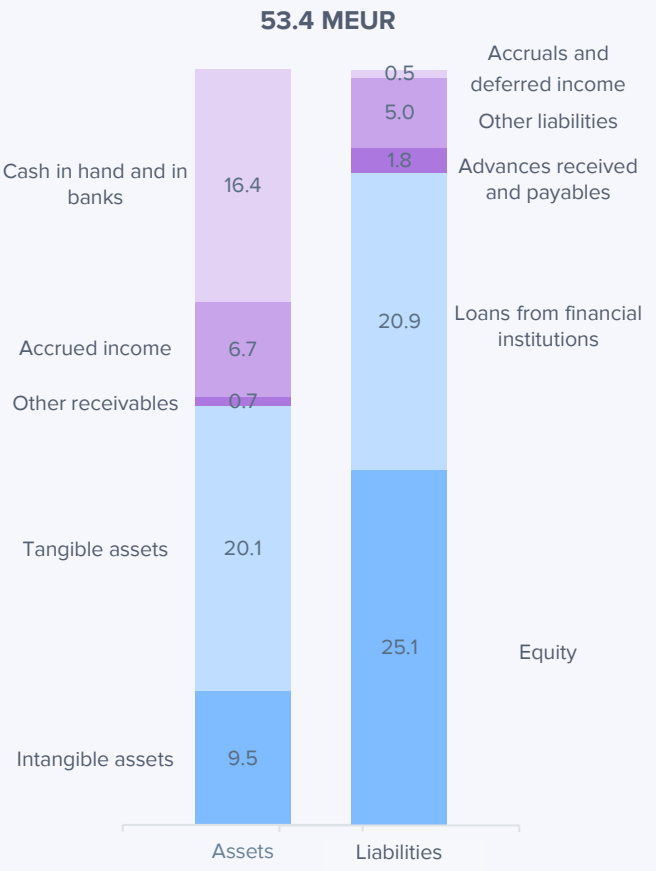
Solar Foods had a net debt of 4.6 MEUR at the end of 2023, but the balance sheet has since been strengthened by Springvest's financing round and at the end of H1'24 the company's net cash position had increased to 3.3 MEUR. The listing on Nasdaq Helsinki in September did not involve the issuance of shares, so the financial position is not expected to have changed significantly from H1. In 2018-2024, the company has raised approximately 51.4 MEUR in equity financing.

For an early-stage growth company, Solar Foods has a significant amount of interest-bearing debt, which is related to the significant capital requirements of the business, but also to the company's ability to access low-cost financing through various support projects. Given the availability of debt capital, we believe it is justified to use it as part of the financing mix to meet investment needs. At the end of 2023, the company had a total loan of 16.3 MEUR from Danske Bank with an interest rate of 3-month Euribor + 2.27% until the end of 2025, after which the loan margin will increase to 4.03%. Business Finland's product development loans amount to 4.6 MEUR and carry an interest rate of 1.25% or 3 percentage points below the Ministry of Finance's base rate, whichever is higher.

In general, we consider the cost of financing to be very moderate in relation to the company's stage of development and risk profile. The loan from Danske Bank is covenanted to maintain cash and cash equivalents of at least 4 MEUR and a net leverage ratio of less than 1.5x, which limits balance sheet flexibility. In addition, quarterly loan repayments of 0.68 MEUR will commence at the end of September.

However, the company will have to be particularly careful with its financing solutions in the coming years, given its loss-making performance, and equity will most likely also be used as part of the financing of the business. At the current stage of Solar Foods' development, the development of the balance sheet ratios must also be taken into account when assessing the development of the business, as the ratios alone are not very meaningful and will continue to deteriorate for years to come with a loss-making result and a negative cash flow.

Solar Foods' balance sheet position 2023



Investment profile 1/5

Early-stage growth company

Solar Foods is an early-stage, high-risk growth company. If successful, the company has the potential to bring to market a unique, highly competitive product in a huge industry with a very positive environmental impact. On the flip side, the early stage of development and the potentially very significant capital requirements of the business mean that the investor bears the risk of dilution and even total loss of capital.

Positive value drivers and opportunities

The need for solutions like Solar Foods is obvious

About one-third of global greenhouse gas emissions are caused by food production and related land use. At the same time, protein consumption is expected to increase, creating significant societal pressure for more sustainable solutions. Solar Foods' technology platform addresses the challenges of food production, but the company's solutions have yet to move from theory to practice and onto consumers' plates. Having tasted Solein, we do not see its taste or functionality as a barrier to adoption, but its consumption requires the ability to produce it at a price competitive with other proteins. In addition, the product must go through various novel food authorization processes and be widely available to consumers. The need to find new sources of protein with a lower environmental impact is clear for both food processors and grocers to maintain consumer interest and meet their own sustainability goals.

The sector's entry threshold is significant

Given the unique technology, know-how, novel food authorizations and upfront investment required for cellular agriculture, we see a significant barrier to entry. Those who can scale their business to profitability will have a clear advantage over future companies. In our view, this may put pressure on new entrants to partner with established players with expertise in scaling up production and commercialization processes for new products. Due to the high barriers to entry, we believe that partnering with or acquiring Solar Foods is a more attractive option for a player interested in hydrogen fermentation than organic expansion into the industry. However, for a buyer interested in commercializing Solein, the licensing agreements may make Solar Foods less attractive as an acquisition target.

Positive social impact

Solar Foods can have a significant positive impact on society through its business if Solein is successful as a consumer product. As a result, Solar Foods is better positioned than the average company to receive grants and subsidies from both government and partners, which may reduce the company's return on equity requirement below that of a company with a similar profile. Given the significant capital requirements of the business, it is critical to the investment story that the company is able to forge the right partnerships, as we expect partners to play a key role in scaling the production of cellular farming.

Risks and threats

The valley of death associated with scaling production still lies ahead

As cellular agriculture emerges as an industry, we see the valley of death caused by the need for capital to scale production as a critical watershed. Those who are able to overcome the challenges of capital requirements will enjoy valuable first-mover advantages and significant barriers to entry that will protect their position in the future. To our understanding, Solar Foods has made the most progress in hydrogen fermentation, both in terms of commercialization and research, but there is still a significant challenge ahead.

Current production may not be sufficient for technology agreements

Scaling up Solein production on an industrial scale requires a significant amount of capital, which may be difficult for Solar Foods to raise. As a result, revenue from licensing Solein would be particularly attractive to the company, as under the licensing model, the partner would be responsible for the capital requirements of the facility. Factory 01, with its limited production capacity, may not be enough to convince partners of the attractiveness of Solein's production, which could force Solar Foods to invest in a larger production facility from its own balance sheet.

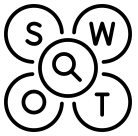
Investment profile 2/5 - SWOT

Strengths

- An environmentally friendly production method that is not susceptible to many of the weaknesses of traditional agriculture
- A first mover in an industry that requires years of R&D, long commercialization processes, and a significant amount of capital to break into
- Good track record of grant funding and low-cost financing
- Ability to innovate and create completely unique solutions
- Strong international reputation in relation to the stage of development

Weaknesses

- Solein's market viability has yet to be proven on an industrial scale
- Food authorization processes continue to limit conditions for sale
- Production capacity of Factory 01 is not sufficient to achieve profitability, and internal financing alone is not sufficient to invest in Factory 02
- The food industry is slow-moving, and it takes time for customers to launch new products



Opportunities

- Opportunity to bring a superior product to market in terms of price competitiveness and environmental impact
- Licensing would allow for a highly profitable and capital-intensive business
- As a technology platform, the investment story is not limited to Solein, but the company may find other commercially viable microbes
- Due to the significant positive social impact of the business, the company is able to obtain financing at below-market rates
- Solar Foods is an interesting takeover target

Threats

- Novel food application rejected in a key market
- Management with specific skills, which creates a key person risk
- Future capital requirements of the business are significant compared to the current balance sheet position
- Solein's high mineral content may limit its uses more than expected

Source: Inderes

Investment profile 3/5 - Investment cycle

Industrial-scale production facilities are a major investment

Factory 01 was an investment of more than 40 MEUR for Solar Foods, including the factory's working capital. The 20 cubic meter bioreactor is the heart of the plant and will enable the production of around 160 tons of Solein per year. Due to the small size of the plant and its relatively high fixed cost structure, it does not get close to the profitability of a full-scale industrial plant. However, the factory is key to forging strategic partnerships and building expertise in cellular agriculture.

Solar Foods' future capital investment needs will depend on the number of bioreactors in the facility and the location of the facility. Depending on the size and location of the plant, Solar Foods estimates the investment required for the plant to be between 150 and 420 MEUR. We believe that this estimate includes the real estate investment, the electrolyzer required for hydrogen production, and the working capital requirements for manufacturing. Thus, any sale and leaseback arrangements or outsourcing of hydrogen production would reduce the actual capital requirements.

In cold regions such as the Nordic countries, investing in a plant would be more expensive, but in cold climates, the company estimates that it could sell the heat generated by the plant to the district heating network. The cost of investing in a plant would be lower in a mild environment and lowest in the southern hemisphere, but we estimate that a full funding decision on the remaining 76 MEUR IPCEI notification from the EU would likely be conditional on the plant being built in Europe.

A key metric in evaluating the efficiency of hydrogen fermentation is productivity, which indicates the rate of biomass growth in the bioreactor. Solar Foods tracks this in kilograms per bioreactor cubic meter per hour (kg/m3/h). Solar Foods has been able to increase this ratio tenfold during its pilot, which significantly reduces the cost of production and improves the capital turnover rate. A similar leap in efficiency no longer seems possible, but in light of research data, the company believes that doubling productivity from the current level of 1 kg/m3/h is a realistic goal. This would significantly increase the profitability of production. Solar Foods aims to be able to produce Solein on a 12x200m3 scale at a price of around EUR 2.8-3.4 per kilo. In addition to improving productivity, achieving this goal requires reducing the current oxygen/carbon ratio of the growth process from 3x to 2x. Achieving this would reduce the amount of water generated in the process and lower the amount of electricity required for production.

	Factory 01	6x200 m3 industrial production plant	12x200 m3 industrial production plant
The need for investment	Over 40 MEUR	150-270 MEUR	230-420 MEUR
Volume of bioreactors	20m^3	6 x 200 m^3	12 x 200 m^3
Production capacity (tons/year)[1]	160	9,000	18,000
Estimated production cost[2]	High	3.4-6.5[2,3]	EUR 2.8-5.2/kg[2]

1) Calculated at current productivity of 1kg/m3/h, 2) EUR 40/MWh electricity price, excluding capital costs. The upper limit reflects the price if the factory were built now. Lower limit reflects the target level of production, NB: 3) Inderes' estimate

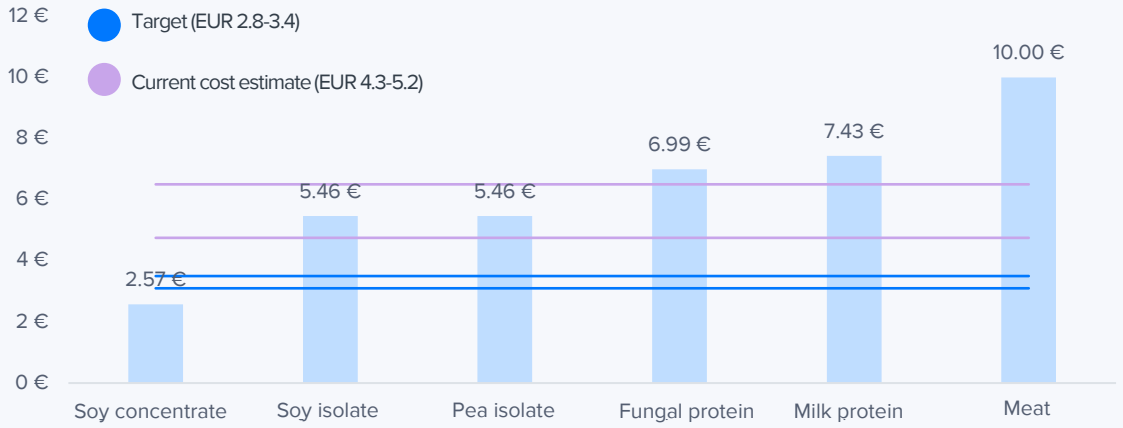
Investment profile 4/5 - Investment cycle

Electricity price critical to production costs

We believe that the key to commercializing Solein is to achieve a price level that is competitive with other protein sources. We have summarized below the company's expectations of the various variable costs and what their impact would be on Solein's price per kilo if the Factory 02 were to be built now at a size of 200x12m^3. With electricity prices playing a critical role in production costs, accounting for more than half of Solein's production costs, the local price of electricity is certainly a key factor in the investment decision for Factory 02. Another key factor in location is, of course, the preferences of the potential partner.

When comparing to other proteins, it should be noted that Solein's cost estimate does not include the cost of capital and that the graph compares selling prices to Solein's cost of production, which does not include costs incurred further down the value chain of the product. Achieving premium pricing for these protein sources does not seem far-fetched to us, especially in the early stages of commercialization, given Solein's high protein content, good amino acid profile, and vegan nature. However, in terms of sales volume, it is clear that the lower the price can be driven down, the higher the demand for the product.

Prices of protein sources competing with Solein in Europe (€/kg)[1]



1) Solein's current price estimate calculated at an electricity price of EUR 40/MWh, target level at EUR 20-30/MWh, size 200x12m3. Source: Mintec Plant-Based Protein Monthly Market Insight, 2023

Solein's estimated production costs by cost type, if Factory 02 were built now at a size of 12x200 m3

Type of cost	Minimum	Maximum
Electricity	€ 2.50/kg	€ 3.00/kg
Ammonia, carbon dioxide	€ 0.65/kg	€ 0.80/kg
Minerals	€ 0.60/kg	€ 0.70/kg
Other raw materials	€ 0.20/kg	€ 0.25/kg
Utilities	€ 0.10/kg	€ 0.10/kg
Salaries, maintenance, etc.	€ 0.85/kg	€ 1.05/kg
Selling heat	€ -0.60/kg	€ -0.70/kg
Total	**€ 4.30/kg**	**€ 5.20/kg**

Investment profile 5/5 - Investment cycle

Gross profit per kilo and balance sheet turnover as key parameters for future factories

In terms of the profitability of Solar Foods' future factory investments, we estimate that the three most important factors are the gross margin of Solein sold, the capital efficiency of the factories, and how/who will finance the investment. In the sensitivity tables below, we have visualized the plant-specific return on capital for different gross profits per kg of Solein produced and different productivity assumptions. Our table is simplified in that the productivity change described only affects the potential volume of production, not the gross profit per kilo sold. The table shows that achieving a return on investment of more than 20% requires a gross profit of EUR 3.5 per kilogram of Solein sold at the current growth rate of 1 kg/m^3/h in a 12x200m^3 plant. At Solar Foods' current estimated cost per kilo of industrial-scale production of EUR 4.3-5.2 and a cost of capital of 4%, a kilo of Solein produced in a full-scale plant would have to cost EUR 8.1-9.1 to achieve a 21% return on investment at current productivity levels. We believe this is a rather realistic level at the current stage of development of the cellular farming industry.

For Solar Foods, it seems clear from the calculation that research into the productivity of Solein growth is worth pursuing in order to increase profitability. However, the decision is not so straightforward, as there may be efficiencies beyond Solein's production, such as precision fermentation or new microbes, if the company is able to raise its price point through either.

We estimate that Solar Foods' cost of capital is significantly higher than that of a large food company such as Ajinomoto due to its high risk profile and early stage of development, making it much easier to exceed the required return on investment if the plant is financed by various public entities (e.g. IPCEI support) or a partner. Overall, Factory 02 appears to be a profitable investment based on the company's estimates, but we expect a potential partner to negotiate good terms for itself if Solar Foods relies on the partner to finance the project.

Return on invested captail for a 12x200 m3 plant with different expectations[1]

Productivity (kg/m³/h)	Gross profit per kilo (€)									
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
1	3%	6%	9%	12%	15%	18%	21%	24%	27%	30%
1.2	4%	7%	11%	14%	18%	21%	25%	28%	32%	35%
1.4	4%	8%	12%	17%	21%	25%	29%	33%	37%	41%
1.6	5%	9%	14%	19%	24%	28%	33%	38%	43%	47%
1.8	5%	11%	16%	21%	27%	32%	37%	43%	48%	53%
2	6%	12%	18%	24%	30%	35%	41%	47%	53%	59%

	Cost/kg before cost of capital
Estimated cost of production per kilogram[2]	EUR 4.3-5.2/kg
Target level	EUR 2.8-3.4/kg

1) Utilization rate estimated by the company at 8,000 h/year with an estimated investment of 210 MEUR and 325 MEUR. 2) Cost estimate if the plant were built now.

Estimates 1/5

Predictability is poor, so it is good to outline the future through scenarios

Solar Foods operates in a relatively large and fast-growing alternative protein market that the company is trying to penetrate in terms of sustainability, predictability and, later, cost efficiencies. The company's technology has been developed since its inception and the business has reached the scale-up stage. Due to the nature of the business, which is in the scaling and commercialization phase, the history of the company or even the history of the market does not provide any support for the forecasts. Our forecasts are therefore based on assumptions, the accuracy of which will only become clear over time. The key assumptions in our forecasts relate to the amount of future licensing revenue, licensing deal terms, future factory investments, gross margin on manufactured products, and grant funding. The lack of production capacity for hydrogen fermentation on a global scale is expected to remain a bottleneck limiting market growth for many years, with the result that Solar Foods' growth is likely to be uneven within the limits of production capacity.

Solar Foods does not currently have financial targets on which to base its business forecasts. However, as part of the strategy process in the fall of 2024, the company will clarify its strategy and set financial targets. As a result, our forecasts may not stand the test of time very well, which is important for investors to understand when interpreting them.

We estimate that, at current production levels, the final demand for Solar Foods' products is not particularly sensitive to changes in the macroeconomy. In terms of external factors, we consider the price and availability of financing to be the most relevant risks for the company, as they affect both Solar Foods' own investment capabilities and the willingness of potential licensing partners to invest.

To support our assessment of the risks and opportunities associated with Solar Foods' business, in addition to the baseline scenario in our forecasts, we have outlined a significantly more positive scenario (i.e. the company's financial targets are met) and a more negative scenario (i.e. scaling fails in the short term).

Hydrogen fermentation production capacity is the key driver of projections

We model Solar Foods' revenue through 2039 from its own production and licensing revenue. We model the company's own production on a plant-by-plant basis, based on plant investment, production costs, production utilization and the price of the final product. Licensing revenue is also linked to the price of the end product and the manufacturing capacity of the partners, but without a binding licensing agreement, the visibility of the longer-term development of this business is particularly weak. For simplicity, we model the company's production through a single microbe (Solein) for now, although we recognize the potential for products that serve new uses and price points. This will be particularly important as the story expands into precision fermentation, which has higher pricing potential in the future.

Drivers for income statement estimates

Estimate	Key parameters
Revenue	• Food revenue • Licensing revenue
Profitability	• Gross margin % (sales mix) • Number of personnel • Personnel costs per person • Other operating expenses relative to revenue • Development of R&D capitalization • Other operating income

Key figures of the forecast model

	Key metrics
Operational key figure	• Price of Solein sold per kg • Production cost of Solein per kg • Solein productivity (kg/m^3/h) • Size of bioreactors (m3) and the potential capacity • Production utilization (%)

Estimates 2/5

Forecasts for current year point to a reduction in losses

Solar Foods has not yet published its H1'24 figures, but the listing prospectus provided a glimpse of the company's performance at the beginning of the year. Production at the new Factory 01 started in April 2024 and the company has not yet been able to generate significant revenues in the first half of the year. Nevertheless, the company's estimated net loss for the period decreased to 2.5 MEUR from 4.0 MEUR in the comparison period. Despite the increased size and cost structure of the organization, the loss narrowed as other operating income increased. This income relates to grants received under the IPCEI funding decision. In the current year, a total of 9.3 MEUR has been received from these grants, providing a significant contribution to earnings and cash flow.

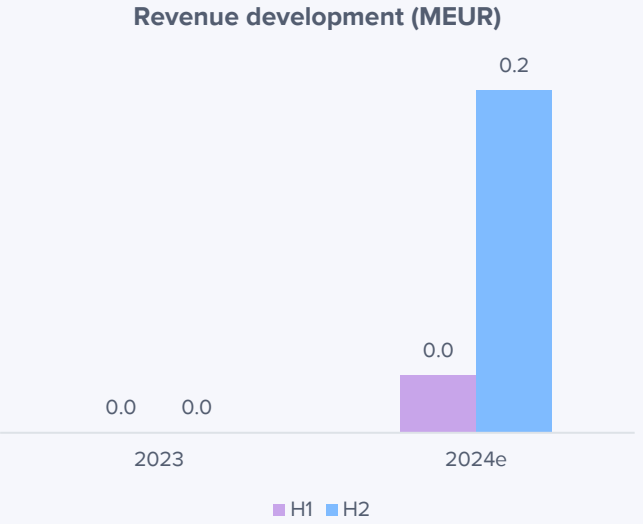
Solar Foods expects to launch its first Solein products in the US in the second half of this year. Our H2 revenue forecast is therefore set at 0.2 MEUR, supported by sales in the US and Singapore. Our H2 EBIT forecast is set at -3.6 MEUR, driven by an increased cost structure compared to H1. The IPCEI grants received at the current stage of development practically determine the level of profitability and cash flow. In addition to the IPCEI grants, the company expects to receive the remaining 0.12 MEUR from the ESTEC financing agreement in H2. According to our forecasts, cash flow in the current year will be higher than in the previous year due to lower investments and higher subsidies.

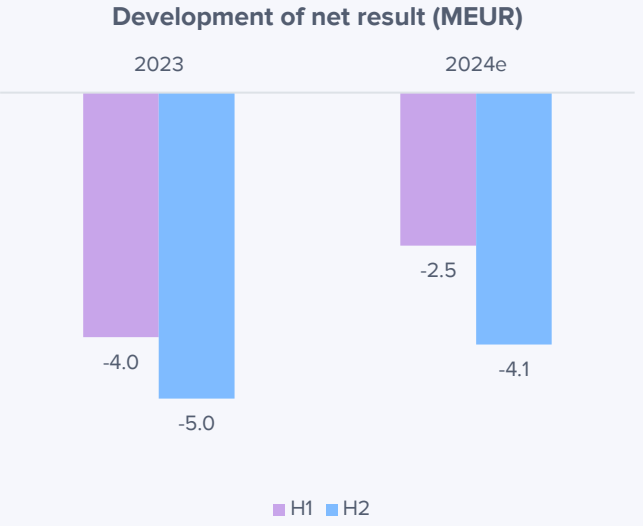
Despite the losses, Solar Foods estimates that it has sufficient cash resources for the next 12 months, which we believe is realistic. However, we estimate that the company will need to raise new funds within the next 2 years. The project, which is funded by a 33.6 MEUR Business Finland grant for the start-up and operation of Factory 01 and the preliminary design phases of Factory 02, will be completed by the end of 2025. As a result, until the end of 2025, the company may receive a grant for accrued expenses or depreciation of investments related to this financing decision, thereby limiting cash outflows for the time being.

2025-2028 to build the next phase of growth

From 2028-2027, the Solar Foods story will initially be built around opening new markets and increasing the production capacity of Factory 01. Once these are achieved, the focus shifts to the next factory investment and possible licensing agreements. In our forecasts for 2025-2026, growth will initially rely on the US market, but we believe the company can open up the Japanese market by the end of 2025 with Ajinomoto's support. The company will seek EU regulatory approval and FDA-notified GRAS status in the US to support sales in 2026.

In our forecasts, new product launches and market segments will enable sales growth and production at Solar Foods' Factory o1 will reach full capacity in H2'26. Our forecast is that the price per kilo of Solein will decline as supply increases, but demand from new markets will limit price erosion versus traditional protein sources. We expect the company to initially focus on product applications that allow for particularly high pricing in order to slow price erosion.





Estimates 3/5

In 2026-2027, Solar Foods' earnings level is expected to deteriorate as the current IPCEI grant expires in 2026. We expect the company to receive support under the new IPCEI funding decision for the design of Factory 02 as early as 2026, but we have allocated these items directly to the cash flow calculation with no impact on earnings to facilitate the assessment of their timing and impact. Another factor affecting performance is the growing size of the organization. As part of its growth phase, Solar Foods plans to double its headcount, in particular to strengthen its sales capabilities and create a Factory 02 design organization.

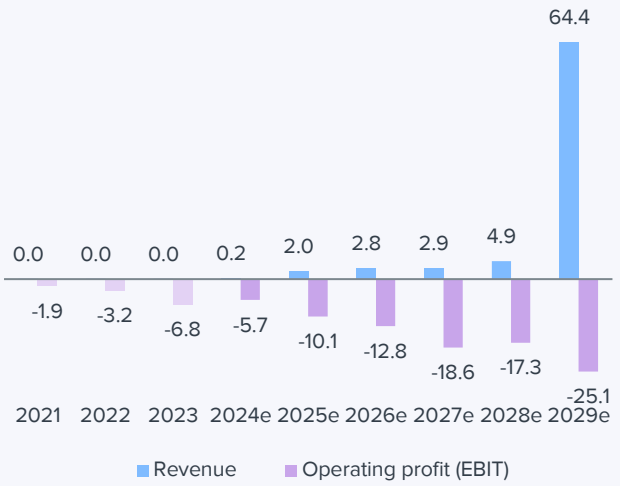
The investment decision for Factory 02 is expected to be made during 2026, and we forecast that the company will opt for a 6x200m^3 bioreactor plant in Europe, requiring an investment of just over 200 MEUR. We expect the company to self-finance the project with the remaining IPCEI allocation of 76 MEUR. The investment covers both the factory building and the electrolyser for hydrogen production, which is a good factor to take into account when assessing the financing gap. Operating in rented facilities and purchasing hydrogen from outside would significantly reduce the investment required. Given its balance sheet position, we do not see the company's ability to make the investment on its own without equity financing. As a result, we will, in principle, welcome it if a partner decides to contribute part or all of the funding for a project. Solar Foods has a letter of intent with a major global fermentation company to build an industrial-scale production facility, but at this time we have no visibility on the likelihood, terms or timing of its realization.

We forecast that Factory 02 will be completed by the end of 2028. Around the same time, we expect the company to record its first licensing revenue of 2 MEUR related to the upfront payment for the first project. In our view, the customer for the licensing business could be either an aerospace company or a primary food production company that has expanded into hydrogen fermentation. We expect licensing revenue growth to be uneven, within the limits of upfront payments for new projects and the existing production capacity of the partner network. We expect licensing revenue to be close to break-even at the margin level due to limited variable costs.

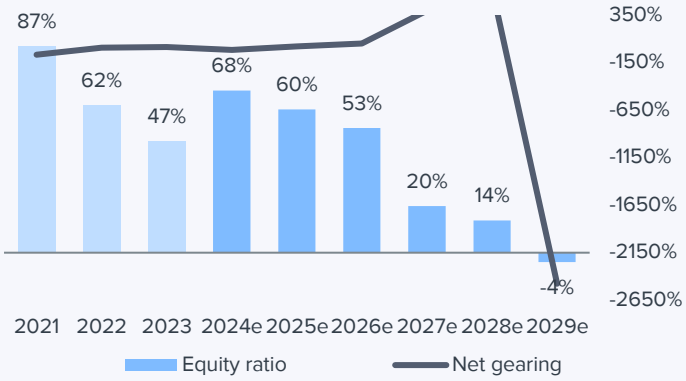
Balance sheet weakens with the investment cycle

In our forecasts, the company's balance sheet is strengthened by the share issue organized by Springvest this year. We have also included in our 2024 projections the impact of the exercise of existing options to reflect the resulting dilutive effect, which will increase cash balances in 2024. The company's equity ratio is expected to remain at a good level in the coming years, bolstered by IPCEI support from Business Finland, but to deteriorate more rapidly from 2026 onwards due to preparatory costs related to the next factory investment. The longer investment cycle for the new plant, starting in 2027, will eat into the company's cash and weaken its balance sheet ratios. We have assumed that the company will raise the full 76 MEUR portion of the existing IPCEI notification between 2026 and 2028.

Revenue and profitability development (MEUR)



Develpment of balance sheet key figures



Estimates 4/5

In 2029, the balance sheet ratios will deteriorate significantly as the depreciation of the Factory 02 investment weighs on the balance sheet figures until the production capacity of Factory 02 reaches a sufficient level to allow a profitable result.

Estimates for 2029 to 2035

In 2029, the new Factory 02 will come online in our projections, but it will not reach its full 8,000 hours/year operation until 2031, which will drive earnings growth in that year. In our estimates, the production of Factory 02 will be sufficient to achieve a profitable operating result in 2030, but at the net income level we do not expect a profitable result until 2030.

We expect that full utilization will require a significant global sales effort and a gradual improvement in production. In our projections, Solein's growth rate will steadily increase with experience, but the benefits will not be realized until Factory 02, as productivity is not a bottleneck for increasing production volumes in Factory 01.

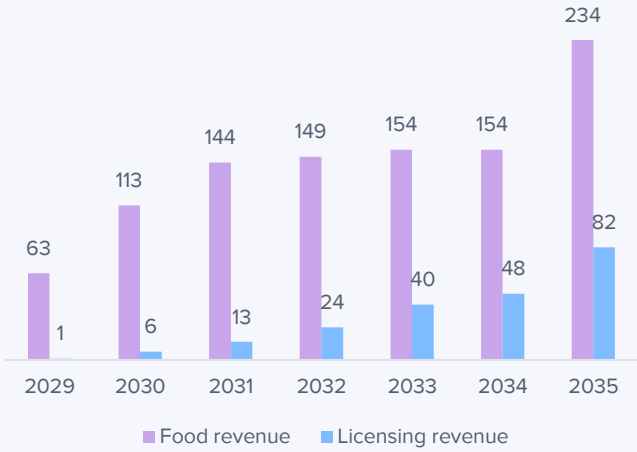
With the new plant, our estimates see the price per kilo of Solein falling from a high of EUR 15 in 2029 to below EUR 11 in 2031. The price development of traditional proteins and disruptive products plays a key role in the price erosion of Solar Foods' sales. Among competing technologies, we see precision fermentation as a particular threat. In the longer term, we believe that Solar Foods is poorly positioned to command a significant premium over precision-fermented foods (except in applications such as space, where the production method is important), so the cost curve for this technology is critical to future pricing power.

A key driver of the improving profit level from 2029 onwards is the strong growth in licensing revenue, which we forecast to be around 1 MEUR in 2029, but growing significantly thereafter. The licensing business does not put the same strain on Solar Foods' balance sheet or organization as ramping up its own production, allowing it to work on multiple projects simultaneously. However, the success of the licensing business and new partnerships will depend on the positive development of consumer demand and the high profitability of Solein's production.

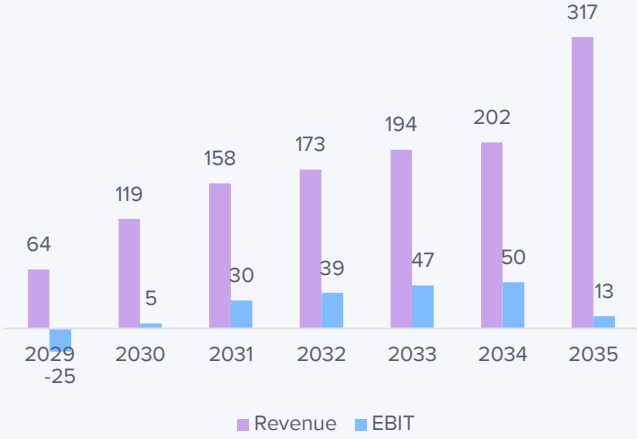
Despite the growth in revenue, depreciation and related costs from the commissioning of Factory 02 will lead to a deterioration in results until 2029, from which Solar Foods' results will recover as the fixed cost structure scales, driven by the increasing utilization of the new plant. At the same time, the new facility will drive down the average price per kilo of Solar Foods' production, and we expect that with the new industrial-scale factory, Factory 01 will increasingly shift from production to product and process development.

According to our forecasts, the next own factory investment is planned for 2032-2033. This plant will be twice the size of Factory 02 and will have a bioreactor capacity of 12x200m^3. The investment cost is around 245 MEUR (excluding working capital). The larger scale of the plant will allow Solein to be produced at a lower price point than at Factory 02 but will initially affect the profitability of the group as a whole.

Long-term revenue distribution MEUR)



Long-term revenue and earnings forecasts (MEUR)



Estimates 5/5

The big picture of the story

We forecast that by 2037, Solar Foods will have become a major global player in cellular agriculture, with sales of nearly 600 MEUR. In addition to Factory 01, the company has two industrial-scale production facilities with bioreactors totaling 18x200m^3. However, our forecasts require a significantly higher level of investment from the company's partners. Nearly 30% of the company's revenue will come from licensing at the end of the forecast period, which would require about 12 production facilities with a production capacity of 12x200m3 on the partners' balance sheets (assuming that Solar Foods' share of the partners' revenue from Solein sales averages 5% and that the partners' selling price is the same as Solar Foods').

This assumption does not separately take into account the space business, where Solar Foods' pricing power is stronger than in the traditional food industry, and which, if successful, will reduce the actual size of the partner network required for licensing revenue.

In our projections, the company will not reach its target of 2 kg/m^3/h for Solein growth and the figure will remain at 1.65 kg in our projections. This, along with higher production costs at the smaller Factory 01 and 02, are the main drivers between our forecasts and the company's target of EUR 2.8-3.1/kg produced.

At the end of the forecast period, the company will have a mature EBIT margin of over 30%, which is very high for a manufacturing company. The level is explained by the impact of high-margin licensing revenues and declining growth investments, as well as high barriers of entry in the industry. From an investor's perspective, it is important to note that our profitability projections are heavily dependent on licensing revenue, which the company does not currently have in place and which faces a number of challenges on the path to realization.

	2023	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	2034e	2035e	2036e	2037e
Group revenue (MEUR)	0	0	2	3	3	5	64	119	158	173	194	202	317	490	587
Revenue growth			942%	41%	4%	66%	1217%	85%	32%	9%	13%	4%	56%	55%	20%
Group EBIT (MEUR)	-7	-6	-10	-13	-19	-17	-25	5	30	39	47	50	13	87	181
EBIT-%		-2943%	-507%	-453%	-629%	-353%	-39%	5%	19%	22%	24%	25%	4%	18%	31%
Solein productivity (kg/m3/h)		1.00	1.03	1.08	1.10	1.20	1.30	1.35	1.40	1.45	1.50	1.50	1.50	1.60	1.65
Volume of Solein sold (tons)		6	80	137	146	146	4,228	10,046	13,516	13,996	14,476	14,476	23,937	38,983	47,587
Theoretical production capacity		160	160	160	160	160	13,826	14,351	14,877	15,402	15,928	15,928	47,464	50,618	52,194
Production capacity utilization		0%	50%	86%	91%	91%	31%	70%	91%	91%	91%	91%	50%	77%	91%
Price per kilogram of Solein sold (EUR/kg)		30.0	25.0	20.6	20.2	19.8	15.0	11.3	10.7	10.6	10.6	10.6	9.8	9.2	8.7
Production cost of Solein sold (EUR/kg)		81.9	44.2	35.0	35.0	35.0	12.4	7.2	5.1	4.6	4.6	4.6	6.7	5.4	3.8
Food production revenue (MEUR)		0	2	3	3	3	63	113	144	149	154	154	234	358	416
Licensing business revenue (MEUR)		0	0	0	0	2	1	6	13	24	40	48	82	132	171
Share of licensing in group revenue		0%	0%	0%	0%	41%	2%	5%	8%	14%	21%	24%	26%	27%	29%
Number of 12x200 m3 plants required for licensing[1]		0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.9	1.6	2.6	3.2	5.8	9.3	12.4

1) Assuming that the partner selling price is the same as Solar Foods' and that Solar Foods' commission is 5% of revenue.

Income statement

Income statement	2021	2022	2023	H1'24e	H2'24e	2024e	2025e	2026e	2027e
Revenue	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.2**	**2.0**	**2.8**	**2.9**
Food sales	0.0	0.0	0.0	0.0	0.2	0.2	2.0	2.8	2.9
Licensing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBITDA	**-0.9**	**-1.8**	**0.3**	**2.4**	**1.3**	**3.7**	**-0.3**	**-3.1**	**-11.0**
Depreciation	-1.0	-1.4	-7.1	-4.5	-4.9	-9.4	-9.9	-9.7	-7.5
EBIT (excl. NRI)	**-1.9**	**-3.2**	**-6.8**	**-2.0**	**-3.6**	**-5.7**	**-10.1**	**-12.8**	**-18.6**
EBIT	**-1.9**	**-3.2**	**-6.8**	**-2.0**	**-3.6**	**-5.7**	**-10.1**	**-12.8**	**-18.6**
Net financial items	-0.1	-2.2	-2.2	-0.5	-0.5	-1.0	-1.2	-1.2	-3.9
PTP	**-2.0**	**-5.4**	**-9.0**	**-2.5**	**-4.1**	**-6.7**	**-11.3**	**-14.0**	**-22.5**
Taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minority interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net earnings	**-2.0**	**-5.4**	**-9.0**	**-2.5**	**-4.1**	**-6.7**	**-11.3**	**-14.0**	**-22.5**
Net earnings	**-2.0**	**-5.4**	**-9.0**	**-2.5**	**-4.1**	**-6.7**	**-11.3**	**-14.0**	**-22.5**
EPS (adj.)			**-0.37**	**-0.10**	**-0.15**	**-0.25**	**-0.43**	**-0.53**	**-0.84**
EPS (rep.)			**-0.37**	**-0.10**	**-0.15**	**-0.25**	**-0.43**	**-0.53**	**-0.84**

Key figures	2021	2022	2023	H1'24e	H2'24e	2024e	2025e	2026e	2027e
Revenue growth-%	0.0 %	0.0 %	49.8 %		2704.7 %	3172.1 %	912.2 %	42.2 %	4.5 %
Adjusted EBIT growth-%		68.9 %	113.8 %		-46.7 %	-16.8 %	79.5 %	26.0 %	45.3 %
EBITDA-%	0.0 %	0.0 %	5561.8 %	8725.4 %	765.2 %	1902.3 %	-14.5 %	-108.7 %	-373.7 %
Adjusted EBIT-%				########	########	########	-511.1 %	-452.9 %	-629.4 %
Net earnings-%					########	########	-571.6 %	-495.4 %	-761.4 %

Source: Inderes

Balance sheet

Assets	2022	2023	2024e	2025e	2026e	2027e
Non-current assets	**23.2**	**30.3**	**26.6**	**23.4**	**20.0**	**123**
Goodwill	0.0	0.0	0.0	0.0	0.0	0.0
Intangible assets	5.6	9.5	11.1	12.5	13.2	15.5
Tangible assets	17.5	20.1	15.5	10.9	6.7	108
Associated companies	0.0	0.0	0.0	0.0	0.0	0.0
Other investments	0.0	0.0	0.0	0.0	0.0	0.0
Other non-current assets	0.1	0.7	0.0	0.0	0.0	0.0
Deferred tax assets	0.0	0.0	0.0	0.0	0.0	0.0
Current assets	**11.1**	**23.1**	**17.8**	**8.0**	**4.8**	**1.9**
Inventories	0.0	0.0	0.1	0.4	0.5	0.5
Other current assets	0.0	0.0	0.0	0.0	0.0	0.0
Receivables	1.7	6.7	0.0	0.2	0.3	0.3
Cash and equivalents	9.5	16.4	17.7	7.4	4.0	1.2
Balance sheet total	**34.3**	**53.4**	**44.4**	**31.5**	**24.8**	**125**

Source: Inderes

Liabilities & equity	2022	2023	2024e	2025e
Equity	**21.4**	**25.1**	**30.4**	**19.0**
Share capital	0.0	0.0	0.0	0.0
Retained earnings	-8.5	-17.5	-24.2	-35.5
Hybrid bonds	12.4	0.0	0.0	0.0
Revaluation reserve	0.0	0.0	0.0	0.0
Other equity	17.5	42.6	54.5	54.5
Minorities	0.0	0.0	0.0	0.0
Non-current liabilities	**12.1**	**18.9**	**14.0**	**12.0**
Deferred tax liabilities	0.0	0.0	0.0	0.0
Provisions	0.0	0.0	0.0	0.0
Interest bearing debt	12.1	18.9	14.0	12.0
Convertibles	0.0	0.0	0.0	0.0
Other long term liabilities	0.0	0.0	0.0	0.0
Current liabilities	**0.8**	**9.3**	**0.1**	**0.5**
Interest bearing debt	0.0	2.0	0.0	0.0
Payables	0.8	2.4	0.1	0.5
Other current liabilities	0.0	5.0	0.0	0.0
Balance sheet total	**34.3**	**53.4**	**44.4**	**31.5**

Valuation and recommendation 1/4

News flow and sentiment as key drivers of short-term share pricing

The Solar Foods investment story is initially built around the commercialization and scaling of Solein production. The key question in the short term is how quickly the company can find partners interested in Solein's production that would allow it to grow without the constraints of its own balance sheet. In the longer term, there may be very interesting developments in areas such as precision fermentation, space applications and new commercializable microbes. However, unlocking this potential requires overcoming the financial challenge of scaling up production technology.

With rising interest rates and a tighter financial environment, the business environment for scaling capital-intensive technologies has become more challenging. A continuation of the recent decline in interest rates as the economy holds up (a so-called *soft landing*) would be favorable for the company. In principle, this would increase the risk appetite of both investors and partners, and shift investors' attention away from short-term developments to the bigger picture and the potential of the story. In terms of future capital needs, a loose financial environment and a high share price will have a positive impact on the investments needed to implement the growth strategy. Given the early stage of Solar Foods' development and the negative earnings for years to come, we expect investor sentiment and news flow to be key drivers of the stock's performance.

In our view, as with other negative cash flow growth companies, the key to valuing Solar Foods is to assess 1) the value creation potential of the company's business, , 2) the likelihood of achieving that potential, and 3) the willingness of investors to price it. We also expect the valuation of the stock, and in particular the approved market pricing, to be sensitive to market conditions. In particular, investors' willingness to value companies on their long-term potential can vary significantly depending on factors such as interest rates and general risk appetite. The change in price horizon can also be very rapid, requiring owners to have a stomach acid tolerance.

Solar Foods will remain a loss-making growth company for a long time to come, so the expected return on the stock is dependent on (probably very volatile) price movements, and no dividends are expected in during this decade. As such, Solar Foods is only suitable for the portfolio of risk-tolerant and patient growth investors.

We have to look to the 2030s in terms of valuation multiples

The early stage of Solar Foods' development and the resulting poor financial figures for the next few years, which do not reflect the business potential, pose a number of challenges for the valuation of the stock. Given the limited revenue in the coming years, even revenue-based multiples do not provide support levels for the share price, making it difficult to approach share pricing by comparing valuation multiples to peers.

Valuation level	2024e	2025e	2026e
Share price	12.4	12.4	12.4
Number of shares, million	26.6	26.6	26.6
Market cap	329	329	329
EV	325	333	336
P/E (adj.)	neg.	neg.	neg.
P/E	neg.	neg.	neg.
P/B	10.8	17.3	25.2
P/S	>100	>100	>100
EV/Sales	>100	>100	>100
EV/EBITDA	87.2	neg.	neg.
EV/EBIT (adj.)	neg.	neg.	neg.
Dividend/earnings (%)	0.0%	0.0%	0.0%
Dividend yield-%	0.0%	0.0%	0.0%

Source: Inderes

Valuation and recommendation 2/4

In terms of the revenue-based valuation, the longer-term acceptable multiple for the stock is largely determined by the revenue mix, as the profitability potential is higher for licensing revenue and therefore this revenue in principle deserves a higher multiple. However, at the current stage of development, where Solein's manufacturing capacity is still limited and the company has not yet generated any licensing revenues, it is difficult to estimate the longer-term revenue mix.

The well-established balance sheet-based P/B ratio would be suitable as a single point of reference for valuation in a mature phase due to the capital-intensive nature of the business model, but the need for investment in the coming years and the loss-making profit level undermines the usability of this ratio. However, in the mature phase of the business, we believe that a clear balance sheet-based premium pricing is justified due to the high return on capital potential.

EV-based earnings multiples can be used to estimate expected returns

In our view, EV-based earnings multiples are the best way to conceptualize a stock's expected return, as they take into account the relative profitability of revenue and the net debt that will accumulate over the coming investment cycle. Relying on these multiples, however, requires looking beyond the investment cycle, as significant investment boosts the numerator of the multiplier almost immediately, but the full impact of factory investment is not fully reflected in the denominator until production reaches full capacity, with a lag of several years. Due to investment cycles, EV-based multiples are most appropriate in our projections for 2031-2032 and 2037, when the company's production has reached full capacity and higher-than-usual investments do not boost the enterprise value.

Using EV-based pricing, we see that achieving an attractive expected return from current levels in our 2032 projections requires 1) successful scaling of the business and 2) the market's willingness to price Solar Foods at a premium to traditional manufacturing and food companies. Given the significant undercutting in the industry, we believe that premium pricing is justified in a situation where production can be successfully scaled up and Solein's market fit is proven. However, based on our 2032 projections, we believe the expected return from current levels remains weak relative to the company's risk profile.

In the baseline case of our forecasts, the business is clearly value-creating and there are plenty of growth opportunities for the company for a long time, but it is only in the 2037s that our earnings-based valuation supports the earnings expectations in the valuation multiples. Given the early stage of development of cellular agriculture, the company could still have a long and attractive growth outlook through 2037, which would support the valuation. Because of the risks associated with reaching this position, the expected return becomes very binary in nature. Using our baseline projections, an interesting expected return can be drawn from current levels to 2037, but relying on these numbers requires considerable patience and a strong belief in both the industry growth outlook and the Solar Foods team.

Expected annual return on Solar Foods stock at various multiples and support levels

EV/Sales	2032	EV/EBIT	2032
1	-8%	7	-2%
1.5	-3%	10	2%
2	1%	13	6%
2.5	4%	16	8%
3	6%	19	11%
3.5	8%	22	13%
4	10%	25	15%

EV/Sales	2037	EV/EBIT	2037
1	5%	7	11%
1.5	8%	10	14%
2	10%	13	16%
2.5	12%	16	18%
3	14%	19	20%
3.5	15%	22	21%
4	16%	25	22%

Valuation and recommendation 3/4

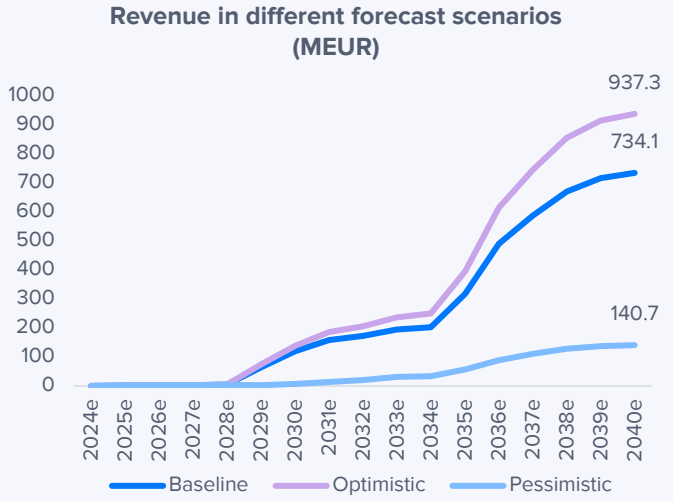
Our DCF model covers three different scenarios

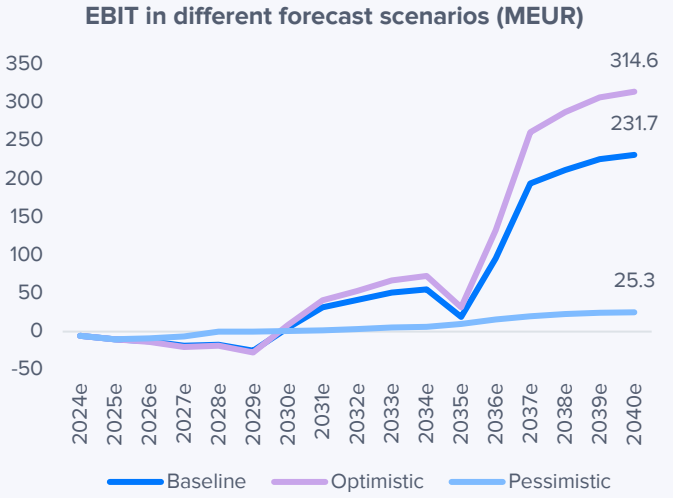
In valuing Solar Foods, the DCF model illustrates the long-term potential, and our model exceptionally extends to 2040 due to the early stage of the business. Given the very wide range of possible outcomes for Solar Foods' future, we approach the DCF modeling through three scenarios. At the current stage of development, the model's assumptions are particularly uncertain, as the cash flows are concentrated more than a decade ahead, so it does not provide a clear basis for short-term valuation.

The baseline scenario is consistent with our current projections, which we have detailed in the Estimates section of the report. The equity value for Solar Food according to the DCF model in the baseline scenario is 239 MEUR or EUR 9.0 per share.

In the optimistic scenario, the price per kilo of Solein remains higher than in the baseline scenario, supported by the company's product development innovations (e.g. Solein processing, new microbes and precision fermentation). This will support both food production and licensing income, resulting in a 28% increase in revenue compared to our baseline scenario and a 36% increase in EBIT. This growth is driven by pricing and licensing revenue, as in our optimistic scenario the company's own production capacity is based on Factory 01, 02 and 03, as in the baseline scenario. The value per share in this scenario is EUR 15.1. In the scenario, Solar Foods' revenue is more heavily weighted toward licensing than in the baseline, which increases the company's relative profitability and return on capital. In our view, this scenario does not fully reflect the potential for precision fermentation that the success of the HYDROCOW project would offer, but at this stage of development we recognize it as a positive option. The scenario also does not take into account the possibility of better-than-expected cash availability, which could allow for the construction of a larger-than-projected Factory 02. In this case, the company would be able to scale up production faster than the scenarios outlined and achieve lower production costs than our projections due to the plant's economies of scale.

In our pessimistic scenario, the financial environment tightens, and Solar Foods does not receive funding for the Factory 02 investment. The company's remaining 76 MEUR share of the IPCEI notification will remain unused and the company will have to reduce its cost structure and focus its business entirely on licensing. In this scenario, the company's revenue remains at about 81% of our baseline and consists of licensing revenue and the sale of production from Factory 01. Despite the high relative share of licensing revenue, the company's EBIT of 18% remains lower than in the other scenarios. In the pessimistic scenario, despite the high margins of the licensing business, it is practically the only source of support for the group's fixed cost structure. In this scenario, however, the company manages to turn around its earnings and does not become a takeover target due to a weak negotiating position, which we see as another possible outcome in a very negative scenario. In the negative scenario, Solar Foods is valued at EUR 2.1 per share.





Valuation and recommendation 4/4

Investors must be compensated for high risk

Due to Solar Foods' early stage of development and future financing needs, the range of possible scenarios is very broad and the risk profile is high. To counterbalance for the high level of risk, we believe the investor should also set the required return high. Due to the perceived need for investment and the years of cash flow ahead, the value of the shares is sensitive to changes in the required return, which is also reflected in the sensitivity analysis of the DCF model.

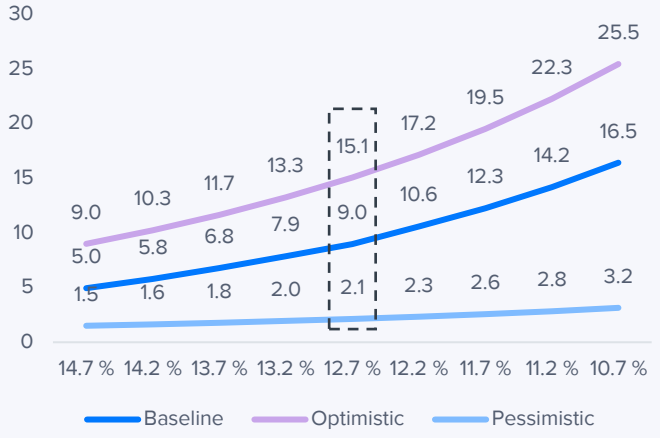
The required rate of return is a subjective estimate that will change over time as the business evolves and is driven by external factors. We estimate that downward pressure on Solar Foods' risk level, and thus its required return, could come from, for example, a partner's decision to invest in hydrogen fermentation capacity on the company's behalf, or a decision on new government subsidies for the company that would bring the company closer to a positive earnings level. External factors such as falling interest rates, increased risk appetite among investors, etc. can also reduce the company's required return. Similarly, the risk level would be increased by the opposite factors: setbacks in the commercialization of Solein, lack of news flow on other projects, faster-than-expected cash burn, rising interest rates and a decline in investor risk appetite.

Given the risk level of Solar Foods, we have set the cost of equity at 17.8%, which is high compared to other companies in our coverage and reflects the high risk profile of the company's equity. However, the weighted average cost of capital (WACC), which takes into account perceived leverage and low-cost debt, is at a moderate level of 12.7% relative to the risk profile. As grants and loans are likely to play a very central role in scaling the business, the company's ability to continue to access low-cost financing is a critical factor in the WACC.

Valuation summary

We initiate our coverage of Solar Foods with a target price of EUR 11.0 and a Sell recommendation. The valuation of a stock will be based on highly uncertain assumptions for a long time to come, resulting in significant differences between the scenarios of the DCF models. This is also reflected in our view of the stock's fair value, which is a very broad EUR 2-15 based on our DCF scenarios. At the bottom of the range, the company's current growth strategy fails, and the company is effectively forced to completely reverse the direction of its business, leaving expected return weak. In our other scenarios, the company emerges as a significant value creator that has overcome the industry's financing challenge with an attractive long-term investment outlook. In our positive scenario, the fair value of the stock is the current price level, but in our other scenarios, it is significantly lower. As a result, we believe that the current price level is already over-pricing a positive scenario, making the stock's risk/reward ratio weak. We note that setting a target price for a company like Solar Foods is challenging, as we believe that news flow and market sentiment will drive expected returns over the 12-month horizon. As a result, investors should focus on the performance and prospects of the company and the industry as a whole.

Sensitivity of the DCF value to the required return,
EUR per share, WACC-%



Peer group valuation

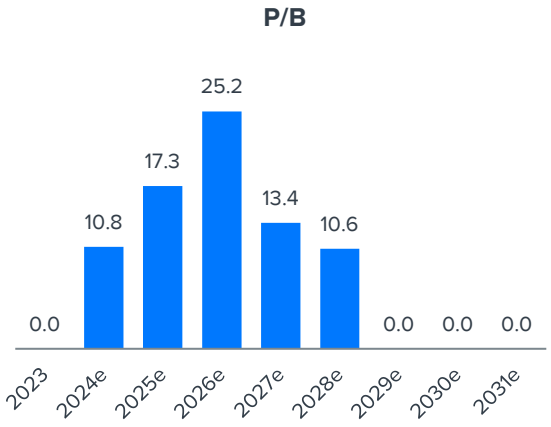
Peer group valuation	Market cap	EV	EV/S		Revenue growth-%		EBIT-%		P/B
Company	**MEUR**	**MEUR**	**2024e**	**2025e**	**2024e**	**2025e**	**2024e**	**2025e**	**2024e**
Aiforia	117	113	33.3	21.5	41 %	71 %	-358 %	-204 %	7.2
Betolar	25	20	20.4	5.1	0 %	300 %	-700 %	-125 %	2.9
Bioretec	52	52	10.0	7.1	33 %	51 %	-73 %	-35 %	39.0
Nightingale	210	144	30.5	18.0	13 %	85 %	-378 %	-202 %	3.2
Solar Foods (Inderes)	**329**	**325**	**1657.9**	**168.0**	**3172 %**	**912 %**	**-2883 %**	**-511 %**	**10.8**
Average			**23.5**	**12.9**	**0.2**	**1.3**	**-3.8**	**-1.4**	**13.1**
Median			**25.4**	**12.6**	**0.2**	**0.8**	**-3.7**	**-1.6**	**5.2**
Diff-% to median			***6419 %***	***1238 %***	***13653 %***	***1069 %***	***684 %***	***213 %***	***108 %***

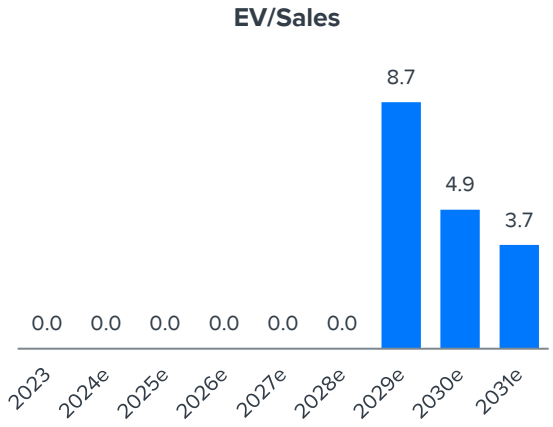
Source: Refinitiv / Inderes

Valuation table

Valuation	2023	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e
Share price		12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
Number of shares, millions	24.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6	26.6
Market cap		329	329	329	329	329	329	329	329
EV		325	333	336	427	525	562	586	579
P/E (adj.)	0.0	neg.	neg.	neg.	neg.	neg.	neg.	neg.	26.8
P/E	0.0	neg.	neg.	neg.	neg.	neg.	neg.	neg.	26.8
P/B	0.0	10.8	17.3	25.2	13.4	10.6	neg.	neg.	neg.
P/S	0.0	>100	>100	>100	>100	67.2	5.1	2.8	2.1
EV/Sales		>100	>100	>100	>100	>100	8.7	4.9	3.7
EV/EBITDA		87.2	neg.	neg.	neg.	neg.	neg.	29.4	11.4
EV/EBIT (adj.)		neg.	neg.	neg.	neg.	neg.	neg.	>100	19.0
Payout ratio (%)	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Dividend yield-%		0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Source: Inderes





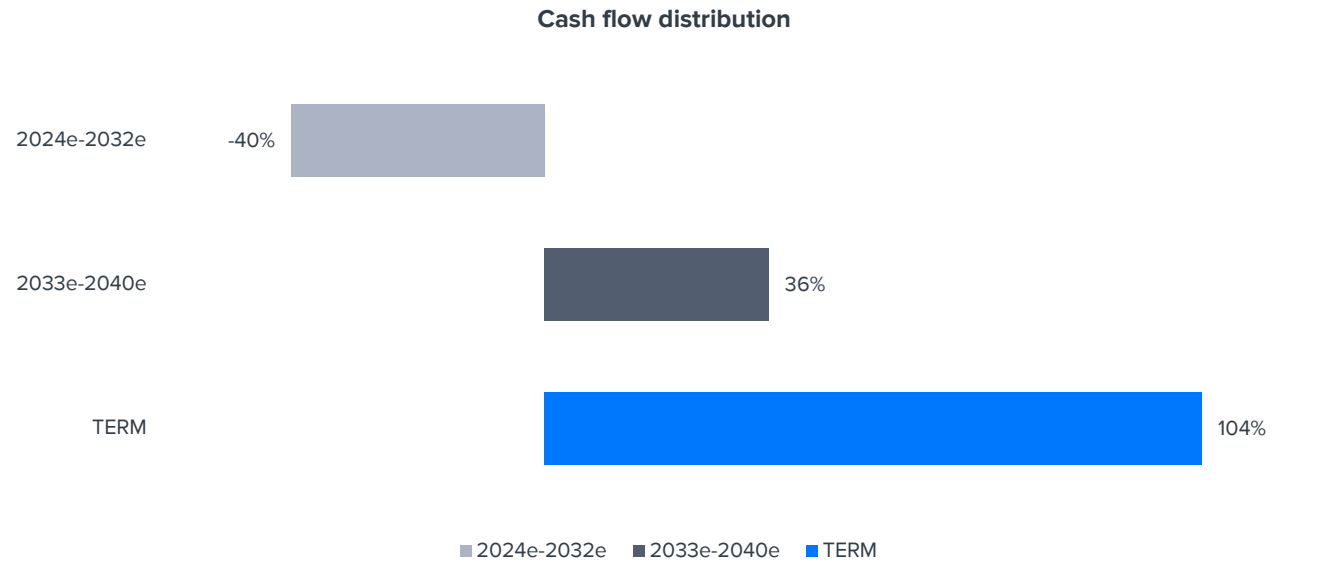
DCF calculation

DCF model	2023	2024e	2025e	2026e	2027e	2028e	2029e	2030e	2031e	2032e	2033e	2034e	2035e	2036e	2037e	2038e	2039e	2040e	TERM
Revenue growth-%	49.8 %	3172.1 %	912.2 %	42.2 %	4.5 %	65.8 %	1217.3 %	84.8 %	32.5 %	9.5 %	12.6 %	4.2 %	56.4 %	54.9 %	19.7 %	14.0 %	7.0 %	2.5 %	2.5 %
EBIT-%	-113419.2 %	-2882.9 %	-511.1 %	-452.9 %	-629.4 %	-352.9 %	-38.9 %	3.7 %	19.3 %	22.6 %	24.2 %	24.9 %	3.5 %	16.9 %	30.2 %	31.7 %	31.6 %	31.6 %	31.6 %
EBIT (operating profit)	**-6.8**	**-5.7**	**-10.1**	**-12.8**	**-18.6**	**-17.3**	**-25.1**	**4.4**	**30.5**	**38.9**	**47.1**	**50.4**	**10.9**	**83.0**	**177**	**212**	**226**	**232**	
+ Depreciation	7.1	9.4	9.9	9.7	7.5	7.2	17.7	15.5	20.4	20.4	20.1	19.7	37.9	37.1	37.6	38.3	38.9	39.7	
- Paid taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-4.7	3.9	-10.6	-30.5	-39.5	-44.3	-46.3	
- Tax, financial expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.9	-5.3	-6.1	-6.0	-4.9	-2.9	-0.9	0.0	
+ Tax, financial income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Change in working capital	1.4	-0.6	-0.1	-0.1	0.0	-0.2	-4.8	-4.4	-1.7	0.2	-0.3	-0.7	-7.1	-10.7	-6.4	-3.2	-0.6	-1.0	
Operating cash flow	**1.8**	**3.1**	**-0.4**	**-3.1**	**-11.0**	**-10.2**	**-12.2**	**15.5**	**49.2**	**59.6**	**63.0**	**59.3**	**39.6**	**92.9**	**173**	**205**	**219**	**224**	
+ Change in other long-term liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Gross CAPEX	-14.2	-5.7	-6.6	-6.3	-110.8	-110.5	-9.9	-21.7	-23.9	-18.5	-138.0	-136.4	-23.3	-25.0	-27.7	-29.3	-44.5	-44.9	
Free operating cash flow	**-12.4**	**-2.6**	**-7.1**	**-9.4**	**-121.8**	**-120.7**	**-22.0**	**-6.2**	**25.2**	**41.0**	**-75.0**	**-77.2**	**16.3**	**67.9**	**145**	**175**	**175**	**179**	
+/- Other	0.0	11.9	0.0	8.0	34.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FCFF	-12.4	9.3	-7.1	-1.4	-87.8	-86.7	-22.0	-6.2	25.2	41.0	-75.0	-77.2	16.3	67.9	145	175	175	179	1796
Discounted FCFF		**8.9**	**-6.1**	**-1.0**	**-59.1**	**-51.8**	**-11.7**	**-2.9**	**10.5**	**15.2**	**-24.6**	**-22.5**	**4.2**	**15.5**	**29.5**	**31.6**	**27.9**	**25.4**	**255**
Sum of FCFF present value		244	235	241	242	301	353	365	367	357	342	366	389	385	369	340	308	280	255

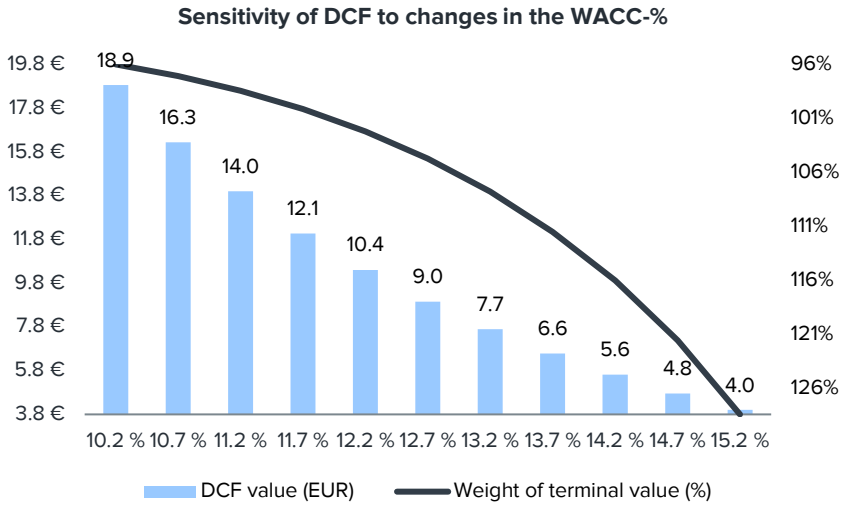
Enterprise value DCF	**244**
- Interest bearing debt	-20.9
+ Cash and cash equivalents	16.4
-Minorities	0.0
-Dividend/capital return	0.0
Equity value DCF	**239**
Equity value DCF per share	**9.0**

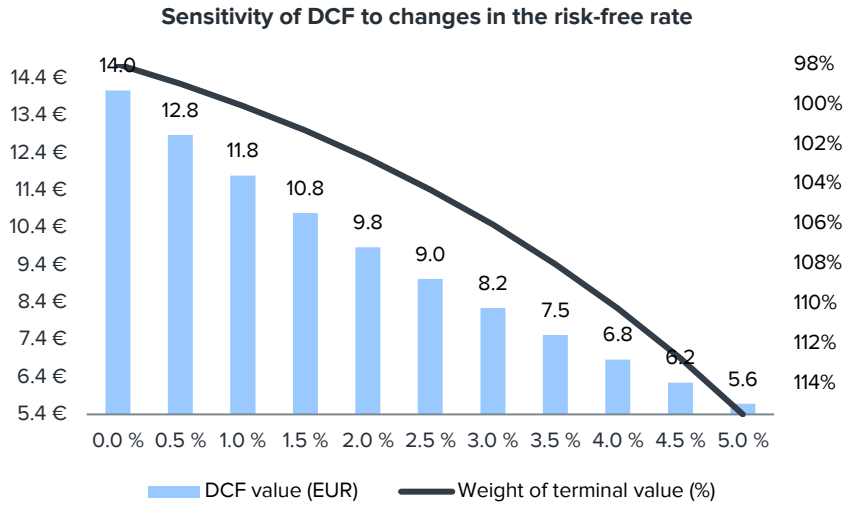
WACC	
Tax-% (WACC)	20.0 %
Target debt ratio (D/(D+E)	40.0 %
Cost of debt	6.5 %
Equity Beta	3.00
Market risk premium	4.75%
Liquidity premium	1.00%
Risk free interest rate	2.5 %
Cost of equity	**17.8 %**
Weighted average cost of capital (WACC)	**12.7 %**

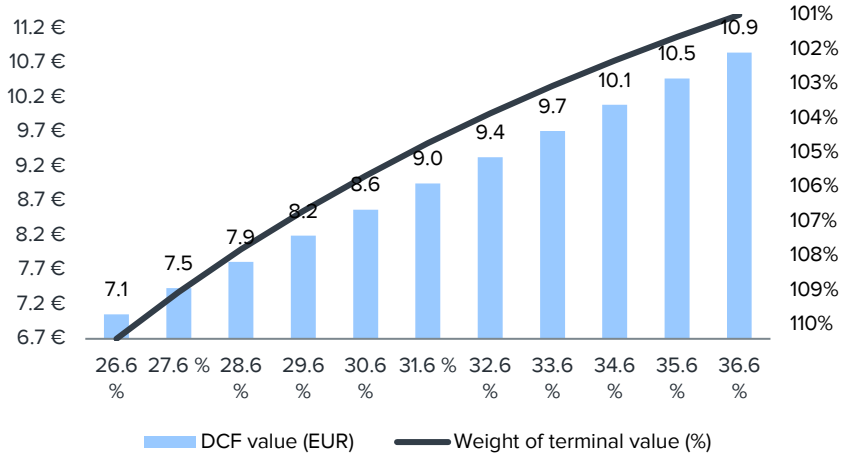
Source: Inderes

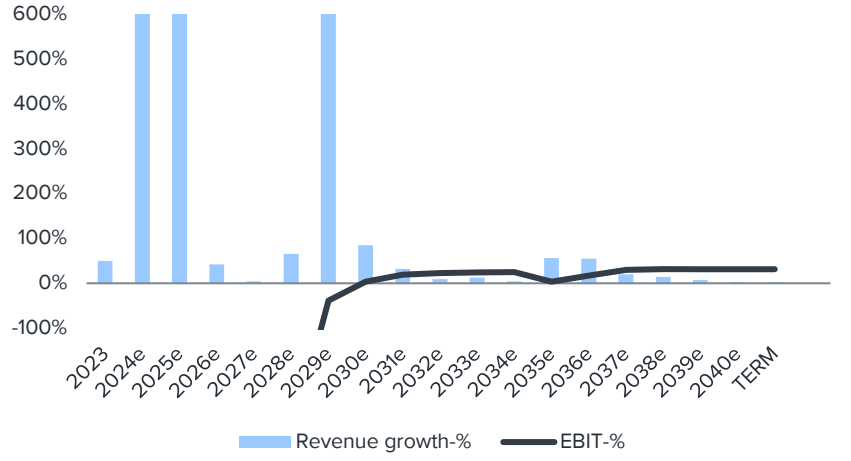


DCF sensitivity calculations and key assumptions in graphs









Source: Inderes. Note that the weight of the terminal value (%) is shown on an inverse scale for clarity.

Summary

Income statement	2021	2022	2023	2024e	2025e
Revenue	0.0	0.0	0.0	**0.2**	**2.0**
EBITDA	-0.9	-1.8	0.3	**3.7**	**-0.3**
EBIT	-1.9	-3.2	-6.8	**-5.7**	**-10.1**
PTP	-2.0	-5.4	-9.0	**-6.7**	**-11.3**
Net Income	-2.0	-5.4	-9.0	**-6.7**	**-11.3**
Extraordinary items	0.0	0.0	0.0	**0.0**	**0.0**

Balance sheet	2021	2022	2023	2024e	2025e
Balance sheet total	30.1	34.3	53.4	**44.4**	**31.5**
Equity capital	26.2	21.4	25.1	**30.4**	**19.0**
Goodwill	0.0	0.0	0.0	**0.0**	**0.0**
Net debt	-16.5	2.7	4.6	**-3.7**	**4.6**

Cash flow	2021	2022	2023	2024e	2025e
EBITDA	-0.9	-1.8	0.3	**3.7**	**-0.3**
Change in working capital	-0.1	-0.7	1.4	**-0.6**	**-0.1**
Operating cash flow	-1.0	-2.5	1.8	**3.1**	**-0.4**
CAPEX	-10.6	-15.0	-14.2	**-5.7**	**-6.6**
Free cash flow	-11.6	-17.5	-12.4	**9.3**	**-7.1**

Valuation multiples	2021	2022	2023	2024e	2025e
EV/S				**>100**	**>100**
EV/EBITDA				**87.2**	**neg.**
EV/EBIT (adj.)				**neg.**	**neg.**
P/E (adj.)			0.0	**neg.**	**neg.**
P/B	0.0	0.0	0.0	**10.8**	**17.3**
Dividend-%				**0.0 %**	**0.0 %**

Source: Inderes

Per share data	2021	2022	2023	2024e	2025e
EPS (reported)			-0.37	**-0.25**	**-0.43**
EPS (adj.)			-0.37	**-0.25**	**-0.43**
OCF / share			0.07	**0.12**	**-0.02**
FCF / share			-0.51	**0.35**	**-0.27**
Book value / share			1.02	**1.14**	**0.71**
Dividend / share	0.00	0.00	0.00	**0.00**	**0.00**

Growth and profitability	2021	2022	2023	2024e	2025e
Revenue growth-%	0%	0%	50%	**3172%**	**912%**
EBITDA growth-%		108%	-118%	**1019%**	**-108%**
EBIT (adj.) growth-%		69%	114%	**-17%**	**79%**
EPS (adj.) growth-%				**-32%**	**70%**
EBITDA-%	-21662.8 %	-45068.8 %	5561.8 %	**1902.3 %**	**-14.5 %**
EBIT (adj.)-%	-47056.8 %	-79456.2 %	-113419.2 %	**-2882.9 %**	**-511.1 %**
EBIT-%	-47056.8 %	-79456.2 %	-113419.2 %	**-2882.9 %**	**-511.1 %**
ROE-%	-15.3 %	-22.7 %	-38.7 %	**-24.0 %**	**-45.9 %**
ROI-%	-12.9 %	-10.1 %	-17.1 %	**-12.5 %**	**-26.9 %**
Equity ratio	87.1 %	62.3 %	47.1 %	**68.3 %**	**60.4 %**
Gearing	-63.0 %	12.4 %	18.1 %	**-12.2 %**	**24.1 %**

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Recommendation history (>12 mo)

Date	Recommendation	Target	Share price
9/12/2024	Sell	11.00 €	12.35 €

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